



INDIGENOUS KNOWLEDGE AND SUSTAINABLE DEVELOPMENT



Editors:
Tom Kwanya, Peter Matu

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The Technical University of Kenya • Nairobi, Kenya

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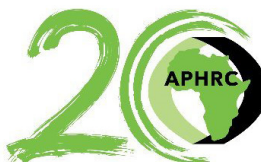
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We extend our heartfelt gratitude to the sponsors whose generous support made the 3rd International Conference on Information and Knowledge Management on 4-6 October 2023 in Nairobi, Kenya, a resounding success. Your commitment to advancing research and innovation in this critical field has been instrumental in facilitating meaningful dialogue, fostering collaboration, and empowering knowledge sharing among global stakeholders. Your contributions have not only enriched the conference experience but have also helped us create a platform for addressing pressing challenges and harnessing emerging opportunities in indigenous knowledge management.

First and foremost, we thank the leadership of the Technical University of Kenya (TU-K), especially the Vice-Chancellor, Prof. Dr.-Ing. Benedict Mutua, for supporting, attending and officially opening the conference. We are also grateful to other partners and sponsors, including the National Museums of Kenya (NMK), Natural Products Industry (NPI) Initiative, African Population and Health Research Centre (APHRC), Kenya Film Commission (KFC) and Kenya Commercial Bank (KCB) for mobilising the resources and ideas needed to organise and host the conference.

We would also like to express our most profound appreciation to our esteemed keynote speakers, Prof. Elizabeth Kiondo and Prof. Peter Heisig. Your inspiring address not only set the tone for the conference but also provided invaluable insights into the latest trends, developments, and future directions in indigenous knowledge management. Your unique expertise, passion, and vision have left an indelible mark in our minds, inspiring the delegates to explore new frontiers and push the boundaries of indigenous knowledge innovation and repackaging into commercial products, popularisation, and sustainability. Your presence was a source of inspiration and motivation for all participants, and we are truly grateful for your invaluable and unique contribution to the success of the event.

To our distinguished guest speakers, Prof. Dennis Ocholla, Dr. Evans Taracha, Dr. Daniel Ochiel and Dr. Julius Sindi, delegates, session chairs, panellists, editors, reviewers, and exhibitors, we extend our sincere gratitude for your invaluable contributions to the conference. Your expertise, scholarly rigour, and enthusiastic participation enriched the discourse, sparked new ideas, and catalysed meaningful collaborations. Your dedication, passion, and commitment to excellence were the driving force behind the success of this event, and we are deeply grateful for your unwavering support. Together, we have created a vibrant and dynamic forum for advancing indigenous knowledge, fostering innovation, and shaping the future of information and knowledge management.

Organising a conference of this stature is a challenging feat. We appreciate the work of the diligent and dedicated members of the conference organising committee and secretariat, whose tireless efforts and unwavering commitment were instrumental in bringing the conference to successful fruition. From meticulous planning and coordination to seamless execution and logistical support, your expertise, passion, and attention to detail ensured the smooth functioning of every aspect of the conference. Your contributions behind the scenes were the cornerstone of the conference's success, and we are deeply grateful for your exemplary leadership, dedication, and hard work in making this event a memorable and impactful experience for all participants.

Editors

PREFACE

This book is an output of the 3rd International Conference on Information and Knowledge Management, which was held on 4th – 6th October 2023 at the Sarova Stanley Hotel in Nairobi, Kenya. The theme of the conference was: **Attaining Sustainable Development Goals through Indigenous Knowledge**. The conference provided a forum for scholars, practitioners, policymakers, development planners, and other stakeholders to explore how the readily available indigenous knowledge can best be applied to the realisation of the development agenda in Africa. Of particular interest were discussions on how indigenous knowledge can support the realisation of Sustainable Development Goals (SDGs), Kenya’s Vision 2030 and the “Big 4 Agenda”. The delegates shared best practices, case studies, lessons learned, success stories, strategies and innovations on how indigenous knowledge can be used to enhance food security; strengthen national and regional efforts on environmental conservation and response to climate change; improve healthcare; increase access to renewable energy; promote gender equality; stimulate societal transformation; facilitate national cohesion and integration; support sustainable human settlement; stimulate locally relevant innovations; and improve the livelihoods of communities.

The book has sixty (60) double-blind peer-reviewed papers categorised into eleven (11) sections: Traditional Medicine and Healthcare; Indigenous Knowledge and Intellectual Property Rights; Indigenous knowledge and Education; Indigenous Languages and Communication; Indigenous Knowledge and Food Security; Indigenous Knowledge, Environmental Conservation and Climate Change; Indigenous Knowledge, Agriculture and Sustainable Development; Curation and Preservation of Indigenous Knowledge; Indigenous knowledge and Gender Equality; Indigenous Arts, Music, Drama, Theatre and Societal Transformation; and Indigenous Knowledge and Ethics.

This book is not just a collection of academic papers, but a practical guide that encapsulates interdisciplinary insights, culturally sensitive approaches, and actionable strategies at the intersection of indigenous knowledge and global sustainability imperatives. By weaving together a rich tapestry of indigenous perspectives, case studies, and best practices, this comprehensive volume not only deepens understanding and appreciation of indigenous knowledge systems but also equips policymakers, researchers, and development practitioners with the tools to integrate them into the pursuit of the SDGs. It offers a roadmap for harnessing indigenous knowledge in crafting inclusive, resilient, and environmentally sustainable solutions to contemporary challenges, thereby advancing the shared aspiration of leaving no one behind on the path to a more equitable and sustainable future.

We extend our heartfelt gratitude to you for your interest in this important discourse. We hope that this book will provide you with valuable insights and inspire you to further explore the role of indigenous knowledge in achieving sustainable development goals.

Prof Tom Kwanya & Prof Peter M. Matu

Nairobi, Kenya

May 2024

FOREWORD

A symphony of traditions, know-how and practices blends with the natural rhythms throughout Africa's vast and varied landscapes into a rich bouquet of indigenous knowledge. Just as the abundance of its natural riches so is Africa's collective knowledge and ancestry of its indigenous peoples. Africa's indigenous knowledge systems have supported communities for millennia, providing profound insights into the delicate balance between human and ecological needs. These knowledge systems can be found everywhere in the continent, from the vibrant shores of the Cape to the sun-kissed savannas of East Africa to the lush rainforests of the Congo Basin.

Through the amazing pages of this book, we take a trip across Africa to explore the varied forms of indigenous knowledge and its transformative potential within the framework of sustainable development goals. We explore a world where traditional practices and contemporary issues converge, and where age-old indigenous knowledge illuminates the path towards a more just, resilient, and peaceful future exemplified by social development, environmental sustainability, economic development, equality and justice, and mutually-beneficial global partnerships.

This book is a celebration of Africa's indigenous knowledge, demonstrating its flexibility, resiliency, and continued relevance in the face of modern socioeconomic developmental challenges. However, in the framework of mainstream development paradigms, Africa's indigenous knowledge systems have frequently been marginalised, disregarded, or even actively suppressed, despite their enormous value. This has caused cycles of poverty, inequality, and environmental degradation to continue, in addition to eroding indigenous knowledge and traditions.

It is time to steer clear of this and acknowledge the intrinsic worth of Africa's traditional knowledge systems and incorporate them into our endeavours to create a more inclusive and sustainable future for all. This book serves as a witness to that vision—a vision of a continent in which indigenous peoples' voices are acknowledged and valued and in which their knowledge is honoured and used to the advantage of both current and future generations.

We will travel across Africa in the upcoming chapters, examining the various expressions of traditional knowledge and how they are applied in sectors such as traditional medicine and healthcare, indigenous education, indigenous languages, indigenous agriculture and food security, environmental conservation and climate change, gender equality, and indigenous arts, drama, music and theatre. However, it is important to point out that this work goes beyond simple academic research or scholarly investigation. It is a call to action to mainstream Africa's indigenous knowledge and peoples to steer the continent in the direction of a more sustainable future. It serves as a reminder that real growth needs to be rooted in respect for cultural diversity, environmental integrity, and social justice.

I do not only wish you an enjoyable reading, I urge you to turn the chapters into lessons which can apply and share as widely as possible to change your communities.

Prof. Elizabeth Kiondo

Independent Trainer, Researcher and Consultant

SECTION ONE:
TRADITIONAL
MEDICINE AND
HEALTHCARE

1. Application of traditional medicine to mitigate diseases and ailments in Elgeyo Marakwet County, Kenya

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Abstract

There is an upsurge in the demand for herbal and traditional remedies for various ailments amongst communities in Kenya and internationally. The upsurge has been necessitated by the high cost of conventional modern medicine, inadequacies in public health service delivery and the ineffectiveness of conventional medicines. This study aimed to investigate the application of traditional medicine to manage diseases and ailments among the natives of Elgeyo Marakwet County in Kenya. The study's specific objectives were to identify and document traditional herbs which grow in the Kerio Valley, explore indigenous knowledge used by the natives to administer the traditional herbs in palliative care and treatment of diseases and ailments and propose a framework for the preservation of indigenous knowledge for future generations. The study employed correlation analysis through a literature review to collect data on traditional medicine. The application of indigenous knowledge in administering the traditional medicine in Kerio Valley and other parts of the country. The study has documented traditional herbs of medicinal value in Kerio, Elgeyo Marakwet County, and consolidated the application of indigenous knowledge about their existence, use and awareness of their availability. The originality of this paper is reflected in the context, methodology and the subject under study for practical application by medical and herbal professionals and locals.

Keywords: *Indigenous knowledge, herbal medicine, traditional medicine, Kerio Valley, Elgeyo , Kenya*

1 Introduction

Traditional medicine is defined as “the sum total of the knowledge, skill and practices based on the theories, beliefs and experiences indigenous to different cultures, explainable or not, in health maintenance, diagnosis, prevention or treatment of physical and mental illness” (World Health Assembly, 2003, p. 15). There is a continuing demand for traditional medicine worldwide for millions living in rural areas. The ratio of traditional healers to the population in Africa is 1:500, whereas the ratio of medical doctors is 1: 40,000 (World Health Assembly, 2003). The government of Kenya has several laws and policies in recognition of traditional medicine, including the Traditional Medicine and Medicinal Plants Bill of 2010; thus, it created the Traditional Medicine Management Council (TMMC), which oversees traditional medicine practices. Traditional medicine is still prevalent in rural areas while modern medicine is being developed. In the face of the changing times coupled with the high cost of living, traditional medicine has regained recognition as a mainstream treatment, similar to regulated modern

medicine. Medicinal plants are mainly used for palliative care and treatment of illnesses and diseases that affect communities, such as respiratory illnesses and diseases that thrive in highland areas, as well as reproductive health and abdominal pains, which affect all regions (Kurui, 2016).

In the 21st century, traditional medicine is acknowledged as a significant source of primary healthcare for most communities in rural areas due to the common belief that traditional medicine presents less harm to the human body than conventional medicine. Rural communities believe that conventional treatments and methods give rise to several side effects, leading to patients experiencing unwanted symptoms, allergies or reactions to the new medication and procedures. Cases of ongoing allergies and resistance have given rise to people preferring traditional to conventional medicines. A study done in Burkina Faso by Olaf (2004) established that the effectiveness of traditional medicine proved to be better than the conventional alternative. The population comprised 87% of persons treated with Chloroquine (traditional medicine) and 13% treated using conventional medicine. The community effectiveness of Chloroquine was 67%, while that of conventional medicine was 54%.

Many challenges have led to traditional medicine being labelled as “primitive” by younger generations due to hereditary seclusion of the craft and the infiltration of quack practitioners in many places, including urban areas (Kigen, 2017). Traditional knowledge owners and practitioners kept the knowledge despite the current domination of elderly persons in the craft, increasing the ongoing knowledge loss (Chebii et al., 2020). Apart from the increased affordability and accessibility, a gentler approach towards enhancing understanding and applying traditional medicine is necessary for applying expertise in our daily lives (Mwangi, 2005). Elgeyo Marakwet County has a rich and diverse culture and inherent knowledge of medicinal plants and their applications, which deserves to enrich its inhabitants over their lifetime.

2 Area of the study

Elgeyo Marakwet County is found in the North Rift region of Kenya (see figure 1). The county region is situated between 0° 51' to 1° 19' N and 35° 29' to 35° 43' E, and the area covers a total of 1588 Km² (EMC., 2023).

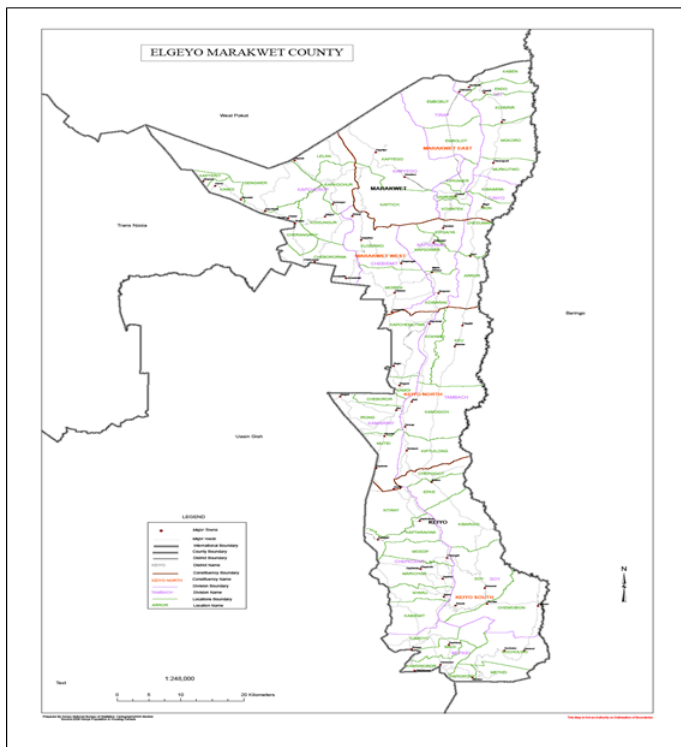


Figure 1: Map of Elgeyo Marakwet County courtesy of Elgeyo Marakwet(2023)

The county has a forestation cover of 43% with the highlands rising to 3300m above sea level and low temperature of 13°C. The main forest situated in the county is the Cherengani hills which is a major source of many streams that flow into Lake Victoria. The geography of the county consists of the highland and lowland regions, which are separated by a steep escarpment. Due to the geographical differences in the region, the diverse vegetation flourishes with medicinal plants and herbalists have a large variety to collect.

3 Methodology

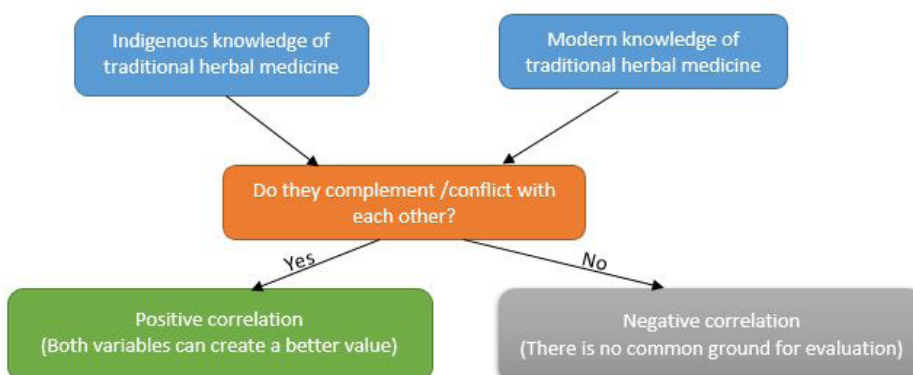


Figure 2: Methodology chart

The methodology used a mixed approach via systematic literature review followed by correlation analysis through systematic literature review of both indigenous and modern knowledge on applications of traditional medicine (Lame, 2019). The variable data sets used in the study are indigenous knowledge and modern knowledge of traditional herbal medicine. If a common ground is found where data can be compared and contrasted, the conclusion is a positive correlation. If no data found or lacking between either variable, a negative correlation is found; thus the selected knowledge is not added into the study.

4 Data collection

The study adopted a systematic literature review of published peer-reviewed articles, journals, books, databases and other primary sources of information relating to indigenous knowledge, traditional herbs, and their uses and applications in Elgeyo Marakwet County in Kenya. These were sourced from Google Scholar, PubMed, university repositories, and research publication sites databases. Other studies on traditional herbs' collection, administration, and preparation methods were also analyzed to consolidate locally available herbs and locally used methods to contribute to a verifiable deduction.

The main articles used in this study for indigenous knowledge are “Traditional Healers in Sangurur, Elgeyo Marakwet County” (Kigen, 2017), “The governance of traditional medicine and herbal remedies in the selected local markets of Western Kenya” (Chebii et al., 2020) and “A study of the medicinal plants used by the Marakwet Community in Kenya” (Kipkore, 2014).

Modern knowledge articles in the study include: “WHO guidelines on good herbal processing practices for herbal medicines” (WHO, 2023) and “Traditional medicine: report by the Secretariat”. Additional sources added to the study indirectly contributed to indigenous and modern knowledge sources.

5 Results and discussions

The traditional medicinal plants/herbs found in Elgeyo Marakwet are tabled in Table 1. Traditional medicinal plants are arranged with taxonomic names alongside their method of preparation and illnesses and disease treated. The voucher number listed is a reference to the specimens stored in The University of Eldoret Herbarium: the number can be used for retrieval of the plant species available in their records.

Table 1: Traditional medicinal plants, their taxonomies, preparation, ailments and diseases.

Botanical name	Voucher Number	Local name	Parts Used	Preparation Method	Illness treated
<i>Acacia hockii</i> De. Willd	WBHG/13/026	Churur/ Chuiya	Barks, Roots	Boiled or dried and ground to powder	Abdominal (colic) Pains and cancer
<i>Acalypha fruticosa</i> Forsk.	WBHG/13/101	<i>Saniyon</i>	Leaves	Crushed and applied on the site	Scorpion/bee stings

Botanical name	Voucher Number	Local name	Parts Used	Preparation Method	Illness treated
<i>Acanthus eminens</i> CB. Clarke	EH/128/15/066	<i>Tekelte</i>	Whole Shrub	Boiled or dried and pound to powder or burnt to soot	Abdominal cramps, joint pains
<i>Acokanthera schimperi</i> (A.D.C.) Shweinf.	EH/12/15/030	<i>Keehwo/Ng'wono</i>	Bark	Powder	Antivenom
<i>Allophylus abyssinicus</i> (Hochst) Radlk	EH/12/15/020	<i>Losin</i>	Fruits	Chew	Skin problems, fatigue, boost immunity
<i>Aloe spp.</i>	WBHG/13/095	<i>Chepkenderetwo</i>	Leaves	Crushed and sap applied/ Sap applied on the operated area	Wounds/ Craniotomy (surgery)
<i>Basella alba</i> L.	EH/12/15/077	<i>Kiruita</i>	Leaves	Boiled	Synergistic, abdominal pains, joint pains, lumbago, anemia, blood cleanser
<i>Casearia battiscombei</i> R.E. Fr.	EH/12/15/027	<i>Liss</i>	Bark and roots	Boiled or dried and pound to powder	Joint, abdominal pains and infertility
<i>Carissa edulis</i> (Forssk.) Vahl	WBHG/13/091	<i>Legetetwet</i>	Roots/ Fruits	Boiled and added to other herbs or used alone / consumed whole	General malaise/ Appetizer
<i>Croton dichogamus</i> Pax	WBHG/13/064	<i>Kerelwo</i>	Higher parasites on this plant, Bark, roots and flowers	Burnt and ash licked, Boiled	“Kipei” condition (abdominal pain and oral thrush), Chest congestion (wheezing)
<i>Datura stramonium</i> L.	EH/12/15/081	<i>Arap bataa</i>	Seeds, Leaves	Fry and crush (seeds), leaves are smoked	Toothache (apply), asthma (inhale smoked leaves)
<i>Doryalis abyssinica</i> (A. Rich) Warb.	EH/12/15/016	<i>Mindilimo</i>	Bark, roots, fruits	Boiled, dried and pound to powder, chewed (fruits)	Seizures (epilepsy) muscle pains, joint pains, invigorant, blood cleanser, synergistic plant, skin rashes
<i>Ensete ventricosum</i> (Welw.) E.E. Cheesman	WBHG/13/002	<i>Sosurwo</i>	Tip end (flower)	Crushed, dried and burnt. Ash licked	Heartburn

Botanical name	Voucher Number	Local name	Parts Used	Preparation Method	Illness treated
<i>Eudea divinorum</i> Hiern	EH/12/15/070	<i>Kapcheptuin/ Uswa</i>	Fruits/ Twigs; Bark	Chewed/ Pound and applied to incision on bitten site	Abdominal upsets, skin disorders, blood cleanser, invigorant, prophylaxis of cancer, and respiratory disorders; Toothbrush and anti-venom
<i>Ficus thonningii</i> Blume	EH/12/15/036	<i>Simotwo</i>	Bark, roots	Boiled, powder	Arthritis, liver disease, edema
<i>Maerua cordata</i> (Gig.) De Wolf.	EH/12/15/099	<i>Chepan'yiny</i>	Roots	Chewed	Colic pain in adults , anorexia, blood cleanser
<i>Myrsine africana</i> L.	EH/12/15/071	<i>Seketetwa</i>	Bark, roots, fruits	Boiled, dried and ground to powder, chewed (fruits)	Respiratory disorders
<i>Olea Africana</i> Mill.	WBHG/13/032	<i>Remit</i>	Dried Bark; bark	Pound to powder; boiled	Eye ailments
<i>Olea capensis</i> L.	EH/12/15/083	<i>Masat</i>	Bark	Boiled, dried and pound to powder	Deworner, blood cleanser
<i>Podocarpus falcatus</i> Mirb	EH/12/15/038	<i>Been</i>	Bark, roots, higher parasites	Boiled, dried and pound to powder, burnt to soot	Liver and spleen diseases, peptic ulcers
<i>Rotala tenella</i> (Guil and Per)	EH/12/15/093	<i>Chepkitiot/ Kitonde</i>	Whole plant	Boiled or consumed while raw	Blood cleanser, lumbago, peripheral neuropathy, muscle cramps, joint pains, pre-and post-menopausal syndromes, obesity, cardiovascular/ cerebrovascular disorders
<i>Schefflera volkensii</i> (Engl.) Harms	WBHG/13/088	<i>Tingwon</i>	Dried resin	Sniffed; smeared on body	Inhaled to clear blocked nose; Perfume
<i>Warburgia ugandensis</i> Sprague	EH/12/15/002	<i>Sokeno</i>	Bark, tender leaves	Boiled, burnt to soot, dried and pound to powder	Respiratory disorders, headaches, allergies

The medicinal plants species and herbs collected number 183 with 12 miscellaneous products

used for traditional herbal purposes alongside or singularly for treatment. The medicinal plants/herbs used majorly consisted of barks, roots, and leaves. Fruits and seeds consisted of a small portion of traditional medicinal herbs. In terms of local use, *Warburgia ugandensis* and *Zanthoxylum chalybeum* were the most employed for treating five conditions. (Kipkore, 2014) In contrast, *Rotala tenella* treated the most conditions reaching nine in total.

The table below shows the percentage of preparation methods used in making herbs according to the herbs collected.

Table 2: Percentage of herbs according to preparation method

Mode of preparation/ administration	Herbs Percentage (%)
Boiling in water	41.35
Chewed	15.79
Burnt to soot/ ash	11.65
Crushed	9.40
Pound to powder	6.77
Dried	6.02
Consumed (cooked)	3.38
Consumed (raw)	3.00
Soaked in water	1.87
Sniffed	0.38
Smoked	0.38

Boiling the herbs was the most popular preparation method for most herbs while smoking and sniffing were the least used form of traditional herb preparation. Boiled herbs mixed into tinctures with synergistic herbs form much stronger concoctions. A significant portion is raw and administered through either chewing or consumption. Crushing herbs delves into extracting the raw sap or juices from the herbs, which is common in applying salve to wounds. Pounding into powder involves grounding the solid herb into finer granules or particles. Some herbs require prior preparation for the procedure via drying. Burning herbs to soot is different from ash; the former is mainly a black, very fine product, while the latter is a charred black or fine white product. Sniffing involves inhaling the herb's fine particles through the nose instead of smoking, where the ignited herb's smoke particles are inhaled through the mouth.

5.1 Challenges of traditional medicine

Traditional practitioners and experts debated the significant challenges of traditional medicines. Based on these sources, the most significant proved to be a lack of adequate documentation, incompetent practitioners and inadequate capital to operate the business.

Most sources of traditional knowledge are scarce in the daily lives of common practitioners and people alike. According to a recent study, most of the knowledge acquired by traditional medicine practitioners is hereditary (Chebii et al., 2020). The current advent of such inadequacy, despite the presence of policies, bills, and existing bodies of government institutions, invites erosion of deep-rooted culture and practices. Given a case where there is no vested interest to support such practitioners financially while implementing mandatory investment from the former to support their businesses, the zero-sum game will affect the consumers who rely on these practitioners to survive.

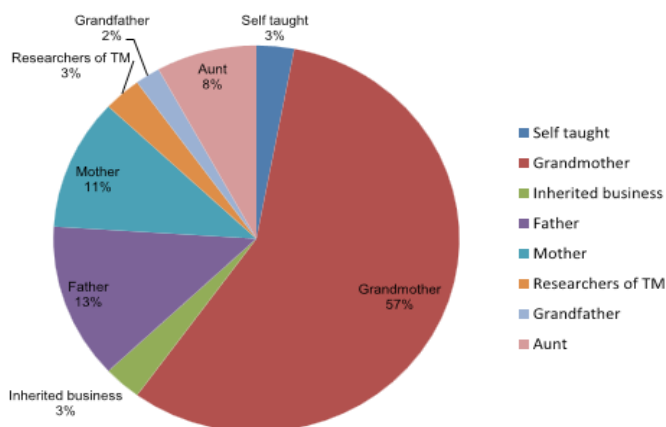


Figure 4: Sources of traditional medicine knowledge for most of the traditional medicine knowledge (Chebii et al, 2020)

5.2 Good application practices for preparation of traditional herbal medicines

The methods of preparation of traditional herbs found in Elgeyo Marakwet County can be summarized into: Boiling, chewing, burning to soot/ ash, crushing, pounding to powder, drying, raw and cooked consumption, soaking, sniffing and smoking. Streamlined herb preparation practices are available for the average person to follow. The most effective practices have been tried and tested to yield the best possible results for the widest range of herbs using specific criteria in preparation. This set a base minimum to producing highly effective medicine for knowledgeable individuals and promoting them to gaining the maximum medicinal benefit from these herbs.

5.4 Preparation by boiling or decocting

Preparing traditional herb decoctions involves extracting the medicinal substances using water heated to boiling temperature. According to the World Health Organization Expert committee on specifications for herbal pharmaceutical preparation guidelines, decoctions are fluid based extractions where soluble and heat stable active constituents of the herb or herbal material dissolved into the solvent, which may include water or other liquids such as milk or vinegar (WHO, 2023). Herbalist James Green narrows down the preparation method into a simple to apply recipe. (Green, 2000) The combination of both principles derives the following procedural method:

- Use one tablespoon to one teaspoon of herb to a cup of water.
- Add the herbs to cold water to a pot.
- Place the pot on a stove and bring to boil at 40°C.
- Cover the pot with a lid and lightly simmer for 20 – 40 minutes.
- Remove the lid and let the decoction cool to drinking temperature.
- Finish up by straining out the herbs.
- The herbs are reusable in the future for a new decoction as long as the decoction is still strong after brewing.
- Refrigerate the left overs and use within 48 hrs.

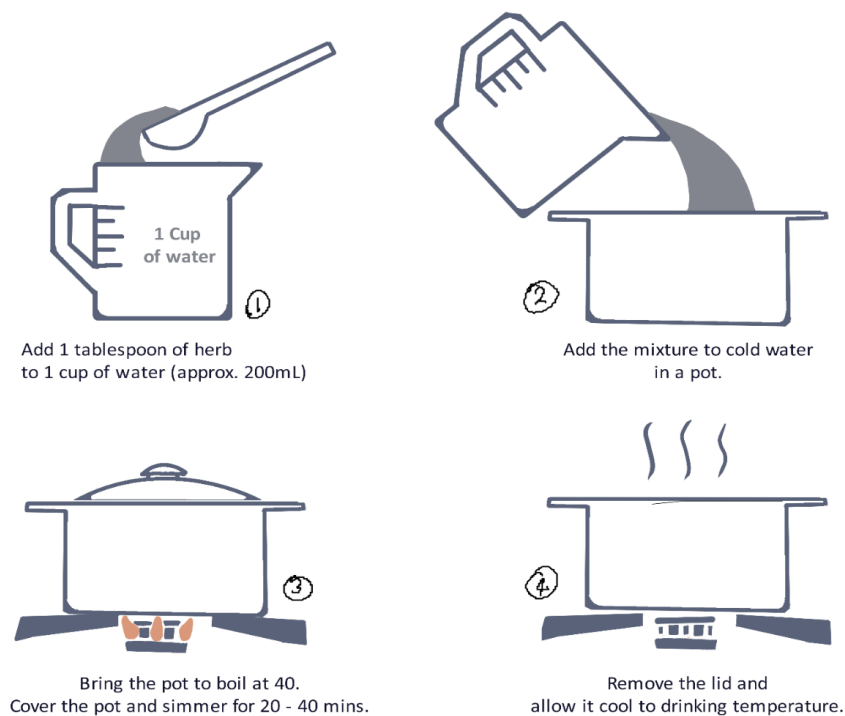


Figure 5: Boiling procedure 1. Source: Author.

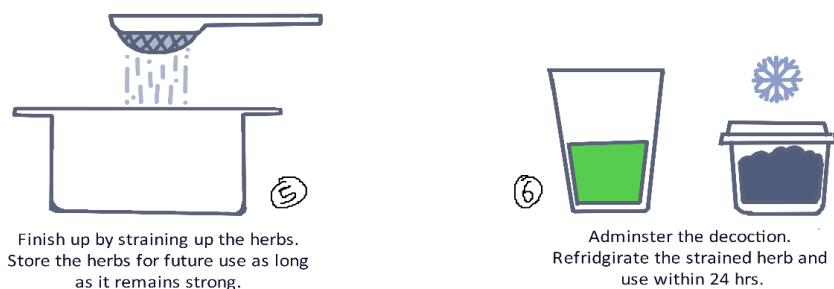


Figure 6: Boiling procedure 2: Source: Author

The preparation of traditional medicinal herbs above 40°C is unsupported due to denaturation of the medicinal products and chemicals unless further research developed supporting the claim is published (WHO, 2023).

5.5 Preparation chewing

Chewing is extracting the medicinal compounds from the traditional herbs using concise chewing techniques to acquire the greatest benefit. Proper chewing procedure ideally requires one to chew until the product is a paste. In this case different mechanical principles: the jaw movement, the chewing force, chewing cycles and duration of a chewing cycle plays a major role in absorbing herbal nutrients. (Sun-Waterhouse, 2021) Harder herbs will require more chew cycles and force compared to softer herbs. The traditional herbs in this study need chewing until they lose their potency. Swallowing the herb is not recommended. The following is the process of chewing traditional herbs:

- Wash the herb thoroughly.
- Chew the herb continuously until it loses potency.
- Spit out the herb and rinse the mouth.

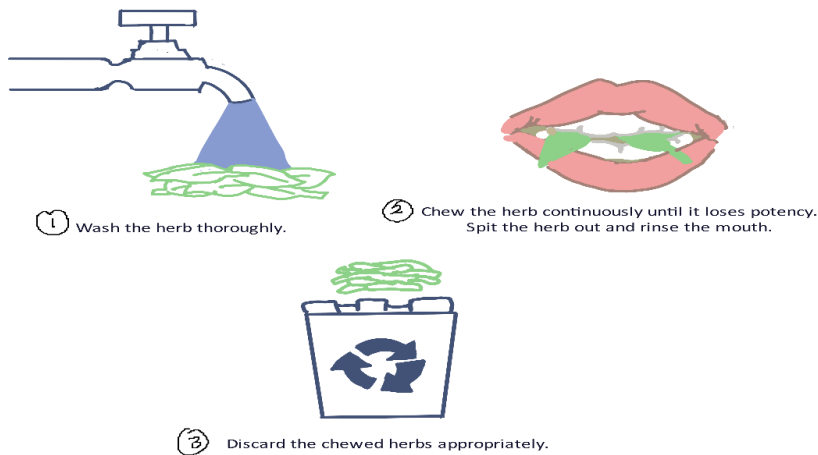
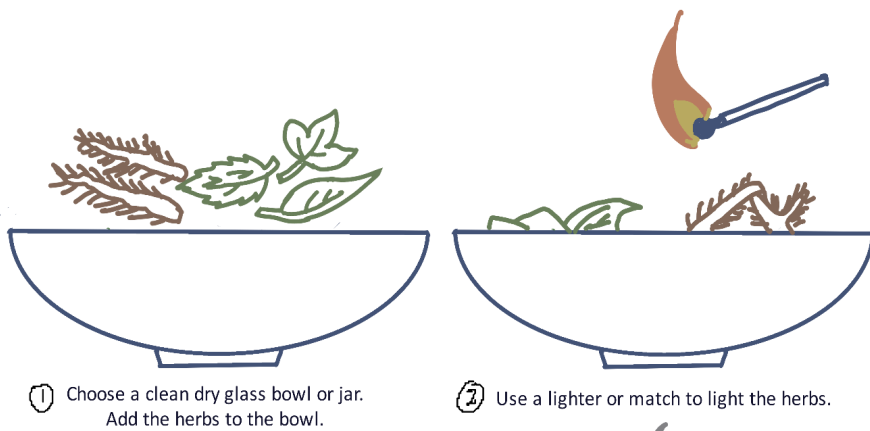


Figure 7: Chewing procedure. Source: Author.

5.6 Preparation by being burnt to soot or ash

Traditional herbs are burnt when dry or fresh, in most cases they are burnt while dry. In order to burn, the traditional herb is exposed to an open flame and undergoes ignition in a glass jar or ceramic bowl (Prisker, 2022). The procedure to prepare soot and ashes of herbs is as follows:

- Choose a clean dry bowl or glass jar.
- Place the herbs in the bowl.
- Use a lighter or match to light the herbs.
- Once lit, allow them to burn for a few minutes.
- Extinguish the flame and acquire the components.



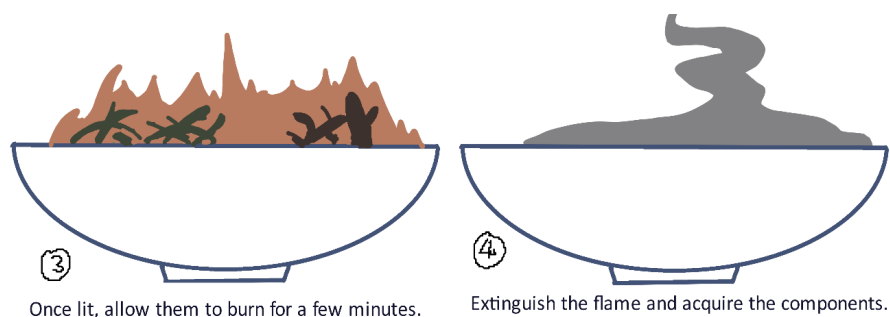


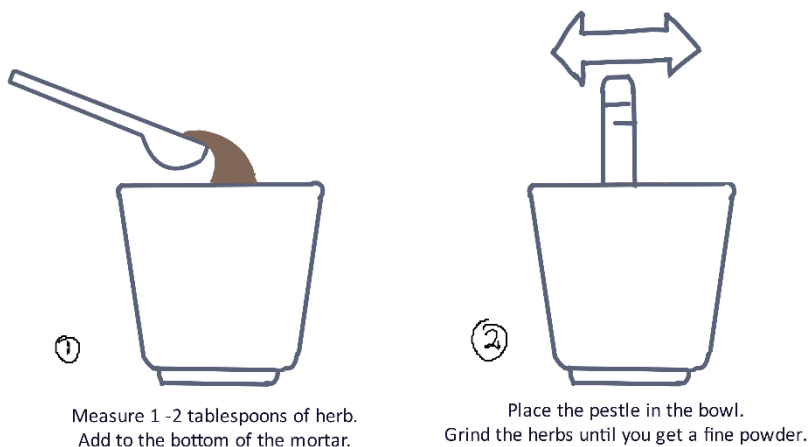
Figure 8: Burning procedure. Source: Author.

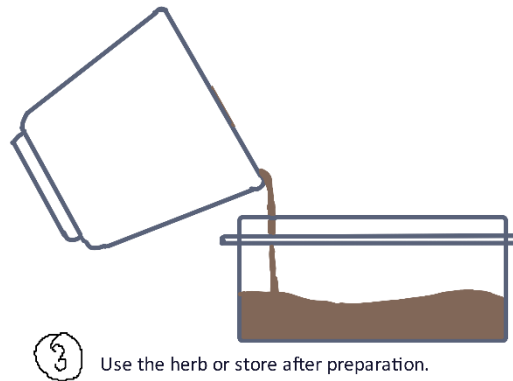
5.7 Preparation by pounding to powder or grinding

The primary purpose of grinding and pounding is to destroy the tissue and cell structures in order to expose the chemical components for absorption (WHO, 2023). In traditional medicine, the traditional herbs are ground and pulverized into fine particles suspended in warm water for administration; administered directly by licking; or combined to other mixtures. The herbs extracted via grinding using a mortar and pestle and electronically using a domestic coffee grinder (Ideboen, 2019). The best process for grinding follows:

Mortar and Pestle

- Measure 1 to 2 tablespoons of dried herbs to the bottom of a mortar.
- Place the pestle in the bowl. Begin grinding by firmly placing the into the bottom and the sides of the bowl to crush the herbs.
- Continue until you have a fine powder.
- Use the herb or store the herb after preparation.



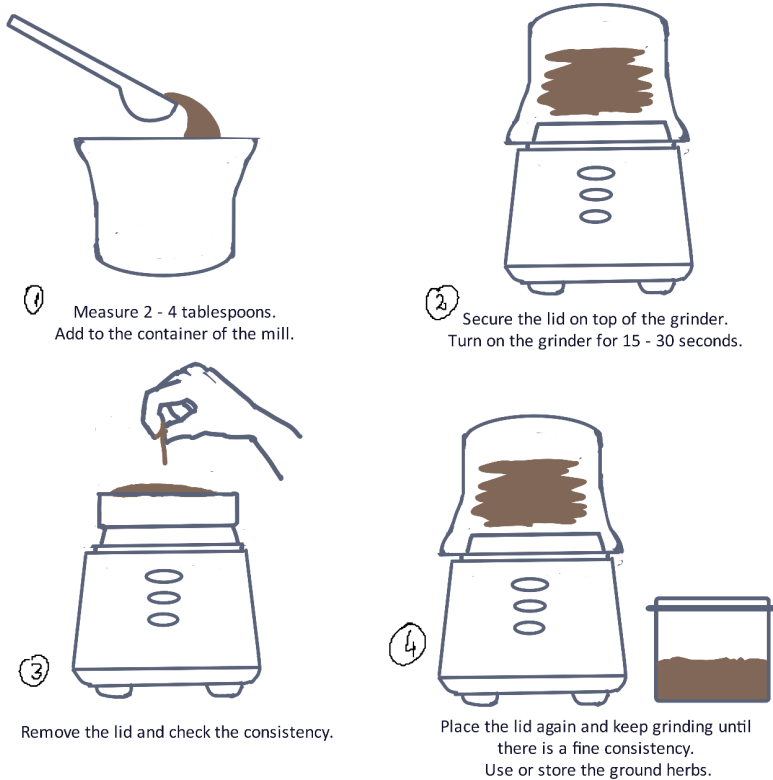


③ Use the herb or store after preparation.

Figure 9: Grinding procedure 1. Source: Author.

Coffee grinder/ spice mill

- Place 2 to 4 tablespoons of dried herbs into the container of the mill.
- Secure the lid on top of the grinder.
- Turn on the grinder and mill for 15-30 seconds.
- Remove the lid after grinding and check the consistency/ texture.
- Place the lid again and keep grinding until the herbs are fine and powdery.



① Measure 2 - 4 tablespoons. Add to the container of the mill.

② Secure the lid on top of the grinder. Turn on the grinder for 15 - 30 seconds.

③ Remove the lid and check the consistency.

④ Place the lid again and keep grinding until there is a fine consistency. Use or store the ground herbs.

Figure 10: Grinding procedure 2. Source: Author.

5.8 Preparation by crushing

Crushing herbs is similar to grinding herbs. Grinding and crushing are slightly similar as the former uses dried herbs while the latter uses fresh or softened herbs. Crushed herbs in some preparation methods, extract the solvent through straining the herb itself; the resultant solvent administered to the patient, or applied for other domestic uses. According to its definition, infusion extraction involves macerating the herb in a cold or warm solvent to acquire the chemical components present in the herb (WHO, 2023). The infusion process involves pouring hot water on the herbal material and allowing it to steep over time. The following is the process of preparing the herb by crushing/ infusion preparation:

- Prepare hot or cold water/solvent according to the traditional herb to be crushed.
- Acquire a pestle and mortar.
- Place the herb in the bottom of the mortar and crush using a pestle.
- Add water or solvent to the mortar and allow to steep for 5 to 20 minutes.
- Strain the herbs using a sieve and enjoy the liquid prepared.

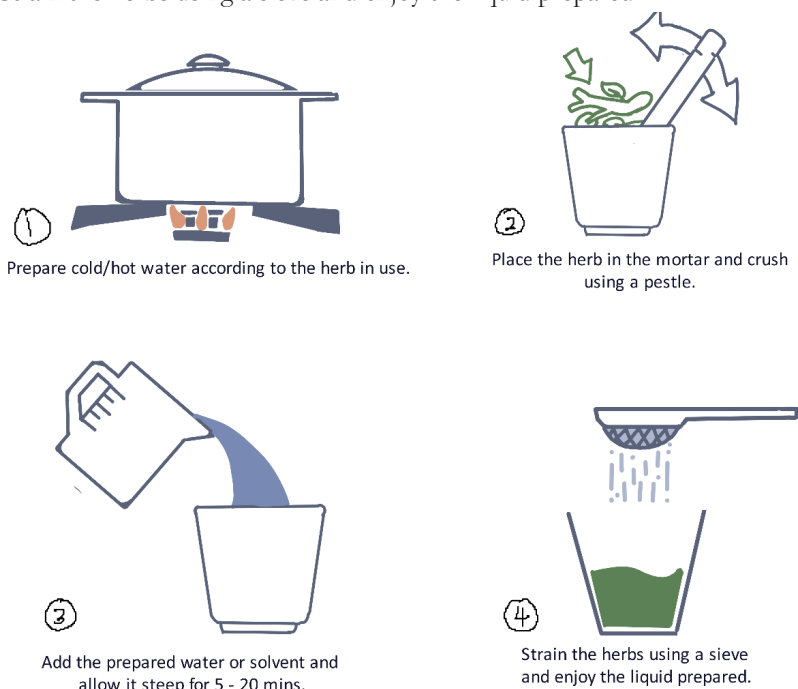


Figure 11: Crushing Procedure. Source: Author.

5.9 Preparation by drying

The ideal dried traditional herb reaches a moisture content below 12%, which occurs through sun, shade, or artificial heat drying methods. (WHO, 2023) Artificial heat, sun drying and shade drying herbs, chosen according to the herbs characteristics; volatile herbs are shade dried while low moisture content traditional herbs are sun dried over long periods.

Sun drying traditional herbs procedures follows placing them in the open air on a drying frame at least 15cm off the ground, away from contamination (vehicle exhaust, dust) and protected from insects.

Shade drying is a slow process where the traditional herbs are protected from direct sunlight without artificial airflow. The procedure preserves the color and aromatic component of volatile herbs including flowers and leaves.

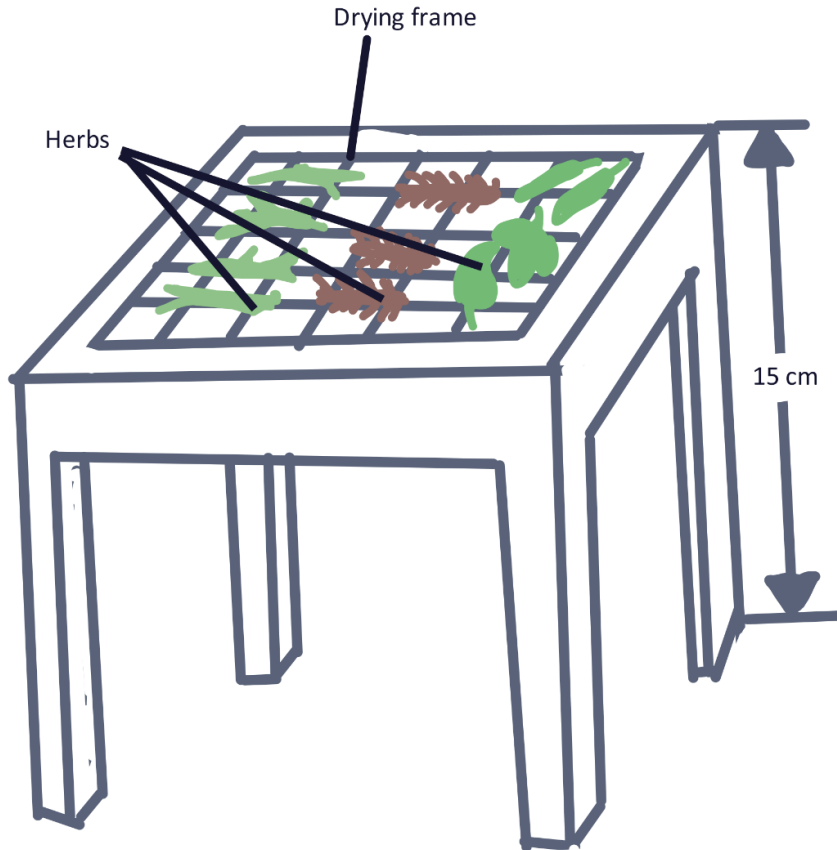


Figure 12: Drying frame diagram. Source: Author.

Artificial heating is essential for areas with low sunlight and high humidity. The heating must occur in moderation and prevent loss of the most effective components of the herb. The effective temperature of heating traditional herbs is 60°C for bark and 40°C for shoots and leaves.

5.10 Administration by sniffing

Traditional medicines administered via sniffing affect the respiratory systems and commonly present as a dry powder or a liquid preparation. Steam inhalation is the most prominent method of administration via sniffing the vapor of the traditional herb (WHO, 2023). A warning issued concerning several herbs containing oils, may burn sensitive mucous membranes in the respiratory tract. The procedure for preparing herbs for inhalation includes:

- Pour 2 to 4 litres of water into a pot.
- Bring the pot to boil.
- Take the water off the heating element or cooker.

- Pour the herbs into the pot and allow to simmer for a few minutes
- Place the pot on a table positioned where the head above the pot without being burnt by the pot.
- Drape a blanket over the pot creating a vapor cocoon over the head.
- Sit under the drapes with the head hovering over the pot.
- Breathe in the vapors while keeping the eyes closed not to get irritated.
- If the vapor cocoon gets too hot or intense, remove the head and rest for a while and return when ready.

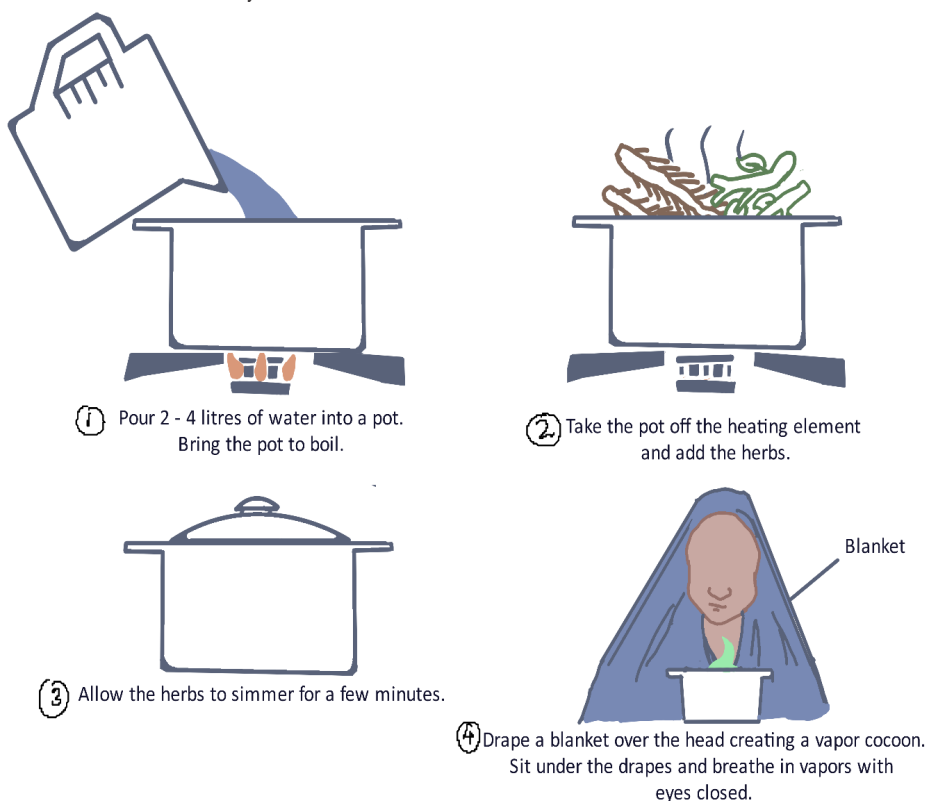


Figure 13: Sniffing/ inhalation procedure. Source: Author.

6 Conclusion

The regression study yielded positive correlations between indigenous and modern applications of traditional medicine. The major means of preparation covered will support most conventional traditional herbs; however, studies still need to be made correlate the remaining forms of indigenous knowledge. Steps towards improvement of application of such medicines still require testing and sharing, to allow most people access to such valuable information. The improper application of such common medicines lead to myths that counteract the importance of such medicines to the community as a whole. Knowledge concerning traditional medicine application is an important craft that needs preservation with further investigation to treat locally known illness and improve the environment and livelihood of residents living near and around these areas.

7 Recommendations

Indigenous knowledge on the use of herbs needs proper preservation, research, and documentation to ensure the knowledge is safe albeit within sensitive channels or the general library of knowledge and information. Natural forests and woodlands, where the medicine grow naturally, requires strict policies to safeguard against over-harvesting, exploitation, and human encroachment. Medical practitioners in this field require aid in demystifying myths and taboos inflicting harm their businesses and livelihoods. Promoting traditional medicine in the community, beside conventional medicine, will benefit the community to consider which alternative may suit their needs when ill. Imparting knowledge about the health benefits, treatable illnesses, and quality of life improvements brought about by traditional medicine and proper practices is the responsibility of the society, legal bodies, and practitioners through running awareness campaigns, and local seminars which will allow people to emulate an open mind when dealing with future health problems.

References

- Chebii et al. (2020, pp.13-18). *The governance of traditional medicine and herbal remedies in the selected local markets of Western Kenya*. Retrieved from Journal of Ethnobiology and Medicine: <https://doi.org/10.1186/s13002-020-00389-x>
- Elgeyo Marakwet (2023) ‘Administrative Subdivision’. Retrieved from County of Elgeyo Marakwet: <https://www.elgeyomarakwet.go.ke/docs/HTML/toc510645898.html>
- EMC., U. (2023, 10 27). *Elgeyo Marakwet County*. Retrieved from County Government of Elgeyo Marakwet: https://www.elgeyomarakwet.go.ke/docs/HTML/hmfile_hash_41a844ac.png
- Green, J. (2000). *The herbal medicine-maker’s handbook*. Berkeley : Crossing Press.
- Ideboen, A. (2019, November 30). *How to Grind Herbs Into Powder*. Retrieved from Leaf: <https://www.leaf.tv/articles/how-to-grind-herbs-into-powder/>
- Kigen, G. W. (2017). Medicinal Plants Used by Traditional Healers in Sangurur, Elgeyo Marakwet County, Kenya. *Pharmacognosy Res.*, 333-347.
- Kipkore, W. B. (2014). A study of the medicinal plants used by the Marakwet Community in Kenya. *J Ethnobiol Ethnomed v. 10*, doi: 10.1186/1746-4269-10-24.
- Kurui, M. C. (2016, April 19). repository.uoeld.ac.ke/handle/123456789/1507. Retrieved from University of Eldoret: 2023
- Lame, G. (2019) ‘Systematic Literature Reviews: An Introduction’, in *Proceedings of the 22nd International Conference on Engineering Design (ICED19)*, Delft, The Netherlands, 5-8 August 2019. DOI:10.1017/dsi.2019.169
- Lame, G. (2019) ‘Systematic Literature Reviews: An Introduction’, in *Proceedings of the 22nd International Conference on Engineering Design (ICED19)*, Delft, The Netherlands, 5-8 August 2019. DOI:10.1017/dsi.2019.169
- Lindsey RS, H. F. (1978). Medicinal plants in Marakwet, Kenya. *United Kingdom: Royal Botanic Gardens*, 49.
- Mwangi, J. W. (2005). Traditional Herbal Medicine in National Healthcare in Kenya. *East and Central African Journal of Pharmaceutical Sciences Vol. 8 (2)*, pp. 22-26.
- Olaf Mueller, O. R. (2004). Community effectiveness of chloroquine and traditional remedies in the treatment of young children with falciparum malaria in rural Burkina Faso. *Malaria Journal Vol. 3*, doi: 10.1186/1475-2875-3-36. PMID: 15496225; PMCID: PMC529468. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC529468/>

- Prisker, J. (2022, October 31). *How To Safely Burn Herbs In A Mason Jar*. Retrieved from Sacred Smoke Herbals: <https://sacredsmokeherbals.com/how-to-safely-burn-herbs-in-a-mason-jar/>
- Sun-Waterhouse, D. W. (2021). Towards human well-being through proper chewing and safe swallowing: multidisciplinary empowerment of food design. *Journal of future foods Vol. 1 Is. 1*, 1-24.
- WHO. (2023, July 29). *WHO guidelines on good herbal processing practices for herbal medicines*. Retrieved from gmp-compliance.org: <https://www.gmp-compliance.org/files/guidemgr/TR-S1010annex1.pdf>
- World Health Assembly, 5. (2003). *Traditional Medicine: Report by the Secretariat, 13 December 2013*. Retrieved from <http://apps.who.int/iris/handle/10665/78244>

2. Evaluating the Efficacy of Traditional Family Planning Practices among the Kipsigis Community in Kericho County, Kenya

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Abstract

Kipsigis is one of the eight communities among the Kalenjin tribe. Traditional family planning is embedded within the Kalenjin culture and has been well-known for its effectiveness. This study sought to evaluate the efficacy of traditional family planning practices among the Kipsigis Community in Kericho County, Kenya. The objectives of the study were to establish existing sources of indigenous knowledge on family planning practices, establish the methods of disseminating indigenous knowledge on family planning practices, explore the benefits and demerits of traditional family planning practices, establish the level of adoption of Western methods of family planning among the Kipsigis Community and assess the perception of elders on the differential efficacy between the traditional family planning practices among the Kipsigis. The study used a multi-site case design that was both quantitative and qualitative to facilitate in-depth investigation and comparison of the themes from three sub-counties. The sub-counties were selected due to their rich traditions and ways of living. Three village elders were interviewed in each sub-county, and questionnaires were administered to 90 knowledgeable older women and men equally distributed between the three sub-counties. These participants were identified using snowballing. Qualitative data were analysed using content analysis, while quantitative data were analysed using Excel. The study revealed that the community are exposed to traditional family planning methods from many sources. As a result, the belief in the efficacy of traditional family planning methods is stronger than that of modern approaches.

Keywords: *Indigenous knowledge, contraception, modern methods of family planning, traditional methods of birth control*

1 Introduction

Family planning determines the number of children one wants, the age to have children and the spacing or the decision not to have any. The primary purpose of family planning services is to end preventable deaths during pregnancy and childbirth (Owoyemi et al., 2020). Family planning is practised in many communities. In Kalenjin, it is known that the communities use traditional and modern family planning methods. Kalenjin comprises eight sub-ethnic groups, including Nandi, Kipsigis, Tugen, Keiyo, Marakwet, Sabaot, Pokot and Terik. Kipsigis is the largest sub-group of the Kalenjin communities living in Kericho District, in the former administrative division of Rift Valley Province of Kenya (Cherono, 2020). They belong to the Nilotic group living in Kenya and speak Kipsigis as their native language (Chepkemoi, 2021). The Kipsigis sub-group had seven age set systems called “*Ipinda*”, which means young people. Every society has its traditions that are passed from generation to generation. This is done

through teaching certain cultural norms, habits, beliefs, customs, and attitudes. These traditional practices and beliefs also encompass all aspects of life, including family planning practices. Based on the historical perspective, traditional family planning practices were used to help increase the number of children. Traditional methods of contraception are practised worldwide because it does not require third parties (health care workers). Family planning is a vital issue in Kenya and around the globe (Rabiu, 2018). Traditional methods of contraception have been categorised into calendar method or rhythm method, lactational amenorrhea method, coitus interruptus (withdrawal method), abstinence and cervical mucus method. Some other methods of traditional contraception are rituals and the use of herbs (Malarcher et al., 2016).

2 Statement of the problem

Unwanted pregnancies have remained an essential public health subject in low- and middle-income economies (Hajizadeh & Nghiem, 2020), particularly among young women. Globally, about two hundred and fourteen (214) million women of childbearing age are inclined to limit the size of their families. The unmet need for both modern and traditional methods of conception has resulted in poor maternal health outcomes (World Health Organization, 2018). It is believed to be one of the causes of abject poverty (Pham et al., 2020) in developing countries. At any point in future, the young generation who may want to delay pregnancy and simultaneously fulfil their emotional needs in relationships will be forced to adopt any method of family planning (Aliyu, 2018). However, factors which hamper the utilisation of family planning among couples and people in relationships abound. These factors include opposition from the husbands (Sinai et al., 2020), stigma (Ahmed et al., 2022), unsatisfactorily family health services, poor management of the family planning service delivery system, lack of knowledge on family planning services, and fears concerning contraceptive side effects. The barriers to the uptake of family planning can be minimised through targeted training (Kabagenyi et al., 2014; Mushy et al., 2020) on the methods starting at a tender age and reorganisation of social services to the younger generations. Whereas modern family planning methods are delivered to youth in their teens at a stage where attitude formation may have moulded the teens, traditional family planning approaches can be delivered subtly at very tender ages, making them more acceptable to the youth. Therefore, there is a need to evaluate the efficacy and practicability of traditional family planning methods with the aim of sensitising society to document and disseminate traditional family planning practices.

3 Literature review

Various sources of information on family planning include radio, television, hospitals, friends /relatives, posters, communities, seminars, social media, religious organisations, and spouses, among others (Chukwuji et al., 2018). Msovela et al. (2016) conducted a study on access to information on family planning and methods of contraception. The study established two main categories of sources of family planning information. Nearly half of the population (45.7%) obtained information on family planning from their spouses, while the remaining half received it through other sources. A similar study that targeted young women aged 15 to 49 established that knowledge of family planning methods is universal and that most women use any method of family planning from trusted sources, including media, friends, and clinic providers (Alege et al., 2016). These studies reveal that youths get family planning information from various sources whose authenticity is judged by public opinion. However, the authenticity of family planning from friends cannot be guaranteed. Social workers and elderly

relatives can be considered more authentic based on training and experience. The methods of disseminating family planning knowledge depend on the source of the information.

Family planning has numerous benefits and a few demerits (Senderowicz, 2020). In the Kipsigis community, couples are required to agree on the spacing period between the following conceptions. This entailed a discussion between the couples and amicable approaches to achieving the spacing, including accepting co-wives were arrived at. The community values family planning methods (Guure et al., 2019; World Health Organization, 2017). In modern approaches, the use of family planning is associated with fear of infertility (Sedlander et al., 2022) among youth and possible rejection in the community, a situation which is not documented as having been prevalent with traditional practices.

Various factors associated with the unmet need for family planning have been identified. They include fear of side effects of using contraceptives, limited choice and access to family planning methods, age of women, number of living children, household's income, women's religion and place of residence, women's employment status, husband's education, poor quality of family planning services, mass media and religious or cultural constraints (Asif & Pervaiz, 2019). Men do not encourage the use of family planning methods among their wives. Some women may also link side effects and health risks experienced by other women using family planning methods, hence limiting them from using the required method of contraception (Sinai et al., 2020).

Modern contraception is the most preferred option in contemporary society. It includes injectables, sterilisation, subdermal implants, intrauterine devices and systems, oral contraceptives, emergency contraceptive pills, condoms, vaginal rings, patches, sponges, spermicidal agents, diaphragm and cervical caps (Hubacher & Trussell, 2015). Many people are not willing to use contraception due to cultural and religious and fear of adverse side effects (Adinlewa, 2022). Modern contraceptives are considered an important public health intervention in the community (Beson et al., 2018).

In sub-Saharan Africa, cultural, social, and religious norms have been identified as the main factors to influence decision-making on the use of modern contraceptives among women (Adde et al., 2022). Some barriers, like misconceptions and harmful myths about the use of modern contraceptives, affect the utilisation among individuals in society (Eram, 2017). Liu and Raftery (2020) identified other reasons that hinder the decision to use modern contraceptives. These reasons include cultural, economic, and geographical disparities that affect the promotion and use of family planning. Fenta and Gebremichael (2021) on their study showed that ten per cent (10 %) of women in urban settings are using modern contraception more than those living in rural areas. The low uptake of modern contraceptives in rural areas is caused by inadequate training of professionals in the public health sector on how to handle all issues concerning contraceptives. Men generally carry more weight in family planning decisions (Bado et al., 2020).

Most programmes on family planning support the modern use of family planning methods, leaving behind the use of traditional methods of family planning. Couples are only encouraged to use traditional family planning methods when there is a failure in modern family planning methods. When there are such changes, investigations are required to determine whether the gain in using traditional family planning methods has come at the expense of modern family planning methods (Almalik et al., 2018). Modern methods of contraceptives are mainly used because people are knowledgeable about the use of such methods. Traditional family

planning methods are less utilised than modern methods (Rossier & Corker, 2017).

Gebreselassie et al. (2017) found that traditional family planning methods are positively associated with education and the place of residence (rural and urban) in some countries. In Kenya, older women prefer traditional family planning methods, while younger women mostly prefer modern methods of family planning (Beguy & Mberu, 2015). Utilisation of modern contraceptive methods is low due to the cost. Most people are, therefore, using traditional family planning methods as an alternative (Rossier & Corker, 2017). Some women also prefer traditional family planning methods to modern ones due to traditions and religious beliefs (Staveteig, 2017).

4 Methodology

The population of the study was the Kipsigis community. The sample for the study was derived based on knowledge of the extent of traditional family planning in the different regions and holders of the knowledge. The study used a multi-site case design, which was both qualitative and quantitative, to facilitate in-depth investigation and comparison, respectively, of the themes from the three sub-counties of Kericho County, namely, Ainamoi, Belgut and Sigowet. A sample of 90 participants comprising equal distribution of females and males above the age of 60 years was made. The age limit was to restrict data collection to persons who have lived in both traditional and modern societies. Participants were identified through snowballing until a saturation point was reached. Three village elders were interviewed in each sub-county, and questionnaires were administered to 90 knowledgeable older women and men in the three sub-counties. Qualitative data was analysed using content analysis, while quantitative data was analysed using Excel.

5 Findings and discussion

This section discusses the results based on formulated research objectives and questions.

5.1 Attributes of the respondents

Five attributes of the respondents considered essential to this study were age, education level, religion, gender, and marital status. Respondents to the study were in the age brackets of 60-80 (78%) and 81 and above (22%). The language of communication was Kipsigis, which the researcher was fluent in, and therefore, translation from the data collection tool and responses to transcription was well managed (Banerjee et al., 2020). Many respondents were in the lower age category of 60-80 due to the community's rarity of significantly older people. Indeed, getting the very old, above 81 years, was time-consuming, and listening to their responses required patience because they spoke in low tones and at a slow pace.

The majority of the respondents, 67%, had no formal education. One of the participants, B5, who was among the 22% with primary level education as the highest achievement, explained that:

...education was controlled by missionaries and provided at their specific centres, which were far away. Pupils had to travel through forests to go and stay with their relatives, who lived close to missionary centres like Chebowet, where I attended primary education. At the beginning of learning in class one, rules and processes were new and strict. This caused many of my friends to abandon learning altogether and return to their villages to take care of herds of animals. In my generation, therefore, very few peers attended school.

The study had planned to secure the participation of both females and males in equal

distribution by relying on referrals from initial contacts. It, however, became evident that it was easier to reach females than males. Females were mainly at home or on scores within the home vicinity as opposed to the males, who had varied errands within and outside the village. The second obstacle was the theme of discussion and gender of the researcher. The females were more open in discussing family planning with the researcher than the males, who tended to be reserved. Therefore, the participant distribution in the study was 67% female, with males constituting 33%. The views of both genders supplemented and corroborated the views from the different sub-counties.

The distribution of respondents by religion reflects the dominance of Christianity in Kericho County from the colonial days. All the respondents ascribed to the Christian faith. This is not unusual, as missionaries in Kericho used schools as recruitment bait for members. Muslims' interaction with Kenyans was first experienced along the Railways of which Nandi was part, as opposed to the Kipsigis, whose land was not crisscrossed by the railways.

The majority, 61%, of the study participants were widows/widowers or divorcees who currently lived alone but had experience in marriage and, therefore, to some extent, practised some form of family planning. The remaining 39% were living in marriage and were practising family planning. The approaches to family planning were varied, as shown in Table 1.

Table 1: Knowledge of specific traditional family planning methods

Knowledge of FP methods	Frequency	% Respondent's	Rank
Couple separation	45	50	1
Periodic abstinence	25	28	2
Clitoridectomy	13	14	3
Withdrawal	7	8	4
Use of condoms, injectables and traditional family-planning herbal medicine	0	0	5
Total	90	100	

Participants explained that the family planning decision is sometimes mutual but may also be unilateral by either partner (Underwood et al., 2020). According to B2, B4 and B9, the decision is made following discussions among the couples or reflection of one of the partners.

B2 volunteered to pace children because:

I observed that in the village, most men were polygamous, and some who were open kept another partner in some region far away. I, therefore, decided to practice periodic abstinence to avoid a situation where my spouse could leave me with a large family as a single mother or a concubine to another woman who may be more demanding and keep our husband too busy to take care of my children.

Some women, however, grew up in families where Christian beliefs were not strong, so their parents brought them up with complete Kipsigis tradition, including a rite of passage. This is exemplified in the admission of B7, an elderly grandmother who stated:

Spacing of children was not an issue in our generation. The majority of girls and women did not have a strong urge towards men and even their husbands. At the age of 13, I was taken to some place far from home to live with an old grandmother. I found myself in a group of peers who were to be taken through a rite of passage. My clitoris was severed, and we stayed in the grandmother's home for some three months

to heal. Clitoridectomy extensively reduced my libido, and I could play with boys without looking at them as people of the opposite gender. When I got married, it was my husband who would force me into the female-male union, and this was discomforting to him, so he ended up bringing more wives but getting the same coldness from us.... We were of the same generation, so most of us women had gone through the same rights. With low libido, the spacing of children became natural. I would psych myself to be close to my husband only when I felt like getting another baby.

5.2 Sources of indigenous knowledge on traditional family planning practices

The respondents were asked to state their preferred sources of indigenous knowledge on traditional family planning practices. Their responses are five primary sources of indigenous knowledge, as shown in Table 2.

Table 2: Sources of indigenous knowledge on traditional family planning practices

Sources of information	Frequency	Respondent's response in %	Rank
Friends/ relatives	40	44	1
Spouses	20	22	2
Initiation venues	15	17	3
Social media	10	11	4
Hospitals	5	6	5
Total	90	100	

The most cited source of indigenous knowledge on family planning is friends and relatives, with relatives being more than friends. Relatives who pass down the knowledge are grandparents, aunts, and uncles. It was revealed that children were free with their grandparents, who often referred to them fondly with language that befits boys and girls.

The second most common source is the spouse. In many cases, the man was always the older partner, and with age, more knowledge was accumulated. Men's interactions also go beyond the immediate families. Different age groups come together when herding cattle (Wadende et al., 2022), which gives them opportunities to discuss life experiences and share information passed on to them by parents and grandparents. Since there is no structured approach to passing on indigenous knowledge in family planning, some children get more details than others depending on the interaction space with the elders.

Another important source of indigenous knowledge on family planning is initiation venues. Both male and female youth are taken through initiation. The practices were more prevalent in the olden days. At initiation, men have their foreskin trimmed while girls undergo clitoridectomy by traditional practitioners (Onyango et al., 2023). The initiation process requires the boys and girls to be accommodated in some camps where they are taught about responsibilities and family life.

These findings were corroborated in interview sessions where the elders explained how the different sources transfer knowledge to the younger generation. For the interview, the source of indigenous knowledge on traditional family planning practices was derived from the question that sought to establish the respondents' knowledge of traditional family planning practices. The responses were as follows:

Village elders A1 and A3 concurred that:

Elder A2 explained that:

Most community members learn about traditional family planning practices from parents and friends. Older women typically invite young women to a particular venue where they are taught many lessons concerning traditional family planning practices. Each woman is given a chance to ask questions for clarification. Newly married people are taught family planning practices and are encouraged to follow them strictly to avoid being admonished in future similar gatherings. Girls and boys were also taught traditional family planning towards the end of their rite of passage sessions.

Elder A2 was excited to inform that:

Even we elderly men share indigenous knowledge on family planning out of fun when sharing drinks and some other games. In these sessions, we chide one another on the depth of knowledge on family planning and compare the efficacy of the methods we have individually adopted. Our expertise can also be gleaned from how our lineages perform in child spacing and the general health of the family we are proud of.

SharingEvidently, sharing indigenous family planning practices is a lifelong phenomenon (Yembuu, 2021). The elderly remind themselves of the details when they transfer to the girls and boys and when they ‘recite’ them during informal fond times.

5.3 Methods of disseminating indigenous knowledge on family planning

Respondents were asked to state the methods of disseminating indigenous knowledge on family planning. Their respondents identified multiple methods of disseminating indigenous knowledge on family planning, including rite of passage, discussion with elders, folk media, community discussions, and mass media, which are distributed in Table 3.

Table 3: Methods of disseminating indigenous knowledge on family planning.

Methods of dissemination	Frequency	Respondent’s response in %	Rank
Rite of passage	40	44	1
Discussion with elders	27	30	2
Folks media	10	11	3
Community education	7	8	4
Mass media	6	7	5
Totals	90	100	

The most frequently cited method of passing indigenous knowledge on family planning is teaching during rite of passage functions. During rites of passage, girls and boys are taken care of by elders who have much authority. The girls and boys take the teaching very seriously as the process defines their future in terms of responsibilities.

The second most frequent method of dissemination is discussion with elders. This occurs in varied situations, for example, when a father is warming his body around the fireplace with his sons or when a mother prepares meals in a kitchen with her young adult daughters. The elder usually initiates discussion based on his or her observation of the young adults.

Other methods of disseminating indigenous knowledge on family planning are folk media (Rono, 2022) and mass media. Traditionally, Kipsigis celebrate seasons such as the return of

young adults from initiation. The celebrations are conducted at the community level, where members of the community are invited to an evening bonfire around which the youth and adults perform dances with traditional music and riddles.

5.4 Benefits of traditional family planning practices

Respondents were asked to identify the benefits they have experienced from traditional family planning. Four benefits were commonly cited, including child spacing, reduced unwanted pregnancies, improved quality of life and postponed pregnancy, as shown in Table 4.

Table 4: Benefits of traditional family planning practices

Benefits	Frequency of Respondents	Respondent's percentage
Child spacing	40	44
Reduce unwanted pregnancies	30	33
Improve quality of lives	5	6
Postponed pregnancies	15	17
Total	90	100

From Table 4, child spacing was the most cited benefit. The most common age gap among siblings is two years. The second commonly cited benefit is reducing unwanted pregnancies. The least cited benefit of the traditional family planning method is improved quality of life. Quality of life is, however, an outcome of family planning in general. The quality of life is general to the family and specific to the mother and the child.

5.5 Demerits of traditional family planning practices

Respondents were asked to identify demerits associated with traditional family planning methods. The main demerits identified were lack of support by men, fear of stigma in the community, inadequate knowledge of suitable methods and religious and cultural constraints.

Table 5: Demerits of traditional family planning practices

Demerits	Frequency of respondents	Respondent's percentage
Men do not support the issue of FP	40	44
Fear of stigma in the community	25	28
Lack of knowledge of FP methods	15	17
Religious or cultural constraints	10	11
Total	90	100

The majority of the respondents, 44%, who were females, cited their husbands' lack of cooperation towards family planning. The observation of these respondents was that, whereas a husband would not be categorically opposed to family planning, this can be deduced from their actions of marrying multiple wives. The second common demerit is fear of stigma in the community; 25% explained that there is no universal perspective on family planning. Women who take too long to give birth are seen as retrogressive or are often thought of as being infertile. Other demerits identified were a lack of knowledge of traditional family planning practices, 17%, and religious or cultural constraints, 11%.

5.6 Level of adoption of Western methods of family planning among the Kipsigis community

The respondents were asked to rate the observed level of adoption of modern family planning practices based on their knowledge of the community and reports at Chiefs’ meetings. The rating is displayed in Table 6.

Table 6 Rating Observed Level of Adoption of modern methods of family planning.

Adoption level	Frequency of respondents	Percentage of respondents
Good	8	9
Average	22	24
Fair	60	67
Total	90	100.0

The observed level of adoption of modern (Western) family planning methods is below average, 67%, but fair in the sense that the practices are acceptable to a section of the Kipsigis community. Rating as average, the level of adoption of modern family planning practices was low among 24% of respondents. The proportion that claimed the level of adoption is good was 9%. The predominantly low level of adoption is in part due to already available traditional practices which young adults are being taught during initiation ceremonies. Secondly, there is a notional belief within the community that modern family planning practices tend to have undesired effects.

5.7 Perception of elders on the differential efficacy between traditional family planning and Western methods

The study sought to establish the reasons behind the differences in the level of use of traditional approaches and the adoption of modern approaches to family planning. Questions were posed to the respondents, and the ratings provided were strongly disagree 1, disagree 2, agree 3, and strongly agree 4. The responses received were tabulated in matrix form, as in Table 7.

Table 7: Perception of elders on differential efficacy of traditional and modern FP methods

S/N	Perception of elders	Strongly Agree	Agree	Disagree	Strongly disagree
1	Couples are encouraged to use traditional family planning methods as compared to Western methods	50 56%	20 22%	15 17%	5 6%
2	Traditional family planning methods are mostly preferred due to traditions and religious beliefs	55 61%	15 17%	10 11%	10 11%
3	Traditional family planning methods are easy to adopt as compared to Western methods	45 50%	25 28%	5 6%	15 17%
4	Traditional family planning methods like withdrawal are mostly preferred by many couples because there are no side effects	50 56%	20 22%	10 11%	10 11%

S/N	Perception of elders	Strongly Agree	Agree	Disagree	Strongly disagree
5	The effectiveness of traditional and Western methods of family planning methods are not the same	30 33%	30 33%	20 22%	10 11%
6	Elderly couples prefer traditional methods of family planning as compared to younger generation	40 44%	20 22%	20 22%	10 11%
7	Traditional family planning method is cost-effective as compared to Western methods of family planning	35 39%	15 17%	30 33%	10 11%
	Average	48%	23%	17%	11%

The findings revealed that 56% of the respondents strongly agree that most elders encourage couples to use traditional family planning methods compared to Western methods. Most couples, 61%, highly agreed that elders prefer traditional family planning due to traditions and religious beliefs. Specific traditional methods of family planning, such as withdrawal, were highly preferred by couples 56%. In comparison, the proportion of couples who either strongly or agreed that there was a difference in efficacy of traditional and modern approaches to family planning was high at 66%.

On average, traditional approaches to family planning were strongly agreeable, 48% to most respondents. Indeed, the overwhelming majority, 71%, highly agreed or agreed to traditional approaches. The study revealed that elders favoured traditional approaches to family planning (Harkness & Super, 1987) on several fronts. By default, the younger adults are exposed to traditional family planning during initiation, teaching by the elderly in society and the impression of the belief that they are easier to use and safer for health. In addition, the traditional approaches are friendlier to the pocket as one train on them without taking a ride, and there are no materials to be purchased to adopt them. This contradicts modern family planning practices, which have remained low (Athinkorah, 2020).

6 Research implications

Research on traditional family planning practices can contribute to understanding reproductive health issues, focusing on biological, cultural, and social factors among individuals in the community. Many traditional family planning practices are firmly established through cultural beliefs and practices. In this study, culture plays a vital role in promoting reproductive health. Empowering community members concerning various options for family planning methods and their respective efficacy rates will help promote safe and effective family planning. This research can highlight how traditional family planning practices can impact men and women differently and inform efforts to promote gender equity in family planning decision-making. Research findings will help in finding research gaps in knowledge involving traditional family planning practices, which will guide future research.

7 Conclusion

Traditional family planning methods are widely known among Kipsigis communities. The indigenous knowledge is shared by community members from the time they become young adults. The one to two years the young adults spent in orientation at initiation was long enough for one to get the skills. Members of the community are exposed to the traditional family

planning methods from many sources in everyday life, and the teaching comes from respected older people in the community. As a result, the belief in the efficacy of traditional family planning methods is stronger than that of modern approaches, which members of society perceive as having some side effects, and access to information about modern methods requires visits to certain centres, which is time-consuming and has certain cost implications. Therefore, the processes disseminating indigenous knowledge on family planning should be improved, and elders should take responsibility for ensuring that knowledge sharing is sustained.

8 Recommendations

This section presents the recommendations of the research study. The recommendations include.

- Carrying out a comprehensive assessment of the efficacy of traditional family planning practices among the Kipsigis community should contribute to evidence-based decision-making in reproductive health.
- The research findings should help measure the effectiveness of traditional family planning methods, including conception success and failure rates, pregnancy rates, and contraceptive success and failure.
- There should be an evaluation of user acceptance.
- Comparing the efficacy of traditional methods with modern contraceptive methods should provide valuable insights into the relative effectiveness and acceptability of different approaches to family planning.

References

- Adde, K. S., Ameyaw, E. K., Mottey, B. E., Akpeke, M., Amoah, R. M., Sulemana, N., & Dickson, K. S. (2022). Health decision-making capacity and modern contraceptive utilisation among sexually active women: Evidence from the 2014–2015 Chad Demographic and Health Survey. *Contraception and Reproductive Medicine*, 7(1), 1–9.
- Adinlewa, T. (2022). Routing for alternative paradigms in campaigning for the adoption of modern contraceptive methods of family planning in Nigeria. *Jozac Academic Voice*, 4-8.
- Ahinkorah, B. O. (2020). Predictors of modern contraceptive use among adolescent girls and young women in sub-Saharan Africa: a mixed-effects multilevel analysis of data from 29 demographic and health surveys. *Contraception and reproductive medicine*, 5, 1-12.
- Ahmed, S., Chase, L. E., Wagnild, J., Akhter, N., Sturridge, S., Clarke, A., ... & Hampshire, K. (2022). Community health workers and health equity in low-and middle-income countries: systematic review and recommendations for policy and practice. *International Journal for Equity in Health*, 21(1), 49.
- Alege, S. G., Matovu, J. K., Ssensalire, S., & Nabiwemba, E. (2016). Knowledge, sources and use of family planning methods among women aged 15-49 years in Uganda: a cross-sectional study. *Pan African Medical Journal*, 24(1).
- Aliyu, A. A. (2018). Family planning services in Africa: The successes and challenges. *Family Planning*, p. 69.
- Almalik, M., Mosleh, S., & Almasarweh, I. (2018). Are users of modern and traditional contraceptive methods in Jordan different? *East Mediterr Health J*, 24(4), 377-84.

- Asif, M. F., & Pervaiz, Z. (2019). Socio-demographic determinants of unmet need for family planning among married women in Pakistan. *BMC Public Health*, 19(1), 1–8.
- Bado, A. R., Badolo, H., & Zoma, L. R. (2020). Use of modern contraceptive methods in Burkina Faso: What are the obstacles to male involvement in improving indicators in the centre-east and centre-north regions? *Open Access Journal of Contraception*, 147-156.
- Banerjee, J., Jain, U., Khobragade, P., Weerman, B., Hu, P., Chien, S., ... & Rajguru, C. (2020). Methodological considerations in designing and implementing the harmonised diagnostic assessment of dementia for longitudinal ageing study in India (LASI–DAD). *Biodemography and social biology*, 65(3), 189-213.
- Beguy, D., & Mberu, B. (2015). Patterns of fertility preferences and contraceptive behaviour over time: change and continuities among the urban poor in Nairobi, Kenya. *Culture, health & sexuality*, 17(9), 1074-1089.
- Beson, P., Appiah, R., & Adomah-Afari, A. (2018). Modern contraceptive use among reproductive-aged women in Ghana: prevalence, predictors, and policy implications. *BMC women's health*, 18(1), 1-8.
- Chepkemoi, M. (2021). The Africa Inland Mission and the Education for Girls among the Kipsigis of the Kericho and Bomet Counties, Kenya, 1900-1945. *Missionary Education: Historical Approaches and Global Perspectives*, 1, 255.
- Cherono, E. (2020). Change and continuity in riddles and riddle performance among the Kipsigis of Kericho County, Kenya (Doctoral dissertation, Egerton University).
- Chukwuji, C. N., Tsafe, A. G., Sayudi, S., Yusuf, Z., & Zakariya, J. (2018). Awareness, access and utilisation of family planning information in Zamfara State, Nigeria. *Library Philosophy and Practice (e-journal)*, 771.
- Eram, U. (2017). Myths and beliefs about contraceptive methods: a review article. *Saudi J Med Pharm Sci*, 3(1), 9–12.
- Fenta, S. M., & Gebremichael, S. G. (2021). Predictors of modern contraceptive usage among sexually active rural women in Ethiopia: A multilevel analysis. *Archives of Public Health*, 79(1), 1-10.
- Gebreselassie, T., Bietsch, K., Staveteig, S., & Pullum, T. W. (2017). Trends, determinants, and dynamics of traditional contraceptive method use. ICF.
- Guure, C., Maya, E. T., Dery, S., da-Costa Vrom, B., Alotaibi, R. M., Rezk, H. R., & Yawson, A. (2019). Factors influencing the unmet need for family planning among Ghanaian married/union women: a multinomial mixed effects logistic regression modelling approach. *Archives of Public Health*, pp. 77, 1–12.
- Hajizadeh, M., & Nghiem, S. (2020). Does unwanted pregnancy lead to adverse health and health-care utilisation for mother and child? Evidence from low-and middle-income countries. *International journal of public health*, 65, 457-468.
- Harkness, S., & Super, C. M. (1987). Fertility change, child survival, and child development: Observations on a rural Kenyan community. In *Child survival: Anthropological perspectives on the treatment and maltreatment of children* (pp. 59–70). Dordrecht: Springer Netherlands.
- Hubacher, D., & Trussell, J. (2015). A definition of modern contraceptive methods. *Contraception*, 92(5), 420-421.
- Kabagenyi, A., Jennings, L., Reid, A., Nalwadda, G., Ntozi, J., & Atuyambe, L. (2014). Barriers to male involvement in contraceptive uptake and reproductive health services: a qualitative study of men and women's perceptions in two rural districts in Uganda. *Reproductive health*, 11(1), 1–9.
- Liu, D. H., & Raftery, A. E. (2020). How do education and family planning accelerate fertility decline? *Population and Development Review*, 46(3), 409–441.
- Malarcher, S., Spieler, J., Fabic, M. S., Jordan, S., Starbird, E. H., & Kenon, C. (2016). Fertility awareness methods: distinctive modern contraceptives. *Global Health: Science and Practice*, 4(1), 13-15.

- Msovela, J., Tengia-Kessy, A., & Mubyazi, G. M. (2016). Access to family planning information and contraception methods use among Tanzanian men: a cross-sectional study in Kibaha District. *Journal of Epidemiology and Preventive Medicine*, 2(2).
- Mushy, S. E., Tarimo, E. A., Massae, A. F., & Horiuchi, S. (2020). Barriers to adopting modern family planning methods among female youth of Temeke District in Dar es Salaam, Tanzania: A qualitative study. *Sexual & Reproductive Healthcare*, 24, 100499.
- Onyango, J., Ochillo, M., Omanga, E., Spala, O., Wango, G. N., Lwanya, E., & Agot, K. (2023). Early infant male circumcision: Potential for changing adverse gender norms associated with traditional male circumcision among circumcising communities in Kenya. *African Journal of AIDS Research*, 22(2), 136-144.
- Owoyemi, J. O., Ifatimehin, O. O., Egwuaba, E., & Obaka, P. I. (2020). Accessibility and Utilisation of Family Planning Services Among Married Couples in Kogi State, North Central Nigeria. *Cent Afr J Public Health*, 6, 110-21.
- Pham, B. N., Whittaker, M., Okely, A. D., & Pomat, W. (2020). Measuring unmet need for contraception among women in rural areas of Papua New Guinea. *Sexual and reproductive health matters*, 28(2), 1848004.
- Quereishi, M. J., Mathew, A. K., & Sinha, A. (2017). Knowledge, attitude and practice of family planning methods among the rural females of Bagbahara block Mahasamund district in Chhattishgarh State, India. *Glob J Med Public Heal*, 6(2), 1-7.
- Rabiu, A. (2018). The role of traditional contraceptive methods in family planning among women attending primary health care centres in Kano. *Annals of African medicine*, 17(4), 189.
- Rono, C. K. E. (2022). Evolutions, Transformations and Trends in Kalenjin Traditional Songs. *Journal of African Cultural Studies*, 34(4), 422-437.
- Rossier, C., & Corker, J. (2017). Contemporary use of traditional contraception in sub-Saharan Africa. *Population and Development Review*, 43(Suppl 1), p. 192.
- Sedlander, E., Yilma, H., Emaway, D., & Rimal, R. N. (2022). If fear of infertility restricts contraception use, what do we know about this fear? An examination in rural Ethiopia. *Reproductive health*, 19(1), 1–10.
- Senderowicz, L. (2020). Contraceptive autonomy: conceptions and measurement of a novel family planning indicator. *Studies in family planning*, 51(2), 161-176.
- Sinai, I., Omoluabi, E., Jimoh, A., & Jurczynska, K. (2020). Unmet need for family planning and barriers to contraceptive use in Kaduna, Nigeria: culture, myths and perceptions. *Culture, health & sexuality*, 22(11), 1253-1268.
- Staveteig, S. (2017). Fear, opposition, ambivalence, and omission: results from a follow-up study on unmet need for family planning in Ghana. *PloS one*, 12(7), e0182076.
- Underwood, C. R., Dayton, L. I., & Hendrickson, Z. M. (2020). Concordance, communication, and shared decision-making about family planning among couples in Nepal: A qualitative and quantitative investigation. *Journal of Social and Personal Relationships*, 37(2), 357–376.
- Wadende, P. A., Lasser, J., & Fite, K. (2022). The Kenyan Parent in Changing Times: An Update. In *Parenting Across Cultures: Childrearing, Motherhood and Fatherhood in Non-Western Cultures* (pp. 1-11). Cham: Springer International Publishing.
- World Health Organization (2017). Family Planning/Contraception. Available from: <http://www.who.int/mediacentre/factsheets/fs351/en/>
- World Health Organization (2018). Fact Sheet- Family Planning. Retrieved from Family Planning / Contraception: <https://www.who.int/news-room/fact-sheets/detail/family-planning-contraception>.
- Yembuu, B. (2021). Intergenerational learning of traditional knowledge through informal education: the Mongolian context. *International Journal of Lifelong Education*, 40(4), 339–358.

3. Indigenous Knowledge on Herbal Treatment of Pediatric Illnesses Among the Luo Community in Kenya

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Abstract

This study investigates indigenous knowledge of herbal treatments for Pediatric illnesses in Kenya. The study examines the depth and diversity of knowledge held by women within the Luo community. The study employed a qualitative research design. Data was collected from seven purposefully selected women respondents through structured interviews to explore their knowledge and practices regarding 91 distinct Luo herbal treatments used for various ailments affecting children. On average, the findings revealed that each respondent had treated 46 varied ailments using herbal medicine, emphasizing the rich repository of indigenous knowledge women possess. Despite differences in individual knowledge, a significant overlap of remedies was observed, indicating shared understanding within the community. Herbal medicine preparation methods demonstrate diverse techniques and application methods, distinct classification of ailments, meticulous observation of symptoms, and cautionary measures against combining biomedical and herbal treatments. The study highlights the interconnectedness of various illnesses, emphasizing the consequences of untreated conditions. The practical implications of the findings underscore the importance of preserving and integrating indigenous knowledge into contemporary healthcare practices. This study recommends the need for further ethnographic research and collaboration between traditional and modern healthcare systems to reduce child mortality rates. It offers valuable insights into the richness of indigenous knowledge, particularly in treating pediatric illnesses, with emphasis on its originality and its significance in healthcare practices. The study contributes to the ongoing discourse on the integration of traditional medicine with modern healthcare systems, offering potential pathways to enhance pediatric healthcare practices globally.

Keywords: *Children's diseases, herbal medicine, indigenous knowledge, pediatric illness, traditional medicine*

1 Introduction

The indigenous knowledge of herbal treatments deeply ingrained in the culture and traditions of the Luo community reflects their historical experiences in managing various pediatric illnesses. Their understanding of health and awareness shapes this knowledge. Within the Luo community, individuals with specialized expertise in herbal medicine - often referred to as *Ajuoga* - have inherited and passed down their knowledge through generations. Consequently, they serve as invaluable resources in treating pediatric illnesses.

Herbal treatments, as noted by Prince et al. (2001), often present a more accessible and affordable alternative to modern medical interventions. Given the limited access to healthcare facilities for many families in the Luo community, indigenous herbal remedies offer a practical means of addressing pediatric health issues. Moreover, these treatments adopt a holistic approach, combining herbal remedies with spiritual and cultural practices that cater to the

physical symptoms and emotional and spiritual well-being of the child. Seeking advice from elders and experienced community members fosters a sense of collective responsibility for children's health, promoting community cohesion and solidarity (Prince et al., 2001).

The foundation of Luo herbal medicine rests upon communal knowledge, primarily held by women responsible for children's health. This knowledge is shared through the exchange of plant remedies, emphasizing its role in caregiving. Unlike Western doctors, medical specialists such as healers are consulted selectively, particularly in rare or severe illnesses. They are known not for the breadth but for the uniqueness of their treatments (Prince et al., 2001).

Indigenous herbal knowledge significantly contributes to biodiversity conservation, relying on a deep understanding of local flora and fauna. The Luo community recognizes the importance of preserving the plants and herbs used in their traditional medicine. Furthermore, integrating indigenous knowledge into healthcare practices plays a pivotal role in preserving the Luo community's cultural identity. It reinforces pride in their traditions and strengthens their connection to ancestral heritage.

2 Geographical context and purpose of the study

The research was conducted in Kisumu County, Kenya, specifically in the village of Seme Kadero, located within Seme Constituency, one of the seven constituencies in Kisumu County. Seme is situated approximately 49.6 kilometres from Kisumu town. In this region, the sunrise occurs at 6:30 am and sunset at 6:40 pm, positioned at a Latitude of -0.0833° and Longitude of 34.5167° . The average temperature registers at $28^{\circ}\text{C} / 82^{\circ}\text{F}$.

Seme Constituency predominantly houses the Luo ethnic group, known as Jo-Seme, and a smaller number of immigrants (Jodak) from neighbouring clans such as Jo-Asembo, Jo-Kisumo, Jo-Gem, and the Abaluhya, particularly the Banyore. The physical landscape of the Sub-County features low ridges, seasonal rivers, the expansive Lake Victoria, and escarpments. Notable geological formations include vast overhanging granitic rocks and the renowned Kit Mikayi.

The research employed a case study research design concentrated on the Kamolo clan of Seme Kadero village within the Seme Constituency of Kisumu County. The study's target population consisted of 100 participants, including traditional herbalists and young mothers with infants and toddlers. The snowball sampling technique was utilized to select participants, ultimately yielding a sample size of 50 participants. Data was collection using structured interviews with both herbalists and young mothers having infants or toddlers, supplemented by a comprehensive literature review.

3 Role of herbal medicine in the Luo community

Herbal medicine plays a crucial role in the healthcare practices of the Luo community, serving as a primary resource for treating common ailments and health issues. Within this community, traditional healers, known as "*Jathith*," possess vast knowledge of local plants and their medicinal properties. They are not solely viewed as doctors but are also believed to connect with the spiritual realm, diagnosing and treating illnesses through rituals and ceremonies in conjunction with herbal remedies. Mailu (2020) emphasises the effectiveness of herbal medicine in treating various conditions, including respiratory problems. In the realm of Pediatric herbal treatment, women aged 60-71 years, lacking formal education but possessing 20 to 30 years of experience, often take charge. Specific herbs administered by these women to pregnant individuals aim to ensure safe pregnancy and childbirth experiences (Olenja, 1991). Traditional

midwives also hold expertise in these practices, utilizing herbal medicine to address a wide array of health issues such as malaria, digestive disorders, skin conditions, and respiratory infections. The transmission of knowledge regarding the use of different plants for specific conditions occurs through generations, safeguarding this invaluable aspect of cultural heritage. Herbal medicine preserves traditional knowledge and cultural practices within the Luo community and integrates with modern Western medicine in certain cases, serving as an alternative or complementary form of treatment. Elders and healers actively pass down their knowledge of medicinal plants to younger generations, ensuring the continuity of this vital aspect of their cultural heritage (Ocholla-Ayayo, 1980).

Additionally, the knowledge of herbal medicine contributes significantly to the conservation of local plant species. The reliance of the Luo community on medicinal plants has prompted efforts to protect and sustainably manage these resources. Collaborative initiatives between organizations like the Centre for Traditional Medicine and Drug Research (CTMDR) at Kenya Medical Research Institute (KEMRI) aim to rationalize traditional medicines in tandem with traditional healers. These initiatives involve evaluating plant drugs through medicinal phytochemistry, pharmacology, and toxicology, as well as formulating herbal remedies, all striving to enhance the quality of health and human life by providing evidence-based information on traditional medicines and drugs (KEMRI, 2022).

4 Methodology

The research employed a case study research design concentrated on the Kamolo clan of Seme Kadero village within the Seme Constituency of Kisumu County. The study's target population consisted of 100 participants, including traditional herbalists and young mothers with infants and toddlers. The snowball sampling technique was utilized to select participants, ultimately yielding a sample size of 50 participants. Data was collection using structured interviews with both herbalists and young mothers having infants or toddlers, supplemented by a comprehensive literature review.

Qualitative data obtained from these interviews were analyzed by grouping responses into distinct themes, followed by a descriptive pattern analysis.

4.1 Role of herbal medicine in the Luo community

This study revealed that herbal medicine plays a crucial role in the healthcare practices of children in the Luo community, serving as a primary resource for treating common ailments and health issues. Within this community, traditional healers, known as "*Jathieth*," possess a vast knowledge of local plants and their medicinal properties. They are not solely viewed as doctors but are also believed to connect with the spiritual realm, diagnosing and treating illnesses through rituals and ceremonies in conjunction with herbal remedies (Mailu, 2020).

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4.2 Transfer of indigenous knowledge on herbal medicine from one generation to another

The transmission of indigenous knowledge concerning herbal medicine and treatment occurs through a multifaceted process, primarily relying on oral tradition, practical experiences, and cultural practices (Ouma, 2022). Elders and traditional healers assume essential roles in this transmission, sharing their experiences, narratives, and teachings with younger individuals expressing interest in acquiring these skills. This intergenerational learning is considered part of a training system with roots dating back millennia, integral to the cultural heritage of many societies (Hoff et al., 2002).

Indigenous knowledge about traditional medicinal practices is not only regarded as a health system. It is also acknowledged for its temporal, spatial, epistemological, philosophical, scientific, and logical dimensions and inherent validity (Battiste, (2005).)It evolves through experimentation, research, and trial and error, fostering innovative local knowledge while incorporating external knowledge shaped by diverse worldviews.

Within many indigenous cultures, aspiring herbalists or healers undergo training under experienced practitioners. Additionally, some cultures integrate herbal medicine knowledge into cultural rituals and ceremonies, using these occasions to educate and pass down traditional healing practices (Nyamwaya, Traditional Medicine in Kenya, East Africa, 1992).

The transmission of this knowledge is deeply intertwined with the natural environment. Younger generations learn about plants, their properties, and applications by engaging in nature with their elders and actively participating in the gathering and preparation of herbal remedies (Kokwaro, 1993; Last, 1986).

Some indigenous communities also utilize written records, such as manuscripts or journals, to document herbal remedies and treatment methods, serving as references for future generations (Hart, 2007). Initiation ceremonies, crucial rites of passage within various cultures, may grant access to specific knowledge, as seen during children's weaning stages or other pivotal life moments.

Storytelling, folklore, myths, and folktales hold significant roles in passing down knowledge of herbs and their medicinal properties. They serve as valuable repositories of information within the cultural fabric of indigenous communities.

Notably, the transmission of indigenous knowledge on herbal medicine involves collective efforts within a community. Active community participation in gathering, preparing, and using herbal remedies ensures the preservation and continuation of this invaluable knowledge.

It is essential to recognize that the transmission methods vary across cultures and communities, deeply rooted in each group's specific cultural and environmental context. Protecting this knowledge is critical, given its vulnerability to exploitation and loss due to cultural erosion and commercial interests. Efforts are underway to safeguard and respect indigenous knowledge, advocating for the rights of indigenous communities over their traditional medicine practices.

4.3 Herbal medicines used among the Luo community

Our research centered on engaging mothers from diverse age groups as primary informants to collect insights into plant-based treatments utilized by the rural Luo population. We selected mothers recognizing that parenting influences medical knowledge acquisition and that the realm of plant medicine knowledge and usage is predominantly within the female domain. Seven female volunteers, spanning a wide age range from a grandmother with over ten grandchildren to a new mother of one child, offered to share their medicinal knowledge. Their ages ranged from 17 to nearly 65 years, with an average age of 36 years. All these women were native to and currently residing in rural areas, except one who had previously lived in Nairobi. None of these women held a recognized status in the community as healers.

Our interviews with these women, conducted in the Dholuo language, aimed at gathering detailed insights into plant-based remedies and their applications. These discussions encompassed illness conceptions indigenous to the community, previously collected during investigations with children and adults in the same villages. Subsequently, plant specimens were collected during wilderness walks with the women.

The Luo herbal medicine collection includes various forms such as weeds, roots, tree bark, leaves (which can be dried and powdered), teas, herbs, plants, fruits, and vegetables. Some commonly used herbs and plants in Luo herbal medicine, supported by research (Johns T. K., (1990).) include:

- **Pon Kodongo (aloe vera):** This plant is applied topically to treat skin conditions, burns, and wounds due to its soothing and healing properties.
- **Neem Leaves and Bark:** These possess antimicrobial and antifungal properties and are used for various skin conditions and infections.
- **Osuga (Bitter Leaves):** Known for treating stomach aches and inflammation and aiding in blood circulation and lactation for nursing mothers.
- **Tendere (Ginger):** Relieves nausea, colds, and digestive discomfort with its warming properties.
- **Karanga (Garlic):** Recognized for its antibacterial and immune-boosting qualities, used to treat respiratory infections.
- **Manjamiti (Peppermint):** Used to make herbal teas to alleviate digestive issues and headaches.
- **Lipiri (Lemon Grass):** Believed to reduce fever and improve digestion when used to make herbal tea.
- **Lwak (Moringa):** Utilized for potential nutritional and medicinal benefits due to its nutrient-rich leaves.

- **Lwak Jango (African Potato):** Applied in treating respiratory conditions and skin disorders.
- **Dongo (African Marigold):** Topically applied to treat skin conditions and infections due to its antimicrobial properties.
- **Ikwani (Papaya):** Leaves and fruits used for digestive problems.
- **Nyalo (Cassia) Leaves:** Used in herbal teas for potential digestive benefits.

It is essential to note that the specific uses and preparation methods of these herbs may vary within the Luo community. Traditional healers often have specialized knowledge of these remedies. While traditional medicine holds significance within many Luo communities, there is a growing interest in integrating it with modern healthcare practices for safety and efficacy. Consulting with qualified healthcare providers is advisable, especially for serious conditions, when considering herbal remedies.

4.4 Herbal medicine for childhood diseases among the Luo community

The seven women respondents shared a total of 91 Luo herbal treatments they claimed to have utilized for themselves or their families. Their knowledge varied significantly; they cited between 23 and 70 treatments (an average of 46 remedies). Notably, confidence levels did not correspond directly to age or the number of children, as some younger women exhibited extensive knowledge. The differences in knowledge seem to be due to personal inclinations among the women, as expressed by one of the more knowledgeable women: “Some girls just like learning about medicines.” Despite these differences, there was a significant overlap in their knowledge, with at least two women being familiar with 75 Luo remedies (82%) and 43 remedies (47%) being known by all participants. The study primarily focuses on the treatment of children.

The preparation of medicines derived from these plants involved various methods such as boiling a decoction, pounding and mixing with hot or cold water, pounding without water, or soaking in a basin with water. For more complex illnesses, some remedies require different preparation methods. Most commonly, the medicines were ingested (*madho*), while external applications like washing (*luoko*), massaging (*rwayo*), snuffing (*fito*), and steam baths (*fundo*) were also typical. Steam baths often accompanied washing and drinking small amounts of the decoction, especially for treating a wide range of small children’s diseases like diarrhoea and skin conditions, which were associated with the Luo illnesses *yamo* and *nuoyo*.

Luo mothers categorized various types of diarrhoeas (*diep*) based on colour (e.g., yellow (*ratong*), green (*maralum*)), consistency (e.g., watery (*diep mar pi*)), presence of food particles (*mar chiemo*), or blood (*diep mar remo* or *ndira*). Further ethnographic research is suggested to explore their classifications of stools and their meticulous observation of children’s skin and mobility.

Most commonly treated infant ailments included *nuoyo* (characterized by high fever, diarrhoea, and sometimes malaria) and *orinyancha*, a form of diarrhoea affecting infants from around four months to their early years. These illnesses were perceived as linked to *yamo* and were treated with herbal concoctions to induce diarrhoea or with steam baths to produce rashes on the skin. Steam baths, lasting 3 to 4 days for diarrhoea but a single session to prevent *nuoyo* (malaria), were common treatments. Mixing biomedical and herbal treatments was cautioned against due to potential contradictions between the two. All mothers concurred that untreated *nuoyo* and *orinyancha* could lead to a child’s death.

Measles (*angien*) described by English-speaking mothers and medical staff in the area was also linked to *yamo*. It presented with rashes and diarrhoea, and it was treated with immediate

administration of herbal concoctions through ingestion and bathing with the herbs. Worms (*njokea/njokla*) caused stretching (*twenyre*) in children and impacted their respiratory system; treatment involved herbal remedies. “Homa,” derived from Swahili, had two types of symptoms: cough, sore throat, runny nose, and cold, or headache, body aches, fever, and sometimes a congested chest, akin to malaria (Beckerleg, (1994).)

“*Sibobo*” or “*Dhobo*” illness caused by praising a child’s beauty, leading to skin deterioration, and “*Chira*,” attributed to one parent having multiple partners, causing weight loss and diarrhoea in children, were also discussed. Measles (*angien*) could recur and exhibited symptoms like rashes and high temperature. “*Lak matw?*” (false teeth) frequently seen among children linked to diarrhea and stomach problems, was prevented by rubbing plant medicine on the gums or by a specialist called “*janak?*” who extracted these false teeth.

4.5 Potential risks and adverse effects of traditional herbal treatments for pediatric ailments

Traditional herbal treatments have a longstanding history of addressing various health issues, including pediatric ailments. However, it is crucial to be aware of potential risks and adverse effects associated with their use in children. Herbal medications, often perceived as safe due to their natural origins, can, in fact, lead to adverse effects:

Adverse reactions

Herbal medicines can cause allergic reactions, ranging from mild symptoms like rashes to severe conditions like anaphylactic reactions (Abd El-Mawla et al., 2013) Some reported side effects include headaches, dizziness, agitation, seizures, fatigue, tachycardia, nausea, vomiting, and diarrhea. Severe cases of hepatotoxicity (liver damage) and life-threatening reactions have also been documented.

Lack of standardization

Traditional herbal remedies often lack standardized dosages and formulations, making it challenging to determine appropriate doses for children. This increases the risk of either underdosing or overdosing (Ekor, 2014).

Toxicity

Some herbs may have toxic effects, especially if prepared or administered incorrectly, posing more significant risks for children due to their smaller size and developing organs (Abd El-Mawla et al., 2013).

Drug interactions

Herbal treatments can interact with prescribed medications or other herbs a child might be taking, leading to harmful side effects or reducing the effectiveness of medications (Kosalec et al., 2009).

Contamination

Herbal products might be contaminated with pesticides, heavy metals, or other harmful substances, mainly when acquired from unregulated sources.

Delay in seeking medical care

Relying solely on herbal treatments for pediatric severe ailments can delay seeking appropriate medical care. Immediate medical intervention might be necessary for certain conditions, and solely relying on herbal remedies could jeopardize a child's health (Woolf, 2003).

Misdiagnosis and inconsistent efficacy

Without proper medical evaluation, misidentifying the cause of an ailment is possible. Inconsistent efficacy among different herbal products can lead to delays or ineffectiveness (Elnageeb et al., 2019).

Parents and caregivers must exercise caution when considering herbal treatments for pediatric ailments. Consulting a qualified healthcare professional with expertise in pediatric care before using any herbal remedy is strongly recommended. This consultation can determine if the herbal treatment is appropriate, safe, and effective for the child's condition, considering factors like age, weight, and overall health. In many instances, a combination of conventional medical treatment and complementary therapies, including herbal remedies, may offer the most suitable approach to pediatric healthcare.

4.6 Effectiveness of herbal medicine in addressing ailments

The effectiveness of herbal medicine in treating ailments varies significantly, influenced by factors such as the specific ailment, types of herbs used, and individual health characteristics. Herbal medicine, also known as botanical medicine or phytotherapy, has served as a primary healthcare approach across cultures for centuries. For instance, the neem plant and properly used medicinal cannabis (*Cannabis sativa*) have demonstrated efficacy in addressing various ailments in both children and adults.

The efficacy of herbal treatments can vary from person to person. Some herbs may interact with medications or exhibit side effects. Hence, it is crucial to consult a healthcare professional, particularly one with expertise in herbal medicine, before using them, particularly for serious or chronic conditions (Woolf, 2003).

Herbal medicine often serves as an alternative or complementary approach to conventional medicine and can be effectively used alongside medical treatments when deemed appropriate. However, it is imperative to recognize that the effectiveness of herbal medicine depends on several elements, including the specific herb used, the ailment being addressed, and individual health factors.

While herbal medicine can be effective in managing specific ailments, its efficacy is contingent upon various factors. It is essential to approach herbal medicine cautiously, seek guidance from qualified healthcare professionals, and remain mindful of potential interactions and side effects. This approach ensures a balanced and informed utilization of herbal treatments to address health concerns.

5 Conclusion

The future of herbal medicine in our community and society appears promising but requires careful attention to scientific validation, regulation, sustainability, and responsible use. As the field continues to evolve, it has the potential to complement and enhance conventional medicine, offering a more holistic approach to healthcare for those who seek it.

6 Recommendations

This study recommends the following key factors which can influence practice and policy, including its scholarly contribution:

- The government should implement a sustainable legal and regulatory framework governing the use and practice of herbal medicine in Kenya.
- Herbalists, especially women, should give public education and awareness campaigns that are essential for promoting responsible and safe use of herbal medicine. People need to understand the potential benefits, limitations, and risks associated with herbal remedies.
- Governments and regulatory bodies should develop guidelines and standards to ensure the safety and efficacy of herbal product sources by conserving the forests.
- There should be globalization of Traditional herbal practices from different cultures to be shared globally. This exchange of knowledge can lead to the development of new herbal remedies and treatments.
- Scholars may contribute by documenting and validating the knowledge held by the Luo community, ensuring that it is not lost with time.
- Researchers may explore the scientific basis of traditional herbal remedies used by the Luo Community. This involves testing the efficacy and safety of herbal treatments to validate their traditional use and potentially integrate them into modern healthcare practices.
- Collaborative research involving the Luo community can contribute to a more holistic understanding of herbal treatments. Engaging with local communities ensures that the research respects cultural nuances and involves the active participation of the community members.
- Scholars may contribute to educational programs aimed at empowering the Luo community to continue their practices while being aware of potential health risks and seeking appropriate healthcare when needed.
- Research can focus on the sustainable harvesting and cultivation of medicinal plants, ensuring the long-term availability of these resources for future generations.

References

- Abd El-Mawla, A. M., Albarrag, A. R., & Abdallah, M. A. K. (2013). Herbal medicine use in a group of Taif children, Saudi Arabia. *Spatula DD*, 3(2), 41-44.
- African Herbal Medicine. Retrieved on 15/12/2023 from <https://www.metissagesanguemisto.com/traditional-herbal-bath-for-a-newborn-in-nigeria-africa/>
- Battiste, M. (2005). Indigenous knowledge: Foundations for first nations. *WINHEC: International Journal of Indigenous Education Scholarship*, (1), 1-17.
- Beckerleg, S. ((1994).). Medical pluralism and Islam in Swahili communities in Kenya. . *Medical Anthropology Quarterly*, 8(3), 299-313.
- David, N. (1992). African Indigenous Medicine African Indigenous Medicine An Anthropological Perspective for Policy Makers and Primary Health Care Managers.

- Elnageeb, M. M. (2018). Awareness and attitude of mothers about herbal medicine used to treat children aged under 5 years in Shendi City, Sudan. *Shendi University Journal of Applied Science*, 2, 37-40.
- Ekor, M. (2014). The growing use of herbal medicines: issues relating to adverse reactions and challenges in monitoring safety. *Frontiers in pharmacology*, 4, 177.
- Hart, M. (2007). Indigenous knowledge and research: The mikiwáhp as a symbol for reclaiming our knowledge and ways of knowing. *First Peoples Child & Family Review*, 3(1), 83–90.
- Hinga, A. J. ((2022)). Pandemic preparedness and responsiveness of research review committees: lessons from review of COVID-19 protocols at KEMRI Wellcome Trust Research Programme.
- Hoff, E., Laursen, B., & Tardif, T. (2002). Socioeconomic status and parenting. Handbook of parenting: Vol. 2. Biology and ecology of parenting.
- Johns, T. K. ((1990)). Herbal remedies of the Luo of Siaya District, Kenya: establishing quantitative criteria for consensus. *Economic Botany*, . 3,69-381.
- Klocke, S. (1984). The Luo Culture. A Reconstruction of the Material Culture Patterns of a Traditional African Society
- Kokwaro, J. (1993). Medicinal Plants of East Africa, second ed. a, second ed. East African Publishing House Nairobi, Kampala, Dar es Salam.
- Kosalec, I., Cvek, J., & Tomic, S. (2009). Contaminants of medicinal herbs and herbal products. *Arhiv za higijenu rada i toksikologiju*, 60(4), 485.
- Last, M. C. GL (1986): The Professionalisation of African Medicine.
- Mailu, J. K. (2020). Medicinal plants used in managing diseases of the respiratory system among the Luo community: an appraisal of Kisumu East Sub-County, Kenya. *Chinese Medicine*, 15, 1-27.
- Nyamwaya, D. (1992.). Traditional Medicine in Kenya. East African.
- Ocholla-Ayayo, A. B. (1980). The Luo culture. A reconstruction of the material culture patterns of a traditional African society. Wolfgang Goethe Universitat. *Studien zur Kulturkunde, Frobenius-Institut Johann*, p. . 54 pp. 157pp.
- Olenja, J. M. (1991). Women and health care in Siaya District.
- Ouma, A. (2022). Intergenerational learning processes of traditional medicinal knowledge and socio-spatial transformation dynamics. *Frontiers in Sociology*, p. 7, 661992.
- Prince, R. J., Geissler, P. W., Nokes, K., Maende, J. O., Okatcha, F., Gringorenko, E., & Sternberg, R. (2001). Knowledge of herbal and pharmaceutical medicines among Luo children in western Kenya. *Anthropology & medicine*, 8(2-3), 211-235
- Woolf, A. D. (2003). Herbal remedies and children: Do they work? Are they harmful? *PEDLATRICS-SPRINGFIELD-*, 112(1; ISSU 2), pp. 240–246.

4. Indigenous Medical Repository System of The Luo Community: A Prototype

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Abstract

The Indigenous Medical Repository System of the Luo community is the focus of this paper. The Luo people have a long history of using traditional medical practices, and this system is an essential aspect of their cultural heritage. The study aims to develop a traditional medical repository for the Luo community in Kenya, capturing the types of medicines used, the roles of traditional healers, and the methods used to transmit this knowledge from one generation to the next. To gather data, the researcher conducted interviews with members of the Luo community, including traditional healers and herbalists. The researcher also reviewed existing literature on the subject, including historical accounts of the Luo people and their medical practices. The findings of the study reveal a rich and diverse medical history within the Luo community. The traditional medicines used by the Luo people are primarily plant-based, and the knowledge of their medicinal properties is passed down across generations. The study highlights the importance of preserving and promoting traditional medicine practices. The findings suggest that there is a need for further research in this field, particularly in areas such as the efficacy of traditional medicines and the potential for integrating traditional medicine with modern healthcare practices. The Indigenous Medical Repository System of the Luo community is a valuable cultural asset that should be preserved and celebrated. This study provides insights into the system's inner workings and offers a foundation for future research and understanding of traditional medicine practices within the Luo community.

Keywords: *Repository system, Luo culture, medicine practices, types of medicine*

1 Background information

The Luo community is one of the major ethnic groups in East Africa, primarily inhabiting the regions around Lake Victoria, including parts of Kenya, Uganda, Tanzania, and South Sudan (Omulo & Williams, 2018). The history of the Luo community dates back centuries, and their indigenous medical system has been an integral part of their culture since time immemorial, in which traditional medicine in Luo society has evolved through experiential learning, observation, and oral transmission of knowledge from one generation to the next. Over time, with a rich cultural heritage and a long history, the Luo people have developed their unique traditional medical practices and knowledge, which have been passed down through generations through apprenticeships. According to Munala et al. (2022), the Indigenous Medical ways of the Luo community are a subject of research that delves into the traditional healing practices, medicinal knowledge, and beliefs surrounding health and wellness within this ethnic group since healing practices and herbal remedies have been essential in maintaining the health and well-being of community members. The Luo community's medical repository system operates on a holistic approach to healing, encompassing not only physical health but also mental, spiritual, and social aspects of well-being where traditional healers play a central role in administering these healing practices (Ogembo et al., 2022). They were highly respected and regarded as custodians of medicinal knowledge in the form of tacit knowledge (Mailu et al., 2020). The use of medicinal

plants is a cornerstone of the Luo indigenous medical treatment methods since the region's diverse flora provides a wide array of plants with potential healing properties. Traditional healers possess deep knowledge of these plants and their applications, ranging from treating common ailments to more complex health issues. The documentation and preservation of this knowledge form the basis of the indigenous medical repository system.

2 Statement of the problem

In recent times, the traditional medicinal methods of the Luo community have faced challenges such as a low acceptance rate, low rate of transfer from one generation to another, and at some point, entirely abandoned due to various factors such as modernization, urbanization, the influence of Western medicine, and the younger generation's diminishing interest in traditional practices pose threats to the preservation of this ancient knowledge (Chebii et al., 2020). Efforts are being made to document and safeguard traditional healing practices before they are lost to future generations. With the advent of modernization and urbanization, younger generations within the Luo community are becoming increasingly disconnected from their traditional roots (Mailu et al., 2020). As a result, there is a risk of losing valuable indigenous medical knowledge and practices that have been passed down through oral traditions for generations in the form of tacit knowledge because the vast majority of indigenous medical knowledge held by traditional healers within the Luo community is largely undocumented and making it very difficult to identify the medicinal plants the diseases used for their treatment and which part of the plant was being used. This lack of documentation hinders the integration of traditional healing practices into the broader healthcare system. It restricts its recognition and potential benefits to even the upcoming younger generation of the Luo community. As a result of this problem, the researcher would like to create a repository system that documents (Explicit Knowledge) the traditional medicinal plants of the Luo community to facilitate access and more effortless transfer of this tacit knowledge. The research objectives were to conduct documentation of the traditional medicinal practices, healing rituals, and herbal remedies used by the traditional healers within the Luo community, to identify and catalogue the various medicinal plants used in the indigenous medical repository system of the Luo community for easier access and to design and develop a prototype for the indigenous medical repository system of the Luo community.

3 Literature review

Maintaining a robust immune system is essential for protecting the body from harm. However, if it becomes compromised, it can increase the likelihood of developing chronic illnesses that may not be effectively addressed by traditional medicine (Anywar et al., 2020). In the past, traditional healing methods were often viewed as outdated and unsophisticated. This is because, during the time of colonial rule, these practices were not recognized and were even wrongly associated with witchcraft and dark magic. Many countries banned these practices and even attempted to regulate the sale of herbal medicines, thereby limiting access or transfer of the tacit knowledge of traditional medical practices. Therefore, as colonialism and Christianity spread, Christian missionaries established private hospitals and conventional medicine became more widely used to treat various illnesses (Sifuna, 2021). Traditional medicine refers to a wide range of health practices, beliefs, and knowledge that utilize natural remedies such as plants, animals, and minerals, as well as spiritual therapies, manual techniques, and exercises (Gakuya et al., 2020). These treatments are often used alone or in combination to promote well-being and diagnose, prevent, or treat illnesses. The knowledge

has been passed down through generations and has ancient roots. However, various cultural and historical conditions have influenced their development. The core concept is holistic healing, which seeks to maintain a balance between the body, mind, and soul and the external environment because traditional African medicine follows this universal holistic approach.

Although Traditional African Medicine is critical, it is not well-documented and is often seen as a secret healing practice passed down through generations in many parts of Africa; traditional medicine is still the primary form of healthcare which it encompasses a unique understanding of health and disease (Kiteme, 2011), and includes a variety of healing practices such as herbalism, surgery, bone setting, spinal manipulation, psychotherapy, hydrotherapy, and occultism. According to Chebii et al. (2022), the biggest obstacle is the lack of thorough scientific validation and documentation of African traditional medicines, which involves the transfer of tacit knowledge to explicit in this modern world where technology has taken over with the younger generation who have also lost identity by not being in contact with their tradition such as the use of herbalism which involves the use of substances from vegetables, animals, and minerals. In the realm of metaphysical healing, spiritual practices such as prayer, invocation, and incantation are utilized to address various belief systems' powerful and mysterious forces. This can involve practices like exorcism, divination, and libation to heal ailments (Osuga et al., 2020). While these practices have been recognized for their effectiveness, their scientific validation and documentation remain challenging since they vary from one tribe to another, and they are also not documented to enable more accessible access to medicinal plants. Modern technologists, medical researchers, and herbalists need to safeguard and investigate these healing concepts so that they can be documented to facilitate access and identification very easily.

This research, as presented in the literature, underscores the critical significance of traditional medicine and the pressing need for its documentation and validation. Rooted in a historical context marked by colonial marginalization, traditional medicine has often been dismissed as antiquated or associated with negative stereotypes such as witchcraft. This marginalization led to a shift towards conventional medicine introduced by Christian missionaries' medicinal practices. Traditional medicine encompasses a diverse array of practices, including natural remedies, spiritual therapies, and manual techniques, all aimed at holistic healing in the medical field and practice. Despite its cultural importance and widespread use as the primary form of healthcare in many regions, traditional medicine faces a significant obstacle: the lack of thorough scientific validation and documentation so that this knowledge can be preserved and accessed by a larger population of the Luo community. This absence not only impedes accessibility and validation of traditional medicine knowledge but also poses a risk of losing this valuable cultural heritage, particularly as younger generations become increasingly detached from traditional practices. Given the effectiveness and cultural significance of traditional medicine, there is a pressing call for modern medical researchers, technologists, and herbalists to safeguard and investigate these healing concepts, thus prompting the need for this research. Documenting and validating traditional medicine practices would not only preserve this rich cultural heritage but also facilitate easier access and identification of medicinal plants, ensuring their continued utilization in contemporary healthcare contexts

4 Methodology

The study began with an extensive literature review to gain a comprehensive understanding of existing scholarly works, ethnographic studies, and historical documents related to the traditional medical systems or methods of the Luo Community. Qualitative interviews were conducted with traditional healers within the Luo community. These interviews were semi-

structured to allow flexibility in exploring various aspects of their traditional healing practices, rituals, and herbal remedies, where the goal is to document their knowledge, experiences, and beliefs regarding the indigenous medical repository system. Open-ended questions were used to encourage the healers to share in-depth information. Immersive observation and participation were employed to gain first-hand experiences of traditional healing practices. The researcher spends time with traditional healers during their healing sessions, rituals, and community gatherings. This offered valuable insights into the healing process, patient interactions, and the use of medicinal plants. Photography and audio-visual documentation were used to capture visual representations of traditional healing practices, medicinal plants, and healing rituals. Photographs were taken to complement the research findings and provide a visual context for the indigenous medical repository system. Snowball sampling was utilized to identify and reach out to additional traditional healers within the Luo community. The key informants or traditional healers identified through interviews were asked to refer other healers they trust and who may be willing to participate in the research. This technique helped broaden the pool of participants and facilitate the exploration of diverse perspectives. For designing and developing the indigenous medical repository system, an agile approach was adopted. The system development was iterative and collaborative, involving continuous feedback from traditional healers and other stakeholders. Prototypes were created and refined, ensuring the system aligns with cultural values and needs. Ethical considerations are paramount throughout the research process. Informed consent was obtained from all participants, and their privacy and confidentiality were respected. Researchers adhere to ethical guidelines when working with traditional knowledge and ensure proper recognition and attribution to traditional healers.

5 Findings

The traditional medicine of the Luo people includes both psychological and physiological aspects, which is similar to medical systems found around the world. The region inhabited by the Luo ethnic group in Kenya is disease-endemic. However, disease awareness initiatives register low acceptance due to the sociocultural images of disease and illness conceptualized in the local Dholuo language in ways that may contradict modern biomedical knowledge and practice (Ojwang, 2018). They recognize the impact of social factors on diseases and have ways to treat functional disorders. If the nature of a disease is easily understandable, it is recorded in English. Otherwise, it is documented in Luo or with English descriptions. During the analysis of data, the reported diseases were classified based on physiological systems. However, certain Luo disease concepts do not have direct equivalents in Western medicine. For example, the concept of “chira” lacks a direct translation in Western medicine.

Moreover, some diseases, such as “kuom” and “yamo”, do not fit neatly into simple categories, leading to imprecise and arbitrary categorization. The term “Yamo” is used to describe an illness that is marked by stomach pain and swelling of the skin. Although it is frequently linked to anthrax, it can also refer to various other ailments (Johns et al., 1990). In contrast, “Chira” is usually linked to ritual impurity as the cause of the disease (Geissler et al., 2002). However, according to the herbalists, it was frequently described as a “thinning disease” or infertility that was mainly linked to young women. The chances of finding a remedy for a particular disease depend on how common the plant and the disease are. Plants that are easily found and have cultural significance as medicinal remedies are more frequently reported to treat common diseases.

On the other hand, rare plants are less likely to be linked to diseases that occur less frequently. In the realm of herbalism, women generally focus more on practical applications, while men

incorporate more mystical and ceremonial aspects. However, some treatments for illnesses may not have consistent information, suggesting that the plants used in these remedies are more symbolic of their cultural significance rather than serving a direct medicinal purpose. More on the discussion on the medicinal plants and how they were used in traditional African society is as shown in the table below:

Table 1: Traditional medicinal plants

Plant	Part Used	Treatment	Prescription
Mitoo, Mutoo (Crotalaria brevidens)	leaves	Stomach ache	Decoction drunk
Jamna (Syzygium cumini or Jambolan)	Bark	Stomach ache	Decoction drunk
Mango (Mangifera indica)	Bark	Stomach ache	decoction drunk, decoction drunk
Ober (Albizia coriaria)	Bark	'Yamo', 'Wuoyo', diarrhoea, stomach ache	Steambath, washing, decoction drunk, decoction drunk
Adhiambo lera or Adieremo or Hariadho or Nyadiermo (Erythrococca bongensis)	Roots and Leaves, respectively	'Chira'	Infusion drunk, decoction drunk
Undaro or Mathari or Nderma or Nyamage or Nyandema (Maytenus senegalensis)	Roots	Stomach ache	Decoction drunk
Nyanjaga (Tagetes minuta)	leaves	Sore throat, 'Yamo', swelling	Dried, burned, licked
Nyunyodhi or Nyanyodhi (Leonotis nepetifolia)	Root, Leaves, Roots and Leaves, respectively	Diarrhoea, stomach ache, 'sihoho', gonorrhoea, worms	Decoction drunk, washing, drinking decoction, decoction drunk
Oluoro chieng (Ageratum conyzoides)	Leaves or Roots and Leaves, respectively	'Orianyacha' Stomach ache	Steambath, washing, decoction drunk (mixing), decoction drunk
Nyabung odide (Microglossa pyrifolia)	Roots	'Yamo', stomach ache, 'wuoyo'	Decoction drunk
Achak (Pentarrhinum insipidum)	Leaves	'Chira'	Pounded, mixed with water, drunk
Chamama or Thebesia (Thevetia peruviana)	Leaves	'Headworms' Congested nose in child	Crushed, mixed with water, snuffed
Nyatunglu or Nyatonglo or Nyotonglo (Physalis angulata)	Whole Plants or Leaves	Worms, stomach ache	Infusion drunk
Powo (Grewia trichocarpa)	Roots	Diarrhoea	Decoction drunk

Plant	Part Used	Treatment	Prescription
Othoo (<i>Balanites aegyptiaca</i>)	Leaves, Bark, Leaves and Bark, respectively	Diarrhoea, 'Wuoyo', 'mbaha', diarrhoea, 'Chira', 'Yamo', chest pain, cough	Decoction drunk, steambath, washing, decoction drunk (mixing), pounded with water, drunk, decoction drunk
Owich maoko (<i>Triumfetta rhomboidea</i>)	Leaves	Labour pain	Pounded, massaged
Osaosao, Osawa, Osawosawo or Osepe, Oyieko (<i>Sesbania sesban</i>)	Leaves	'Chira', 'headworms'	Pounded, mixed with water, drunk, pounded, snuffed
Oboke (<i>Ipomoea spathulala</i>)	Sporangium and Roots, respectively	Ringworm 'wuoyo', diarrhoea	Applied to affected skin decoction drunk
Yago (<i>Kigelia africana</i>)	Bark	'Yamo', stomach ache	Decoction drunk
Siala (<i>Markhamia lutea</i>)	Roots	Stomach ache	Decoction drunk
Akech (<i>Tithonia diversifolia</i>)	Whole plant and leaves, respectively	Stomach aches Indigestion Fever	Grind the leaves and add 1/2tea spoon of the powder in a glass of boiling water, stir to cool, then take 1/2 glass twice a day for 2-3 days.
Minya (<i>Cissus quadrangularis</i>)	Roots, Bark, Roots, Leaves and Leaves, respectively	Bloody diarrhoea, skin disorders, earache	Decoction drunk, washing with decoction, decoction dripped into the ear
Nyabende or Nyabend winy (<i>Lantana camara</i>)	Leaves and Roots, respectively	Cold, cough, sore throat	Decoction-drunk, infusion-drunk
Ayucha or Orianyacha (<i>Achyranthes aspera</i>)	Roots, Leaves and Roots, respectively	'Orianyacha' Bleeding wounds, stomach ache	Decoction drunk pounded, applied to wound infusion drunk
Akudho (<i>Crabbea velutina</i>)	Roots and leaves, respectively	Scabies 'Wuoyo'	Decoction drunk washing with an infusion
Apoth (<i>Corchorus olitorius</i>)	Leaves, respectively.	'Lep marach', the infant's mouth, wounds, makes the fetus and infant grow	Pounded, rubbed on tongue and gums, pounded, applied to the wound, cooked like a vegetable
Mapera (<i>Psidium guajava</i>)	Roots	Stomach ache, diarrhoea, 'Evil eye'	Infusion drunk

Plant	Part Used	Treatment	Prescription
Dwele (Melia azedarach)	Leaves, Roots, Leaves	Stomach ache, 'Ang'iew', measles	Decoction drunk, washing, decoction drunk
Ochok (Solanum incanum)	Fruit, Leaves	Skin infection, ringworm, Disinfection of umbilical cord, wounds	Applied to the skin, applied to the umbilical cord, washing with an infusion
Okita (Plectranthus)	Leaves	Stomach ache, 'Orianyacha' Ear ache	Infusion drunk, pounded, applied to ear
Ododo (Amaranthus spinosus)	Whole plant	'Lep', mouth infection	Pounded, rubbed on tongue
Chwa (Tamarindus indica)	Roots, Leaves	Stomach ache, ear ache	Decoction drunk, pounded, applied to the ear
Ombulu (Abrus precatorius)	Leaves, Roots	Cough, cold, stomach ache	Chewed unprepared, decoction drunk
Ochuoga (Carissa edulis)	Roots	Diarrhoea 'Ang'iew', measles	Decoction drunk steambath, washing, decoction drunk (mixing)
Atipa (Asystasia schimper)	Leaves	'Chira' 'False teeth	Pounded, mixed with water, drunk pounded, rubbed on gums
Ogaka (Aloe vera)	Leaves	Yamo', swelling, boils	Decoction drunk

Source: Researcher (2023)

6 Discussions

Cultural practices help contribute to health and education enhancement in a community, especially with the use of medicinal plants to treat various diseases and disorders. It is, therefore, crucial for the preservation of these practices to ensure the continuity of the traditional knowledge and wisdom related to the healing methods and remedies (Dematera, 2022). The Luo traditional medicine system incorporates both psychological and physiological elements. This holistic approach is not unique to Luo culture but shares similarities with medical systems worldwide. The Luo region in Kenya is disease endemic, making traditional medicine significant. However, awareness initiatives face challenges due to sociocultural perceptions of disease in the local Dholuo language, which may contradict modern biomedical knowledge since a lot has shaped traditional medicine from the olden days, which makes the utilization of the traditional medicine low (Gakuya et al., 2020). This resistance might affect the acceptance of Western-style disease awareness campaigns. Diseases are classified based on physiological systems, but some Luo concepts like "chira" lack direct equivalents in Western medicine. This challenges the precise categorization of certain illnesses, leading to imprecision and arbitrariness. The provided table details various medicinal plants utilized in the traditional medicine practices of the Luo people in Kenya, specifying the parts of the plants used and

the corresponding treatments where the most commonly used parts of the plant were leaves and roots. These could also be referenced in a study by Mailu et al. (2020) on Medicinal plants used in managing diseases of the respiratory system among the Luo community, where they found that leaves of the plant were commonly used in the treatment of respiratory problems.

A diverse range of plants is included, such as Mitoo, Jamna, Mango, and Ober, each targeted at addressing specific health concerns. The treatments vary widely, encompassing decoctions, steambaths, washings, poundings, infusions, and more, as also donated in the study by Geissler et al. (2002) on medicinal plants used by the Luo community in Bondo District. For instance, the roots of Adhiambo lera are used to address the concept of “Chira,” with an infusion drunk for treatment. Nyanjaga leaves are burned and licked for sore throat and swelling. Oluoro chieng involves a steambath for ‘Orianyacha’ stomach ache. The extensive list reflects the Luo people’s comprehensive approach to healthcare, incorporating a variety of plants for different ailments. It is noteworthy that the choice of plants and treatment methods is intricately tied to the cultural significance of both the plant and the ailment within the Luo community, showcasing the holistic nature of their traditional healing practices.

A study by Chebii et al. (2022) on traditional medicine trade in western Kenya also found that the common ailments treated using traditional medicine include stomach pains or aches, colds, ringworms, malaria typhoid and spinal cord aches as also indicated in the above table. Additionally, the table emphasizes the importance of gender roles, with specific gender preferences in the application and preparation of remedies. Overall, the above table provides valuable insight into the rich tapestry of Luo traditional medicine, highlighting the integration of cultural, medicinal, and gender-specific practices in their healthcare system. The likelihood of finding a remedy for a disease depends on the commonality of both the plant and the disease. Plants with cultural significance are more frequently reported for treating common diseases. Some treatments lack consistent information, suggesting that the plants used may have more symbolic cultural significance than a direct medicinal purpose. This reflects the complex interplay of cultural beliefs and medicinal practices. Women generally focus more on the practical applications of herbal remedies. At the same time, men incorporate more mystical and ceremonial aspects, as indicated in a study by Ogembo et al. (2022) on the images and symbolism in the story of Nganyi, the rainmaker. This gendered division highlights the multifaceted nature of traditional healing practices. The Luo traditional medicine system is deeply rooted in cultural beliefs, incorporating psychological and physiological aspects. The challenges in translating these concepts into Western medical terms, as well as the gendered division in herbalism, provide a rich field for further study and understanding of traditional healing practices in this community.

7 System design and architecture

According to Hossain et al. (2022), system architecture, also referred to as software architecture or technical architecture, involves designing and structuring the system at a high level, determining how its different components interact and relate to each other to achieve specific goals and functionalities. This can be thought of as a blueprint that developers and stakeholders use to build and organize the system.

Wang et al. (2019) further indicate that when developing a system, defining its overall layout, components, and relationships is crucial, and this is where system architecture comes in, providing a clear framework that enables developers to understand the structure of the system

and make informed decisions throughout the development process. This study adopted the use of the Django framework for the development system.

Django framework is widely used, and it follows the Model-View-Controller (MVC) architectural pattern as indicated by Bhardwaj et al. (2023), and that is sometimes referred to as the Model-View-Template (MVT) pattern. Though it shares some similarities with the traditional MVC pattern, it also has its own unique terminology and implementation details.

An overview of the Django system architecture is discussed below:

i. Model:

The Django models represent the data and business logic of the application by defining the data structure and the relationships between different data entities, as reported (Thoutam, 2021). Django models are implemented using Python classes that inherit from `django.db.models.Model`. The Model layer interacts with the database and handles data persistence and retrieval information within the database.

ii. View:

Adithela et al. (2018) state that the View is responsible for processing user requests and rendering the appropriate response. It is a Python function that receives an HTTP request and returns an HTTP response by handling the business logic associated with processing the request. Views may query the database through the Model layer to retrieve data and use templates to render HTML or other types of responses from the page the user requested.

iii. Template:

According to Yu and Yang (2019), the template layer is responsible for defining the application's presentation logic. It is written in a language called Django Template Language (DTL) and is used to generate HTML dynamically. The template layer allows the development of separate designs and presentations from the underlying business logic and data processing.

The flow of data and interactions in a Django application typically follow these steps:

- The user sends an HTTP request to the Django server.
- The request is processed by the URL dispatcher, which maps the request URL to a specific View function.
- The View function processes the request, interacts with the Model (if needed) to retrieve data, and prepares the data to be rendered.
- The View then passes the data to a Template, which generates the final HTML response with the dynamic data inserted.
- The HTML response is sent back to the user's browser for display.

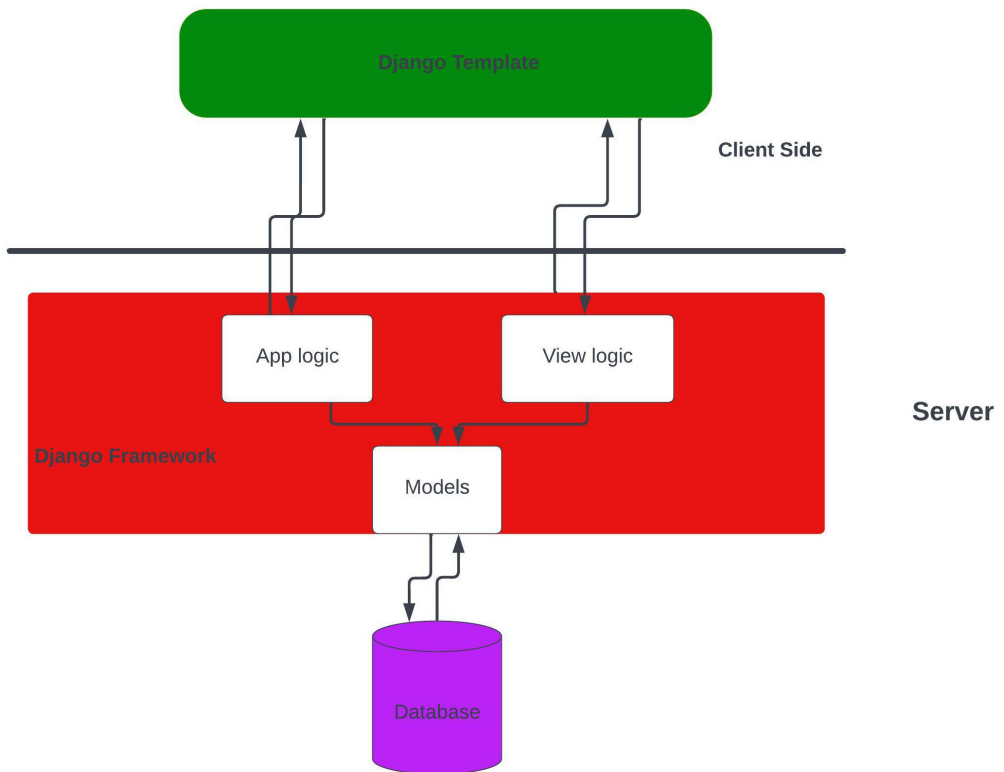


Figure 1: System Architecture

8 Mock-Up of the System

The system mock-ups are represented in the pictures below:

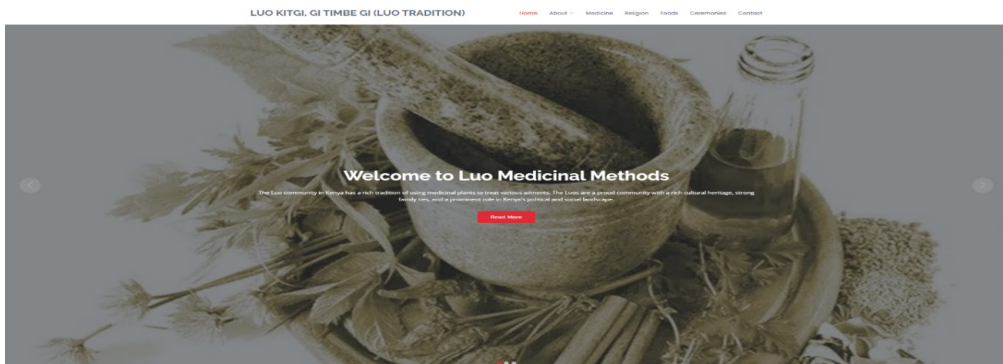


Figure 2: Homepage

Luo Traditional Medicine













 <p>Achak (<i>Pentarrhinum inspidum</i>) Part Used: Leaves Treatment: 'Chira' Prescription: Pounded, mixed with water, drunk</p>	 <p>Adhiambo lera or Adieremo or Hariadho or Nyadiermo (<i>Erythrococca bongensis</i>) Part Used: Roots and Leaves, respectively Treatment: 'Chira' Prescription: Infusion drunk, decoction drunk</p>	 <p>Akech (<i>Tithonia diversifolia</i>) Part Used: Whole plant and leaves, respectively Treatment: Stomach aches Indigestion Fever Prescription: Grind the leaves and add 1/2tea spoon of the powder in a glass of very hot water, stir to cool then take ½ glass twice a day for 2-3 days.</p>
 <p>Akudho (<i>Crabbea velutina</i>) Part Used: Roots and leaves, respectively Treatment: Scabies 'Wuoyo' Prescription: Decoction drunk washing with infusion</p>	 <p>Apoth (<i>Corchorus olitorius</i>) Part Used: Leaves, respectively. Treatment: 'Lep marach', infant's mouth, wounds, makes fetus, and Infant grow Prescription: Pounded, rubbed on tongue and gums, pounded, applied to wound, cooked like vegetable</p>	 <p>Atipa (<i>Asystasia schimper</i>) Part Used: Leaves Treatment: 'Chira' False teeth Prescription: Pounded, mixed with water, drunk pounded, rubbed on gums</p>
 <p>Ayucha or Orianyacha (<i>Achyranthes aspera</i>) Part Used: Roots, Leaves and Roots, respectively Treatment: 'Orianyacha' Bleeding wounds stomach ache Prescription: Decoction drunk pounded, applied to wound infusion drunk</p>	 <p>Chamama or Thebesia (<i>Thevetia peruviana</i>) Part Used: Leaves Treatment: 'Headworms' Congested nose in child Prescription: Crushed, mixed with water, snuffed</p>	 <p>Chwa (<i>Tamarindus indica</i>) Part Used: Roots, Leaves Treatment: Stomach ache, ear ache Prescription: Decoction drunk, pounded, applied to ear</p>
 <p>Dwele (<i>Melia azedarach</i>) Part Used: Leaves, Roots, Leaves Treatment: Stomach ache, 'Ang'lew', measles Prescription: Decoction drunk, washing, decoction drunk</p>	 <p>Jamna (<i>Syzygium cumini</i> or Jambolan) Part Used: Bark Treatment: Stomach ache Prescription: Decoction drunk</p>	 <p>Mango (<i>Mangifera indica</i>) Part Used: Bark Treatment: Stomach ache Prescription: decoction drunk, decoction drunk</p>

Figure 3: Medicine Page

9 Conclusion

Traditional medicine is an essential healthcare system in Africa today, vital in reverse pharmacology and drug discovery. It has evolved into an evidence-based healing system in high demand for disease-preventive care. African traditional healing concepts, including spiritualism, humanism, and herbalism, are becoming increasingly popular. African herbalism, in particular, is emerging as a powerful tool for bioprospecting and discovering new drug molecules. Recognizing and utilizing Traditional African Medicine can contribute to holistic healthcare and provide opportunities for advancements in pharmaceutical research and development. By embracing and exploring the principles and practices of African traditional medicine, we can tap into its potential for developing innovative and effective treatments for various health conditions.

References

- Adithela, S. P., Christie, M., Marru, S., & Pierce, M. (2018). Django Content Management System Evaluation and Integration with Apache Airavata. *Proceedings of the Practice and Experience on Advanced Research Computing*. <https://doi.org/10.1145/3219104.3229272>
- Anywar, G., Kakudidi, E., Byamukama, R., Mukonzo, J., Schubert, A., & Oryem-Origa, H. (2020). Medicinal plants used by traditional medicine practitioners to boost the immune system in people living with HIV/AIDS in Uganda. *European Journal of Integrative Medicine*, 35, 101011. <https://doi.org/https://doi.org/10.1016/j.eujim.2019.101011>
- Bhardwaj, S., Sharma, S., & Singh, V. P. (2023). Cloud-based architecture for Face Recognition in Django with Machine Learning. *2023 International Conference on Computational Intelligence, Communication Technology and Networking (CICTN)*, pp. 67–70. <https://doi.org/10.1109/CICTN57981.2023.10141296>
- Chebii, W. K., Muthee, J. K., & Kiemo, J. K. (2022). Traditional medicine trade and uses in the surveyed medicine markets of Western Kenya. *African Health Sciences*, 22(4), 695–703. <https://doi.org/10.4314/ahs.v22i4.76>
- Chebii, W. K., Muthee, J. K., & Kiemo, K. (2020). The governance of traditional medicine and herbal remedies in the selected local markets of Western Kenya. *Journal of Ethnobiology and Ethnomedicine*, 16(1), 1–24. <https://doi.org/10.1186/s13002-020-00389-x>
- Dematera, A. (2022). Ligao City's Folklore: A Repertoire of Culture and Tradition, An Anthology of Indigenous Healing. *Journal of Education, Management and Development Studies*, 2(1), 86–90. <https://doi.org/10.52631/jemds.v2i1.70>
- Gakuya, D. W., Okumu, M. O., Kiama, S. G., Mbaria, J. M., Gathumbi, P. K., Mathiu, P. M., & Nguta, J. M. (2020). Traditional medicine in Kenya: Past and current status, challenges, and the way forward. *Scientific African*, 8, e00360. <https://doi.org/10.1016/j.sciaf.2020.e00360>
- Geissler, P. W., Harris, S. A., Prince, R. J., Olsen, A., Odhiambo, R. A., Oketch-Rabah, H., Madiaga, P. A., Andersen, A., & Mølgaard, P. (2002). Medicinal plants used by Luo mothers and children in Bondo district, Kenya. *Journal of Ethnopharmacology*, 83(1–2), 39–54. [https://doi.org/10.1016/S0378-8741\(02\)00191-5](https://doi.org/10.1016/S0378-8741(02)00191-5)
- Hossain, N. U. I., Lutfi, M., Ahmed, I., Akundi, A., & Cobb, D. (2022). Modeling and Analysis of Unmanned Aerial Vehicle System Leveraging Systems Modeling Language (SysML). *Systems*, 10(6). <https://doi.org/10.3390/systems10060264>
- Johns, T., Kokwaro, J. O., & Kimanani, E. K. (1990). Herbal Remedies of the Luo of Siaya District, Kenya: Establishing Quantitative Criteria for Consensus. *Economic Botany*, 44(3), 369–381. <http://www.jstor.org/stable/4255256>
- Kiteme, K. (2011). Traditional African medicine. *Medical Anthropology*, pp. 413–418. <https://doi.org/10.1515/9783110807509.413>
- Mailu, J. K., Nguta, J. M., Mbaria, J. M., & Okumu, M. O. (2020). Medicinal plants used in managing diseases of the respiratory system among the Luo community: An appraisal of Kisumu East Sub-County, Kenya. *Chinese Medicine (United Kingdom)*, 15(1). <https://doi.org/10.1186/s13020-020-00374-2>
- Munala, L., Mwangi, E., Harris, M., Okunna, N., Yewhalawork, B., & Ong'ombe, M. (2022). "I was forced into it": The continued violation of widows from the Luo community of Kenya through sexual cleansing rituals. *Frontiers in Global Women's Health*, 3(5). <https://doi.org/10.3389/fgwh.2022.942635>
- Ogembo, J., Anudo, C., & Kodak, B. (2022). Representations of images and symbolisms in the story of Nganyi, the rainmaker, as told among the Luo community of Kenya. *Research Journal*

- in African Languages*, 3(1 SE-). <https://www.royalliteglobal.com/african-languages/article/view/761>
- Ojwang, B. O. (2018). Linguistic Conceptualizations of Disease Among the Luo of Kenya. *Qualitative Health Research*, 28(3), 433–445. <https://doi.org/10.1177/1049732317747875>
- Omulo, A. G., & Williams, J. J. (2018). A survey of the influence of ‘ethnicity’ in African governance, with special reference to its impact in Kenya vis-à-vis its Luo community. *African Identities*, 16(1), 87–102. <https://doi.org/10.1080/14725843.2017.1332984>
- Osuga, E., Odede, F., & Okuro, S. (2020). *Ethnic and Cultural Interaction between the Early Migrant Groups in Yimbo of Western Kenya*. November. <https://doi.org/10.5923/j.ijas.20201001.01>
- Sifuna, N. (2021). A Sociocultural Commentary On The Introduction Of Male Circumcision In The Traditionally Non-Circumcising Luo Community Of Western Kenya Prof . Nixon Sifuna General Introduction & Methodology Of Kenya’s total of 44 ethnic groups, only a handful are tr. *International Journal of African Society, Cultures and Traditions*, 9(1), 1–23.
- Thoutam, V. (2021). A Study On Python Web Application Framework. *Journal of Electronics, Computer Networking and Applied Mathematics*, pp. 11, 48–55. <https://doi.org/10.55529/jecnam.11.48.55>
- Wang, S., Ouyang, L., Yuan, Y., Ni, X., Han, X., & Wang, F.-Y. (2019). Blockchain-Enabled Smart Contracts: Architecture, Applications, and Future Trends. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 49(11), 2266–2277. <https://doi.org/10.1109/TSMC.2019.2895123>
- Yu, Q., & Yang, W. (2019). The Analysis and Design of a System of Experimental Consumables Based on Django and QR Code. *2019 2nd International Conference on Safety Produce Informatization (IICSPI)*, 137–141. <https://doi.org/10.1109/IICSPI48186.2019.9095914>

5. Nurturing Traditional Medicine and Healthcare Amongst Kalenjin Community in Kenya

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Abstract

The purpose of this study was to unravel the strategies that may be utilised to nurture traditional medicine and healthcare amongst the Kalenjin community in Kenya. This was achieved through the following specific research objectives: to examine the traditional medicine and healthcare knowledge-sharing strategies employed by the Kalenjin community; to examine the challenges associated with traditional medicine knowledge-sharing amongst the Kalenjin community; and finally, to establish the recommended interventions that seek to promote Kalenjin traditional medicine and healthcare knowledge sharing. The study employed a descriptive research approach, using snowball sampling to conduct interviews with traditional medical practitioners. The findings reveal that some of the strategies utilised to share knowledge on traditional medicine amongst the Kalenjin community include oral tradition, apprenticeship strategy and mentorship to the interested persons, family knowledge transfer, traditional medicine practitioners' engagement and community-based participatory research. The challenges facing traditional medicine and healthcare knowledge sharing amongst the Kalenjin community include changing sociocultural dynamics and modernisation, unwillingness to share the knowledge, limited availability and access to sources of traditional medicine, dishonesty practitioners, insufficient resources, funding, and dedicated institutions for traditional medicine education, lack of intellectual property rights, among others. The findings of this study may inform policy and practice in the area of traditional medicine in developing countries. This study presents original findings that are of value to academicians and practitioners in the field of Information and Knowledge Management.

Keywords: Health indigenous knowledge, knowledge sharing, indigenous medicine, Kalenjin, Kenya

1 Introduction

According to the World Health Organization (2019), traditional medicine, otherwise known as alternative medicine, ethno-medicine folk medicine, native healing or complementary and alternative medicine (CAM), is the oldest form of health care system. The ancient people commonly used it to treat ailments that threatened their existence and survival. In the recent past, this practice has received a growing interest as a complementary approach to modern healthcare systems. It encompasses a wide range of practices, therapies, and medicinal knowledge passed down through generations in various cultures worldwide. These practices often involve the use of herbal remedies, acupuncture, massage, dietary interventions, and spiritual healing techniques (Ekor, 2014). Traditional medicine (TM) is often referred to as “complementary medicine” or “alternative medicine” whenever it is adopted outside its place of origin. In essence, traditional medicine is part of a country's tradition, and mostly, it has not been “integrated into the dominant health care system” (Bok, 2008).

Prior to the introduction of cosmopolitan medicine, TM was the dominant medical system available to millions of people in Africa, both in rural and urban communities. Indeed, it was the only source of medical care for a more significant proportion of the population (Romero-

Daza, 2002). However, due to globalisation and innovations in the healthcare sector, between the periods 1840 and 1860, innovations in tropical medicine, particularly the invention of quinine to treat malaria, were seen in most endemic regions of the world. This was when modern medicine, which originated from Western culture, started to penetrate other nations, including Africa. As seen today, modern medicine has gained dominance in the healthcare systems of developing countries.

While modern medicine has undoubtedly revolutionised healthcare with its advanced technologies that help in diagnosis so as to inform evidence-based approaches, traditional medicine offers unique insights and alternative treatment options that deserve careful consideration. As a result, TM is still in use and emphasised in different parts of the world. Examples of these include the Kampo medicine in Japan, the Hanja medicine in Korea, the Traditional Chinese Medicine (TCM) of China, Ayurveda medicine in India, the Unani medicine in Greece, and the African Traditional medicine (ATM), among others. Studies show that in the last few decades, there has been a shift towards alternative and complementary approaches to conventional medicine, and this has notably changed the landscape of healthcare. For example, Che et al. (2017) observed an increased interest in understanding and using Traditional Chinese Medicine alongside mainstream medicine. In addition to this, literature also shows the resurgence of interest and desire for knowledge about the application, safety, and efficacy of traditional medicine around the world. Che et al. (2017) argue that the majority of the population in some parts of the world continues to rely on their own traditional medicine to meet their primary healthcare needs. This is a clear indication that TM is practised in different areas of the world, and some cases have been reported to have blossomed into orderly-regulated systems of medicine. These practices have continued to provide reliable, effective, and affordable healthcare options for patients.

Just like in Europe, Asia and America, different countries in Africa have attempted to formalise TM into their existing healthcare structures. For example, in the 1980s, Nigeria enacted policies that enabled accreditation, registration and regulation of the practices of native healers. In 1981, still in Nigeria, the National Traditional Healers' Board at the Federal level was introduced. Other African countries reported to be highly using TM include Ghana, Mali, Zambia, Tanzania, and South Africa. In Kenya, just like in other developing countries, the use of traditional herbal medicine is still prevalent, especially in rural areas (World Health Organisation, 2019). This trend is largely due to its access, affordability, proven efficacies, poverty, inadequacy of health services and shortage of health workers. It is manifested in different ways, including situations where herbal remedies are combined with conventional medicine, especially when the subjects feel that the prescription drugs are not effective (Nagata et al., 2011). The most common ailments treatable using this traditional approach include fever among children, convulsions, hypertensive patients, and fertility, among others. It is evident from the existing literature that TM is still an important component of healthcare in sub-Saharan Africa. In spite of this, TM still faces a number of challenges. These include mistrust of TM amongst modern medicine practitioners, lack of regulations for TM, lack of rigorous scientific research to establish safety, efficacy and mechanisms of action of traditional healing practices; widespread cases of fake healers and healing; increased penetration of Western religion, education, urbanisation and globalisation (WHO, 2019; Ebomoyi, 2009). In addition to this, Western stakeholders in modern medicine often undermine TM (Abdullahi, 2011).

2 Statement of the problem

In spite of the advancements and innovations in modern healthcare, TM still plays a pivotal role in complementing modern medicine due to its cultural significance as well as its potential to provide holistic care. In some instances, TM has been argued to be more reliable compared to modern medicine (Abdullahi, 2011). In spite of these opportunities, research efforts seeking to nurture TM are still scanty. The primary focus, as seen in the existing body of research literature, has been on the identification of medicinal plants as well as the different diseases and ailments prevalent and treatable using the TM (Kipkorir & Welbourn, 2008; Weintritt, 2007). The healing methods remain unclear, especially among the Kalenjin community (Kipkore et al., 2014). In particular, little research emphasis has been put to examine the strategies used to pass knowledge on TM. In this study, we argue that such an attempt to shed more light on the Kalenjin community TM knowledge-sharing strategies and practices is one of the initial stages towards nurturing traditional medicine and healthcare. Hence, this study seeks to explore the strategies for nurturing traditional medicine and healthcare in the Kalenjin community. The main objective of this study is to examine the strategies for nurturing traditional medicine and healthcare in the Kalenjin community. The specific objectives of this study were to examine the traditional medicine and healthcare knowledge-sharing strategies employed by the Kalenjin community, analyse the challenges associated with traditional medicine knowledge-sharing amongst the Kalenjin community, and recommend the interventions that can be employed so as to promote Kalenjin traditional medicine and healthcare knowledge sharing practices.

3 Literature review

Prior to the introduction of modern medicine, traditional medicine used to be the dominant medical system available to millions of people in Africa in both rural and urban communities Abdullahi (2011). TM was used to treat ailments which include abdominal pains (colic pains) in children, amoebiasis, period pains, headache, toothache, teething in children, malaria and fever, jaundice, common colds and cough, chest congestion (wheezing), oral thrush, eye ailments, wounds, cancer, skin rashes, removal of ganglions, sexually transmitted diseases, hypertension, diabetes, arthritis, erectile dysfunction, renal disorders/enlarged prostate, anaemia (Ahmed et al., 2007; Kipkorir & Welbourn, 2008). Kipkorir and Welbourn (2008) categorised diseases and ailments according to their perceived sources. Some of the diseases and illnesses are associated with either pollutants, misfortune, curses, “Bon” (witchcraft or sorcerers), or people with “bad eyes,” “bich cho tiny Konya”. Even with all these, some people who were referred to as traditional healers exist. They possess traditional skills and knowledge on how to cure some of these ailments, and these cultural activities are still actively practised. However, the arrival of the Europeans marked a significant turning point in the history of this age-long tradition and culture.

3.1 Traditional medicine and healthcare knowledge sharing strategies

Traditional medicine and healthcare knowledge-sharing strategies play a crucial role in preserving and passing on traditional healing practices to younger generations. These strategies facilitate the transmission of knowledge, skills, and wisdom from experienced traditional healers to aspiring practitioners and contribute to the continuity and sustainability of traditional medicine systems.

To begin with, oral tradition and apprenticeship are two of the strategies utilised to share traditional medicine and healthcare knowledge. According to Lairumbi et al. (2008), this strategy encompasses a plan where traditional medicine practitioners share their tacit knowledge, techniques, and cultural understanding with their trainees through direct observation, hands-on training, and experiential learning. The outcome of this strategy is the preservation of traditional healing practices. In addition to this, mentorship programs also constitute one of the strategies utilised to share TM knowledge and practices. This strategy enables the transfer of both practical techniques and the underlying philosophies and beliefs that inform traditional healing practices. Mentorship programs entail pairing experienced TM practitioners with younger people who are willing to learn the art. The practitioners here provide guidance, support, and opportunities for skill development. Community workshops and training are another strategy. It brings together community members, aspiring healers, and healthcare professionals to share traditional medicine and healthcare knowledge. Such workshops and training provide an opportunity for TM practitioners to share their expertise, demonstrate healing techniques, and discuss the principles and philosophies underlying traditional medicine (Amaechina et al., 2016). Workshops and training also promote dialogue, collaboration, and mutual learning among traditional healers and other stakeholders. However, this happens mostly in contexts that have formally recognised the role played by TM and healthcare practices. Documentation and publications also play a role in conserving and sharing traditional medicine knowledge.

Traditional healers, researchers, and healthcare professionals collaborate to generate knowledge and share the same by documenting the identified traditional healing practices, medicinal plant knowledge, and treatment protocols in books, journals, and digital platforms (WHO, 2008). According to the World Health Organisation, the availability of this implicit knowledge acts as a reference point for future generations, contributes to scientific validation, and facilitates cross-cultural exchange and learning. Furthermore, community-based participatory research is also another TM knowledge-sharing strategy. It is a forum where traditional healers and community members are brought together in the research process so as to create knowledge and even share knowledge. However, this must be utilised in a culturally sensitive manner. Community members contribute their traditional knowledge, perspectives, and experiences while researchers provide scientific rigour and methodologies, fostering a collaborative and reciprocal learning environment. In conclusion, technological advancements such as the use of mobile applications, websites, and social media platforms, among others, also offer a platform for sharing traditional medicine and healthcare knowledge. Utilising technological solutions such as these provides an opportunity to share information and network and collaborate among traditional healers, as well as increase accessibility to traditional medicine resources (Jaiswal et al., 2017).

3.2 Traditional medicine and healthcare knowledge sharing challenges

Traditional medicine and healthcare knowledge sharing have not been without challenges. A review of existing literature reveals the existence of the following challenges hindering the effective transmission and preservation of traditional medicine practices.

According to Lairumbi et al. (2008), traditional healing practices are often rooted in specific cultural contexts and expressed through local languages, making it difficult to translate and convey the same meanings and techniques to individuals from different languages and cultural backgrounds. As such, language and cultural barriers continue to hinder the sharing of traditional medicine and healthcare knowledge significantly. This can hinder effective

knowledge transmission and understanding, particularly in cross-cultural or global contexts. Limited institutional support and recognition within formal healthcare systems is also still a hindrance. The World Health Organization (2008) posits that the lack of recognition and integration of TM and healthcare into mainstream healthcare has continued to impede the sharing of traditional medicine knowledge. Insufficient resources, funding, and dedicated institutions for traditional medicine education, research, and practice restrict the opportunities for knowledge sharing and capacity building among traditional healers and younger generations. Lack of intellectual property rights and traditional knowledge protection poses challenges to the sharing of traditional medicine knowledge. Traditional healers' concerns about the misappropriation, misuse, and commercialisation of their knowledge can lead to hesitation in openly sharing their expertise (Bodeker & Ong, 2005). The lack of legal frameworks and regulations for safeguarding traditional knowledge and ensuring fair and equitable sharing has continued to hinder knowledge transmission and inhibit traditional healers' willingness to share their knowledge. Another challenge facing TM knowledge sharing is limited documentation and preservation efforts. The fact that most traditional medicine practices are primarily transmitted orally has continued to hinder comprehensive documentation and preservation of traditional medicine knowledge (Kigen et al., 2013).

Furthermore, the art has continued to rely on the apprenticeship model and direct experiential learning (Amaechina et al., 2016). Without proper documentation and preservation efforts, valuable traditional medicine knowledge risks being lost over time, particularly as younger generations may be less inclined to pursue traditional healing practices. In addition, the changing sociocultural dynamics and modernisation pose challenges to traditional medicine knowledge sharing. Rapid urbanisation, globalisation, and shifts in lifestyle preferences have led to a decline in interest and reliance on traditional healing practices among younger generations (Bodeker & Ong, 2005). The loss of traditional healing knowledge holders and the erosion of traditional cultural practices have continued to hinder knowledge transmission and perpetuation. Furthermore, lack of research and scientific validation of traditional medicine practices present challenges to knowledge sharing. Traditional healing practices may lack scientific evidence and rigorous validation methods, which can limit acceptance and integration into modern healthcare systems (WHO, 2008).

In conclusion, several studies have looked at different strategies adopted to foster traditional medicine and healthcare knowledge sharing. These include oral tradition and apprenticeship, mentorship programs, community workshops and trainings, documentation and publications, community-based participatory research, and the use of modern technologies, among others. However, challenges are still prevalent, hampering the exploitation of the strategies identified in the literature. Some of these challenges identified in the reviewed literature include language and cultural barriers, limited institutional support and recognition, intellectual property rights and traditional knowledge protection, limited documentation and preservation efforts, changing sociocultural dynamics and modernisation, and lack of research and scientific validation, among others. In spite of the attempts, it is evident that TM knowledge sharing amongst the Kalenjin community has not received much informational research attention. This study contributed to the understanding of the traditional medicine and healthcare knowledge-sharing strategies employed by the Kalenjin community as well as identifying potential challenges hindering traditional medicine knowledge-sharing amongst the Kalenjin community, and finally recommending interventions that can be employed so as to promote Kalenjin traditional medicine and healthcare knowledge sharing practices.

4 Research methodology

This study was conducted in Uasin Gishu County with a particular focus on Nandi sub-tribe traditional medicine and healthcare practitioners. The study adopted an interpretative research philosophy with a view of understanding TM knowledge sharing and constructing a meaning of it. Utilising a qualitative research approach, the researcher adopted a snowballing sampling method to identify the traditional medical and healthcare practitioners who became the study respondents. Nandi, a sub-tribe of the Kalenjin community, was studied to unravel traditional medicine knowledge-sharing practices and challenges and recommended interventions that can be implemented to improve knowledge-sharing in the community were also studied. A total of three (3) traditional healthcare providers were identified, and the respondents of this study were formed. The interview questions began with the interviewer asking the respondents to highlight some of the ailments and illnesses they treat as well as how they share such valuable knowledge amongst the TM practitioners themselves, as well as to those interested in learning TM. This was then followed with questions that sought to examine some of the challenges TM practitioners experience in the course of their work. Data was collected between April 2023 and July 2023.

5 Research findings

Three respondents who actively practise TM were interviewed following a snowballing sampling method. Interviews were conducted in the Kalenjin–Nandi language; these were recorded and later transcribed in the English language.

This research reveals that, amongst the Nandi sub-tribe of the Kalenjin community, a number of diseases and ailments are still treatable following the traditional methods and approaches. One of the respondents, R1, said, “... *I treat a number of ailments affecting children as well as adults. I treat Craniosynostosis in children’s space in the forehead of children, stomach bloating and colic, oral thrush in children, and skin infections amongst children whereby I normally give some medication that is used for bathing a child with such infections, and it is normally cleared within 2-3 days. As for adults, I treat stomach issues such as diarrhoea, among others*”. Another respondent, R2, reported that “...*I have practised this art for the last 30 years. I treat asthma, allergies, ulcers, malaria, infertility, including colic and fevers, and teething, among others, in children. I also know some TM practitioners who treat cancer as long as the diagnosis shows it is still in the early stages (stages 1 & 2). The patient has not gone through operation...*”. However, these are not the only ailments and diseases that are treatable using the available TM. As respondent R2 says, “... *it is important to note that almost all diseases are treatable using traditional means and approaches...*” This clearly shows that these are not the only diseases that are traditionally treatable. These include the diseases that are common among adults as well as children and infants.

5.1 Strategies utilised to share TM knowledge and skills

The study findings reveal the existence of different strategies utilised to share TM knowledge, skills and practices amongst the Nandi sub-tribe of the Kalenjin community. The strategies are presented below.

5.1.1 Oral tradition, apprenticeship strategy and mentorship of the interested persons

This is where the TM practitioners orally transmit their knowledge, techniques, and cultural understanding to the people who have expressed interest in knowing the art. In most instances,

this happens through direct observation, hands-on training, and experiential learning. One of the respondents of this study, R1, said, “...as a traditional medical practitioner, I pass my knowledge and skills on TM to the person(s) who come to me and express interest in knowing the art. Mostly, the people who come seeking such knowledge are, in most cases, the beneficiaries of the said practice. This is someone who has used the traditional medication and actually helped him/her. The interested person must bring something (a gift, which can be monetary or an animal) that will be blessed. What then follows is that I will then proceed to show/teach this interested person the skill. Mostly, this is to people who have always used the medication for their infants, and they have seen it help the children...”. Another respondent, R3, said, “... I teach those people who are willing from their heart to learn. This is when someone expresses interest in himself/herself. Not everyone is willing and ready to learn the ropes. In this aspect, someone expresses interest by coming to me. Many of these people are always beneficiaries of the practice. However, there must be a protocol to be followed before this is done. It includes the interested person giving a reward to be blessed before knowledge transfer begins ...” From this, it is clear that one of the key strategies utilised by TM practitioners to share their knowledge and skills is through oral tradition and apprenticeship strategy where tacit knowledge is transferred to the trainees.

5.1.2 Family knowledge transfer

This concerns providing guidance, support, and opportunities for the transfer of TM knowledge and skills to the younger generations within the family. One of the respondents, R1, said, “... I pass on knowledge and skills on TM to my daughter-in-law as well as my last-born son, who sometimes I send him to go and look for some roots and herbs. I only show and teach these skills to members of my family. This is what mostly happens. Most TM practitioners feel more comfortable showing these skills to their members of the family ...” Another respondent, R2, said, “... as for me, TM was and is still our family practice. When we were young, we used to be sent to the shamba accompanying adults who were practising the art themselves. I would then be asked to remove one root of a tree or herbs of certain trees after the other. Then we would take this home, and the TM practitioner would then separate, saying this treats this, and the other treats the other. This is how I learned about all these. It was a family affair and took the effort of the family members. Most of the time now, because of my age, most of the time, I do not go to the shamba or forest myself. I have young people whom I send to the forest and bushes to look for the drugs, and I just pay. When this comes back, I would then start separating the roots/TM roots and herbs. When they go there, these young people will search for all kinds of herbs/roots, then it becomes my work to identify and separate these ...”

5.1.3 Traditional medicine practitioners' engagement

This is where the TM practitioners share experiences and knowledge amongst themselves. One of the respondents, R2, said, “... I sometimes engage a TM practitioner within my family to share experiences and best practices on how to handle some cases. Sometimes, I receive a call from another healer within the family saying I have this patient seeking some medication, and we share knowledge and best practices and interventions. This, however, does not go beyond the family practitioners...”

5.1.4 Community-based participatory research

This is an approach where the TM practitioners participate together with other researchers in established organisations and research institutions. This strategy ensures that knowledge is co-created, shared, and utilised in a culturally appropriate and context-specific manner. One of the respondents, R2, said, “... we are sometimes asked to go to KEMRI where we share knowledge. Some people have been appointed to go and participate in this...”

5.2 Traditional medicine and healthcare knowledge sharing challenges

In spite of the presence of the TM data-sharing strategies, this study reveals that this has not been without challenges. These are presented below:

Changing sociocultural dynamics and modernisation

Lately, rapid urbanisation, globalisation, and shifts in lifestyle preferences have led to a decline in interest and reliance on traditional healing practices among younger generations. The younger generation who are expected to take over the mantle are not willing at all to learn the skill. One of the respondents, R1, said, *“... you know, I am growing old. The younger generations who are supposed to be the ones receiving these skills and knowledge often say I am still young and not yet ready to learn these knowledge and skills...”*

Unwillingness to share the knowledge

Other than the unwillingness of the younger people to learn, this research has also established that some of the practitioners themselves are not even willing to share their skills with the rest of the TM practitioners in the Nandi sub-tribe. One of the respondents, R1, said, *“... even when we meet in the forest or bushes, none of us tells the other what the medicine treats. Everyone goes about his/her activity ...”* This is evident little in terms of sharing knowledge and skills among the practitioners. *“... in such instances, everyone minds their business because I may lose clients if I show my art to another practitioner ...”*

Limited availability and access to sources of TM

Climate change, as well as human deforestation, has been on the rise. This has endangered some trees and forest cover, which ultimately affects the availability of trees which act as sources of TM. This affects knowledge sharing because of the non-availability of trees and herbs. One of the respondents, R2, said, *“...most of the TM we use are sourced from the forests as well as those forests owned by the government. Yet, access to these forests is prohibited by law. This has continued to hinder TM practice due to the unavailability of the appropriate trees in the open spaces and bushes. In addition to this, some of the forests and bushes where we would access these drugs are not safe. Sometimes, in the process of looking for these drugs, we meet snakes as well as other hazards. This, of course, has continued to hinder knowledge transfer. Others have ill motives amongst ourselves ...”*

Respondent R2 continued to explain that *“... another issue is that the practitioners are now in business hampering the practice. Some practitioners would cut down a tree, yet it may be the only medicinal tree available and known. They would then fill this into sacks and send them to Nairobi, probably because they have some orders from some companies. The trees they use are ours and from our forests and catchments. We have seen cases where some of these trees get depleted, hampering knowledge transfer and sharing ...”*

Dishonesty practitioners

Another challenge is that some researchers are not honest. One of the respondents, R1, said, *“... I have an experience where someone gave me some roots/herbs, and when I received them, I realised they were poisonous, yet he was claiming it treats infertility. My grandmother showed my grandmother. That person had ill motives, and to date, we do not see each other eye to eye with this person ...”* The level of dishonesty is also reiterated by R2, who said, *“... dishonesty amongst some of the practitioners is actually killing the practice. For example, a traditional healer knows well that he/she cannot handle or treat a certain ailment, but a practitioner proceeds to tell the patient that he/she can deal with it only to extort money from the patient ...”*

Insufficient resources, funding, and dedicated institutions for traditional medicine education

Nurturing TM requires adequate resources, infrastructure, continuous research, and practice. However, lack of resources, inadequate funding, as well as lack of dedicated institutions supporting traditional medicine education continue to negatively affect TM knowledge sharing and capacity building among traditional medicine practitioners and younger generations. One of the respondents, R2, said, “... *people question the dosage, but I always tell them to follow the prescriptions I have given ...*” In spite of this, it would have been better for these to go through lab testing and approvals.

Another challenge is the money we require to get the medication. The TM practitioners lack motivation. Most of the patients want to be helped but are not willing to appreciate and motivate us.

Lack of intellectual property rights

TM is mostly tacit knowledge within the minds of practitioners. There is a need to recognise and protect this legally. However, the lack of intellectual property rights that protect the practice and knowledge poses challenges to the sharing of traditional medicine knowledge. One of the respondents, R2, said, “... *I have ever experienced one who asked me for some drugs which he promised to subject it to testing. I gave him three different trees/ herbs and, after subjecting them to lab tests. He actually did it and reported that one was better than quinine and the other was a good antibacterial. He then asked me to hand over the herbs/ roots together with their names. I realised he was not up to any good. He wanted it for himself alone. How I wish he could have forged for something that could have helped both of us ...*” This calls for the need for TM practitioners to patent their trade – especially when these have been subjected to laboratory testing. What is killing this is that people want to survive and benefit themselves. However, I have heard from those who have been that people in KEMRI are also not honest people. It is because of this that most TM practitioners have taken a back step. This person also did not give me transport or anything.

6 Discussion

It is evident in this research that a number of strategies exist to share TM knowledge and skills. Research findings show the use of oral tradition, apprenticeship strategy and mentorship of the interested persons as one of these strategies. This is in tandem with the argument of Bodeker and Ong (2005), who postulates that through hands-on experience and direct observation, apprentices learn about medicinal plants, healing rituals, and diagnostic techniques while also imbibing cultural values and ethics associated with traditional healing practices. In addition to this, the study findings reveal that TM knowledge and skills are shared through family knowledge transfers. Similar sentiments are shared by studies such as Adams et al. (2003) and Odumbe (2014), who postulate that TM family knowledge transfers act as the primary means through which traditional medicine knowledge is preserved and transmitted through informal education, storytelling, practical demonstrations, and hands-on experience.

Furthermore, traditional medicine practitioners’ engagement also acts as another intervention. World Health Organisation (2019) argues that the integration of traditional medicine with modern healthcare is a multifaceted endeavour that requires collaboration and engagement between various stakeholders, including healthcare professionals, policymakers, researchers, and traditional healers. Furthermore, the study findings reveal that the use of community-

based participatory research (CBPR) as a means of sharing TM knowledge and skills. Existing studies (Fan et al., 2014) that explored the utilisation of traditional healing practices among Indigenous communities in North America noted that CBPR enables researchers to engage with community elders, healers, and members to document traditional healing methods, understand their cultural significance, and assess their effectiveness in addressing community health concerns. The objective of this approach is not only to preserve indigenous knowledge but also to facilitate the integration of traditional healing practices into mainstream healthcare systems. Such initiatives aim to enhance the skills, knowledge, and professionalism of traditional healers, enabling them to contribute effectively to the healthcare system (Adams et al., 2003).

In spite of the existence of these strategies employed so as to share TM knowledge and skills, this study also identified a number of challenges hindering traditional medicine and healthcare knowledge sharing. To begin with, the study reported the limited availability and access to sources of TM as well as the unwillingness to share TM knowledge. A study by Bodeker and Ong (2005) posits the existence of limited documentation and codification of traditional medicine knowledge. Traditional healing practices are often orally transmitted and lack standardised terminology, making it challenging to record and disseminate. Moreover, Adams et al. (2003) reported the existence of resistance from traditional healers and communities to sharing knowledge outside their cultural context due to concerns about misappropriation, exploitation, or loss of authenticity. This brings the challenge of a lack of intellectual property rights.

In addition to this, the study established the existence of insufficient resources, funding, and dedicated institutions for traditional medicine education. It is argued that this challenge has continued to hamper TM knowledge sharing. In many countries, traditional medicine is not fully integrated into national healthcare policies, resulting in disparities in access to traditional healing services and limited resources for research and education in this field (WHO, 2013). This lack of institutional support hinders the development of evidence-based practices, quality assurance mechanisms, and regulatory frameworks for traditional medicine.

Moreover, there are challenges related to the validation and scientific evaluation of traditional medicine practices. Traditional healing methods may not always conform to modern medicine paradigms, making it difficult to apply conventional research methodologies to assess their safety, efficacy, and mechanism of action (Ekor, 2014). Additionally, there is a need for interdisciplinary collaboration between traditional healers, researchers, and healthcare professionals to bridge the gap between traditional and modern healthcare systems and facilitate knowledge exchange and mutual learning (Bodeker & Ong, 2005).

The study further highlighted the lack of supportive policies as a challenge hindering the sharing of TM knowledge and skills. Policies that guide the practice are needed. Bodeker and Ong (2005) noted that countries like China, India, and even Nigeria have implemented policies that provide legal recognition and regulations for traditional medicine practices. Other challenges include changing sociocultural dynamics and modernisation, as well as Dishonest practitioners.

7 Conclusion

This study presents findings from three research respondents who are actively practising TM in the Nandi sub-tribe of the Kalenjin community. Despite the sample size being small, this

study reveals that TM knowledge sharing is limited. In addition to this, a number of challenges further exacerbate this situation. As such, all stakeholders (government, communities, research institutions, and practitioners) need to come together to nurture TM. In spite of the few respondents, the findings of this study provide information for knowledge management practitioners, public health researchers and policymakers to think about the possibilities of fostering TM knowledge sharing. Thus, this phenomenon sets the pace for further studies in this field.

8 Recommendations

It is evident from the study findings that a number of interventions ought to be made so as to nurture TM knowledge sharing. Amongst these are fostering integrative healthcare models, such as the collaboration between traditional medicine practitioners, biomedical practitioners, healthcare professionals and the communities. In addition to this, there is a need to develop TM-supportive policies and regulatory frameworks. Here, the Governments can play a crucial role in creating an enabling environment by establishing guidelines and standards for the practice of traditional medicine, protecting traditional knowledge and sources, which include government forests and their access, and recognising the rights of traditional medicine practitioners. Furthermore, there is a need to develop a framework which enables mainstream healthcare practitioners and research institutions to collaborate with TM practitioners in generating and disseminating knowledge. Community engagement and participation are also other interventions that need to be implemented to strengthen TM knowledge sharing. It is concerned with involving the community in decision-making processes and promoting their active participation, which is critical for nurturing traditional medicine. In addition to this, there is a need to examine the role that information professionals can play in the process of decolonising traditional medicine and healthcare. Finally, there is a need to foster knowledge, documentation and research. This is where traditional healing practices and research on their safety, efficacy, and mechanisms of action are carried out. By employing these approaches and strategies, traditional medicine can be nurtured, integrated, and effectively utilised to complement modern healthcare systems, providing comprehensive and culturally appropriate care.

References

- Abdullahi, A. A. (2011). Trends and challenges of traditional medicine in Africa. *African Journal of Traditional, Complementary, and Alternative Medicine*, 8(5S).
- Adams, J., Andrews, G., & Barnes, J. (2003). Broomfield: The role of complementary medicine. *Journal of Health Services Research & Policy*, 8(Suppl 1), 45-47.
- Ahmed, M., Khan, M. A., Zafar, M., & Sultana, S. (2007). Treatment of common ailments by plant-based remedies among the people of district Attock (Punjab) of Northern Pakistan. *African Journal of Traditional, Complementary and Alternative Medicines*, 4(1), 112-120.
- Amaechina, F. C., Okeke, C. U., Nwafor, S. V., Nworu, C. S., & Okoye, F. B. (2016). Promoting traditional medicine knowledge through community-based education in the Nigerian
- Bodeker, G., & Ong, C. K. (2005). *WHO global atlas of traditional, complementary and alternative medicine* (Vol. 1). World Health Organization.
- Bok, S. (2008). WHO's definition of health, rethinking the.

- Che, C. T., George, V., Ijiru, T. P., Pushpangadan, P., & Andrae-Marobela, K. (2017). Traditional medicine. In *Pharmacognosy* (pp. 15-30). Academic Press.
- Ekor, M. (2014). The growing use of herbal medicines: Issues relating to adverse reactions and challenges in monitoring safety. *Frontiers in Pharmacology*, 4, 177.
- Ebomoyi, E. W. (2009). Genomics in Traditional African Healing and Strategies to Integrate Traditional Healers into Western-Type Health Care Services-A Retrospective Study. *Researcher*, 1(6), 69-79.
- Jaiswal, Y., Liang, Z., Zhao, Z., & Botanical Research, C. (2017). Techniques for sharing traditional knowledge of medicinal plants in the Himalayas: A review. *Chinese Journal of Integrative Medicine*, 23(4), 244-252.
- Fan, T. P., Briggs, J., Liu, L., Lu, A., Van der Greef, J., & Xu, A. (2014). Integrating traditional medicine into modern health care. *Science*, 346(6216), S4-S4.
- Kigen, G. K., Ronoh, H. K., Kipkore, W. K., & Rotich, J. K. (2013). Current trends of traditional herbal medicine practice in Kenya: a review. *African Journal of Pharmacology and Therapeutics*, 2(1).
- Kipkore, W., Wanjohi, B., Rono, H., & Kigen, G. (2014). A study of the medicinal plants used by the Marakwet Community in Kenya. *Journal of ethnobiology and ethnomedicine*, 10(1), 1-22.
- Kipkorir, B. E., & Welbourn, F. B. (2008). *The Marakwet of Kenya: A preliminary study*. East African Publishers.
- Lairumbi, M., Kinyanjui, S., & Mijumbi, R. (2008). Traditional birth attendants in rural Kenya: A qualitative study on the experiences of mothers and their perceptions of these providers. *African Journal of Reproductive Health*, 12(1), 1-8.
- Nagata, J. M., Jew, A. R., Kimeu, J. M., Salmen, C. R., Bukusi, E. A., & Cohen, C. R. (2011). Medical pluralism on Mfangano Island: use of medicinal plants among persons living with HIV/AIDS in Suba District, Kenya. *Journal of Ethnopharmacology*, 135(2), 501-509.
- Odumbe, G. O. (2014). The role of cultural practices in the dissemination of indigenous knowledge: A case study of the Kalenjin people of Kenya. *International Journal of Education and Research*, 2(5), 315-330
- Romero-Daza, N. (2002). Traditional medicine in Africa. *The Annals of the American Academy of Political and Social Science*, 583(1), 173-176.
- Weintritt, J. (2007). The use of plants in traditional medicine in Nigeria. *Africana Bulletin*, (55), 119-131.
- World Health Organization. (2007, June 15). *Traditional medicine*. <https://web.archive.org/web/20080727053337/http://www.who.int/mediacentre/factsheets/fs134/en/>
- World Health Organization. (2008). *Who Traditional Medicine Strategy 2002-2005*. World Health Organization. <https://fctc.who.int/publications/i/item/WHO-EDM-TRM-2002.1>
- World Health Organization. (2013). *Traditional medicine | definition, history & examples*. Traditional medicine: Definitions. <https://study.com/academy/lesson/traditional-medicine-definition-history-examples.html>
- World Health Organization. (2019). *General guidelines for methodologies on research and evaluation of Traditional Medicine*. World Health Organization. <https://www.who.int/publications/i/item/9789241506090>

6. Rediscovering Traditional Medicinal Herbs Used by Kikuyu Community in Kiambu County, Kenya

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Abstract

This study aimed to document traditional medicinal herbs used by the Kikuyu community to contribute to Sustainable Development Goal 3, ensuring good health and well-being. Since traditional medicinal herbs are affordable, convenient and accessible, they are a good fit. The study's objectives were to identify existing traditional medicinal herbs, the challenges of using traditional medicinal herbs, and the role of government in the traditional medicinal herbs initiative of the Kikuyu community in Kiambu County. This research employed a case study qualitative research design, and qualitative data was collected from Kihara ward, whose population stood at 395 for 65 years and above respondents as of 2019. Purposive and snowballing sampling was adopted and yielded a sample size of 46, with a response rate of 35 (76%) respondents comprising 31 elders above 65 years, three traditional herbalists and one Nyumba Kumi leader. Data was analysed thematically. The research identified and documented 34 traditional medicinal herbs from the Kikuyu community in Kihara Ward, Kiambu County. The perception of traditional medicinal herbs plays a considerable role in their usage, rooted among medical doctors, government officials, and the public, making it harder to resolve. Documentation can help preserve this knowledge for present and future generations, as well as the use of indigenous knowledge for research on medicinal drugs for revenue generation for Kenya. The results of this study can be populated into a national database for a system that will help Kenyans quickly access knowledge of traditional medicinal herbs.

Keywords: *Documentation, Government, Health, Herbal medicine, Indigenous knowledge, Kenya, SDG*

1 Introduction

World Health Organization (2019) defines traditional medicinal herbs as the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures. Both developing and developed countries use traditional medicinal herbs due to the benefits they offer to their health care system. This is attributed to the easy availability and accessibility of the herbs in the community, thus greatly supporting communities as their primary healthcare system (World Health Organisation, 2019; World Health Organisation, 2023). China has utilised its knowledge of traditional medicinal herbs for revenue generation since it is a profitable market to venture into, estimated at \$151.91 (Fortune Business Insights, 2023). China, Vietnam, and Korea have integrated traditional medicinal practitioners into public and private hospitals, and health insurance covers them (Gathara, 2018). Ghana has also integrated traditional medicinal practitioners into 17 hospitals; despite having a few challenges, they started promoting their traditional medicinal herb (Appiah et al., 2018).

Kenyan communities use traditional medicinal herbs holistically as they are integrated into their culture. Sindiga et al. (1995) state that conventionally, all tribes in Kenya utilised ethno-medicinal resources as their primary healthcare system. World Health Organisation (2019) opined that

using traditional medicinal herbs was and is still the case for Kenya and other African countries due to their easy availability and accessibility. There is also a spike in people's interest in being proactive in their health, and as such, they resort to traditional medicinal herbs believed to be natural and, therefore, safe (World Health Organisation, 2019). Kenya needs to rediscover knowledge of traditional medicinal herbs for utilisation in the public health care system, as their value will be lost if not utilised. This supports one of the five laws of Ranganathan's Library Science Laws, which states that information is for use (Illangarathne & Yingming, 2015).

Rediscovering traditional medicinal herbs entails establishing which ones are present, how to use them, and what diseases they cure. Collins English Dictionary (n.d.) defines rediscovery as the process of finding something that was lost or forgotten. For example, if it is valuable to discover, one becomes aware of it and enjoys its benefits again. In this study, rediscovering traditional medicinal herbs entails identifying and establishing the knowledge of traditional medicinal herbs from the Kikuyu community in Kiambu County. The knowledge is tacit, making it easier to forget as it resides in one's mind and, therefore, cannot be accessed without the knowledge holder.

The process involves externalisation about the Socialisation, Externalisation, Combination and Internalisation (SECI) model. Where the externalisation of tacit knowledge of traditional medicinal herbs is documented and then converted into explicit knowledge for future use (Anggraini, 2018). This ensures the presence of knowledge of traditional medicinal herbs that can be used in different hospitals.

This study aimed to document the traditional medicinal herbs from the Kikuyu community. If scaled up, this study will enhance access to traditional medicinal herbs for the Kikuyu community and the public, as the traditional medicinal herbs have been identified and documented for people to access without language and geographical barriers.

2 Literature Review

Traditional medicinal herbs were part of every community's primary health care system in Kenya (Sindiga et al., 1995). However, for different reasons, this practice was eroded by communities that practised Christianity, Westernisation, and the colonisation of the Kikuyu community (Africa Research Institute, 2016). Traditional medicinal herbs were shunned as they did not align with biblical teachings. Traditional medicinal herbs were holistically used and involved other cultural practices like seers and diviners in curing diseases (Sindiga et al., 1995). They believed diseases resulted from evil spirits, which must be dealt with first to cure the sickness. However, the colonialists did not see this process as the primary health care system. Therefore, it had to pave the way for contemporary medicine, which was seen as superior and better (Kamau et al., 2016).

This negative perception was taken up by the people, especially medical practitioners and evangelists, who intensely interacted with the colonialists' way of life due to Westernisation and Christianity (Gathara, 2018). Traditional medicinal herbs were seen as ungodly due to the inclusion of traditional ways of worship (Africa Research Institute, 2016). This was the case for the Kikuyu community, which led to ignoring the knowledge of traditional medicinal herbs and adopting contemporary medicine.

The sustainability of traditional medicinal herbs is facilitated by government intervention and support, as is the case for the traditional medicinal herbs initiative. The government supports it and has moved away from the colonialist mindset of viewing traditional medicinal herbs

as ungodly or unworthy and seeing them for the benefits they provide its citizens (Africa Research Institute, 2016). One of the issues raised on government support is the perception the government presents when it places traditional medicinal herbs under the Ministry of Culture, Sport and Heritage instead of the Ministry of Health (Harrington, 2018).

If the country has to move forward, it has to integrate traditional medicinal herbs into hospitals like China and Ghana (Appiah et al., 2018; Gathara, 2018) to help meet the demand for public healthcare services as it is an issue with Kenya's public health care services (Gathara, 2018, p.2). The perception of traditional medicinal herbs has to change, and this will start with the government as they push for awareness and educate their citizens on their importance. Organisations like the Centre for Traditional Medicine and Drug Research (CTMDR) and Kenya Medical Research Institute (KEMRI) exist. To help with drug research using traditional medicinal herbs (Gathara, 2018).

This study proposes to highlight the importance of the rediscovery of traditional medicinal herbs from the Kikuyu community. It is a start in contributing to the traditional medicinal herbs initiative since the knowledge is being located before it is completely forgotten or lost due to the holders of the knowledge dying. This will increase Kenya's knowledge base on traditional medicinal herbs, which contribute to affordable, accessible and quality health care since it is utilised by the drug research institutes and the development of new drugs before the knowledge is lost (Kigen et al., 2017). Additionally, rediscovering traditional medicinal herbs reduces the negative perception towards them by outlining their importance to health and as a revenue-generating initiative for the country.

2.1 Traditional medicinal herbs in the Kikuyu community, Kiambu County

A few studies have recently been done on traditional medicinal herbs in the Kikuyu community in Kiambu County. Githinji (2014) conducted a study in the Githunguri division in Kiambu County. Githinji (2014) found that different traditional medicinal herbs are used concomitantly with conventional medicine and for acute and chronic diseases such as allergies and malaria. In the study, Githinji (2014) also states that "Warbugia ugandensis" and "Citrus aurantifolia" were the most famous traditional medicinal herbs in the area where they were used to treat malaria, allergies, pneumonia and typhoid. This is important as other areas in the country also have issues with similar diseases, and these herbs can be used to help solve the issue.

Kamau et al. (2016) also conducted a study in Nyeri County on the Kikuyu community's traditional medicinal herbs. Kamau et al. (2016) state that "Warbugia ugandensis" was also the common traditional medicinal herb in the area, and it is used to treat respiratory diseases such as the common cold, pneumonia, asthma and chronic diseases such as AIDS and cancer. This would be a breaking point for science if the cure for this disease could be found and incorporated into healthcare services to help save more lives. Also, knowledge of traditional medicinal herbs can contribute to Kenya's Vision 2030 of bettering the health conditions of Kenyans (Ministry of Health, 2014).

2.2 Challenges facing the use of traditional medicinal herbs

The challenges of traditional medicinal herbs stem from social, governance, human resources, and environmental factors (Appiah et al., 2018). In Kenya, the Centre for Traditional Medicine and Drug Research (CTMDR) requested funds to develop traditional medicinal herbs drugs, and they were provided a third of the amount (Gathara, 2018). This explains the value put on traditional medicinal herbs and makes it hard to move forward with them since the funds

required for research are not provided.

Additionally, social factors such as a negative perception have affected the usage of traditional medicinal herbs. Christianity terms traditional medicinal herbs as ungodly and practices associated with pagans (Africa Research Institute, 2016; Gathara, 2018). This leads to Christians not utilising traditional medicinal herbs even though it would help them have access to health care services. Kenya is doing itself an injustice as it adopted the colonialist mindset and denied itself the chance to utilise their traditional medicinal herbs resources to fight disease and ensure their citizen's health is good.

Also, education and mass media have brought a negative perception of traditional medicinal herbs since people feel that due to their exposure to science, there is no other way to treat diseases (Gathara, 2018). However, that is not true since traditional medicinal herbs have been well-researched and can be compared to conventional medicine, which could keep up (Oketch, 2020).

Preserving traditional medicinal herbs has become difficult, and with the growing and lucrative industry of traditional medicinal herbs, this challenge is not going away. People who know the lucrative market go on a wild harvest to obtain traditional medicinal herbs. Then, they sell them to the market, not caring about the sustainability of the traditional medicinal herbs due to over-harvesting without regard to sustainable practices (Africa Research Institute, 2016; Gakuya et al., 2020). If the practice is left to continue, this will lead to the depletion of traditional medicinal herbs, affecting communities. According to the World Health Organisation (2019), 80% of people in developing countries utilise traditional medicinal herbs as their primary health care service.

2.3 Role of the government in the traditional medicinal herbs initiative

Government involvement in initiatives ensures their success since they play the crucial role of creating policies and procedures that directly affect them. Also, the government decides whether its citizens are going to agree with something or not. This can be seen when the government was against traditional medicinal herbs and outlawed them in 1925; people gradually stopped using them (Gakuya et al., 2020). This was contributed by colonists, who could push a negative perception of traditional medicinal herbs as they were part of the government and could make policies and training programs to support their initiatives. They introduced formal education and trained doctors who would replace the traditional herbalists, which worked. The format is currently being used. Therefore, government support is essential for any initiative to be successful.

The Kenyan constitution recognises the contribution of indigenous technologies to national development (Africa Research Institute, 2016). Therefore, the government should play the role of education to ensure that indigenous technologies, such as traditional medicinal practices, are not lost. Therefore, training should be provided to help educate traditional herbalists in a standardised way and offer registration, licences, and standardisation of traditional herbalists to ensure control over the sector (Health Act, 2017). This will also ensure that people's perception of traditional herbalists improves and that they agree to work together to provide affordable, accessible, and quality healthcare services to Kenyans.

Despite challenges, the Kenyan government has moved from the colonial period and started supporting traditional medicinal herbs. In the previous regime led by the former president, Mr. Uhuru, their agenda for universal health care pushed for affordability, quality and accessibility (Gathara, 2018). This is what traditional herbalists provide since traditional

medicinal herbs are affordable, accessible, and of good quality because they are natural products. They developed the Health Act (2017), which supports traditional medicinal herbs and stipulates that traditional herbalists should be included in health care services. They would, in conjunction with conventional medicine, provide referral services.

However, the government has not been able to include traditional herbalists, and progress has not been seen until recently (Gathara, 2018). This is a step for the government to intervene and ensure the implementation of laws put in place, as creating the laws and not following them makes them redundant and useless to the citizens of Kenya.

The Kenyan government has provided opportunities for traditional medicinal herbs to grow, such as establishing a regulatory body for traditional medicinal herbs (Health Act, 2017). In 2019, the National Traditional and Alternative Practitioners Council (NTAPC) was appointed to register, regulate and develop standards (Chebii et al., 2020). Africa Research Institute (2016) states that the government must take traditional herbalists seriously. This body will help champion traditional herbalists as a way forward for stakeholders in Kenya's health care system to facilitate working together to help manage the sector. This demonstrates the government's involvement and support for the growth of traditional medicinal herbs initiatives and its ability to correct the challenges within the health sector.

The researchers discovered from the literature review that few recent studies surround traditional medicinal herbs in the Kikuyu community. Therefore, this creates a need to continue rediscovering traditional medicinal herbs from the Kikuyu community before tacit knowledge is lost.

3 Rationale of study

Currently, most concepts are being reshaped to withstand the 21st Century. There is increased dissatisfaction with the healthcare system and interest in one's healthcare. Traditional medicinal herbs are being reshaped. Countries like China, Vietnam, and Korea have integrated traditional medicinal herbs into their healthcare system (Appiah et al., 2018). Making traditional medicinal herbs accessible and available to everyone, not just the originators of traditional medicinal herbs knowledge (Gathara, 2018). These countries recognised the benefits of traditional medicinal herbs for their citizens and health care systems.

In Kenya, there is a need for traditional medicinal herb knowledge held by different communities to be rediscovered, combined, and integrated into hospitals in rural and urban areas to enhance access to primary healthcare services. Tolo (2013) and Oketch (2020) showed that public healthcare services are affected by the government and bodies in charge of not meeting public demand for healthcare services. Therefore, people turn to traditional medicinal herbs for their primary healthcare services. Africa Research Institute (2016) states that the ratio of traditional healers is 1:950, whereas that of doctors is 1:33,000, making access to traditional healers easier and using available traditional medicinal herbs possible.

Additionally, Kihara Ward was affected by Westernisation, colonisation and Christianity because of its proximity to urban areas. Traditional medicinal herbs were included in the Witchcraft Act to outlaw them since the colonialism culture and Christianity disagreed with them and saw them as ungodly (Africa Research Institute, 2016; Gakuya et al., 2020). This has led to them ignoring their traditional medicinal herbs knowledge, which is not being passed down to other generations as the Kikuyu culture dictates. This leads to dependence on contemporary medicine, and if there is a lack of enough supply to meet the demand, people

suffer as they do not have another option (Tolo, 2013).

Traditional medicinal herbs can help in the absence of enough supply to complement contemporary medicine, and due to their presence, they are accessible and affordable (Gathara, 2018). By discovering traditional medicinal herbs from different communities and utilising them to generate social value, Kenyans will be able to access primary health care that is affordable and convenient, and Kenya can also generate economic value (Gathara, 2018). People's perception of traditional medicinal herbs will be reshaped through rediscovery and usage to support contemporary medicine. Kenyan citizens can extract value from their knowledge of traditional medicinal herbs in a standardised way, making it more accessible to everyone.

4 Methodology

This research employed a case study qualitative research design. Data was collected through one-on-one, face-to-face structured interviews with the respondents as required to collect tacit knowledge. The design assisted in identifying and collecting data about traditional medicinal herbs used by the Kikuyu community, Kihara Ward. It enabled the collection of in-depth information, especially since it was an open-ended process, which was the best option for collecting data on traditional knowledge of medicinal herbs. The population of the Kihara Ward stands at 13,190 as of 2019, of which 395 were above 65 years old, which is 3% of the population, according to World Population Dashboard Kenya (2022) and were the respondents targeted for the study. Purposive and snowballing sampling was adopted and yielded a sample size of 46, with a response rate of 35 (76%) respondents comprising 31 elders above 65 years, three traditional herbalists and one Nyumba Kumi leader as a government representative. The rate is above 76%, which is the required participation level for a study to be effective (Kothari, 2007). It is above the 50% recommended (Creswell & Creswell, 2018; Mugenda & Mugenda, 2012). Narrative analysis was done to extract information from the interviews. Data was analysed using the QDA Miner Lite tool and presented in tables using thematic grouping.

5 Findings and Discussions

5.1 Existing traditional medicinal herbs among the Kikuyu community in Kiambu County

The researchers sought to identify traditional medicinal herbs among the Kikuyu community in Kihara Ward, Kiambu County, Kenya. This study identified 34 existing traditional medicinal herbs from the respondents in the area, as shown in Table 1.

Table 1: The existing traditional medicinal herbs

Local Name	Scientific Name	Part Used	Preparation Method	Administering Method	Disease Cured
Gathiriga	<i>Fuerstia africana</i>	Leaves	boil the leaves	Drink	Releases blocked urine
Kererwa	<i>Croton dichogamus</i>	Leaves	boil the leaves	Drink	Throat irritation
Kiruma	<i>Aloe vera</i>	Leaves	ground the leaves	Apply	Cures wounds

Local Name	Scientific Name	Part Used	Preparation Method	Administering Method	Disease Cured
Maigoya	<i>Plectranthus barbatus</i>	Leaves	crush the leaves	Apply on tooth	Toothache
Makorobia	<i>Persea americana</i>	Seed	Ground and dry the seed	Mix the ground seed with water	Ulcers
Mikinghi	N/A	Leaves	rub the leaves	Apply on the head	Reduces headache
Muarubaini	<i>Azadirachta indica</i>	Leaves	Boil the leaves	Drink	Malaria
Mubangi	<i>Tagetes minuta</i>	Leaves	boil the leaves	Drink	High blood pressure
Mubera	<i>Psidium guajava</i>	Leaves	boil the leaves	Drink	Diabetes, High blood pressure
Mucatha	<i>Vernonia lasiopus</i>	Roots	wash the roots	Chew the roots	Lack of appetite
Mucatha	<i>Vernonia lasiopus</i>	Leaves	boil the leaves	Drink	Skin diseases
Muceege	<i>Bidens pilosa</i>	Leaves	crush the leaves	Apply on eyes	Sore eyes
Mucuthi	<i>Caesalpinia volkensii</i>	Leaves	boil the leaves	Drink	General body pains, Influenza, Malaria
Mugaa	<i>Acacia nilotica</i>	Bark	boil the bark with mukungugu	Drink	Diarrhoea
Mugucua	<i>Zanthoxylum usambarense</i>	Bark	wash the bark and remove thorns	Chew the bark	Bleeding gums, Toothache, Bad breath
Mugwa-nugu	<i>Aloe kedongensis</i>	Leaves	Extract sap out of leaves	Apply on the wound or affected area on the skin	Healing of wounds, skin condition
Muiri	<i>Prunus africana</i>	Bark	Boil	Drink	Food allergy and urinary problems are present in men above 40 years.
Mukinduri	<i>Croton megalocarpus</i>	Bark	boil the bark with milk	Drink	Intestinal worms.
Mukoigo	<i>Bridelia micrantha</i>	Bark	Boil the bark	Drink	General body pains
Mukungugu	<i>Commoiphora eminii</i>	Bark	Boil the bark with mugaa	Drink	Diarrhoea.

Local Name	Scientific Name	Part Used	Preparation Method	Administering Method	Disease Cured
Mukura utuku	<i>Malva verticillata</i>	Leaves	Squeeze sap out of leaves	Apply on wound	Healing wounds.
Munyua mai	<i>Eucalyptus globulus</i>	Leaves	Boil the leaves with spring onions	Cover and inhale the steam	Common cold, asthma.
Mutamaiyu	<i>Olea europaea</i>	Bark	boil the bark	Drink after eating allergen	Food allergy.
Muthiga	<i>Warbugia ugandensis</i>	Bark	Boil the bark and add milk	Drink	Common cold, pneumonia.
Muthuri	<i>Euphorbia candelabrum</i>	Leaves	squeeze sap	Apply on eye	Trachoma
Mutongu	<i>Solanum incanum</i>	Leaves	boil the leaves	Drink	Stomachache
Mutundu	<i>Neoboutonia macrocalyx</i>	Leaves	Squeeze sap from leaves	Apply on wound	Stops bleeding
Mwenderendu	<i>Tredea</i>	Leaves	Boil leaves with milk	Drink	Joint pains
Mwenyere	<i>Cussonia spicata</i>	Bark	boil the bark	Drink	Postnatal pains
Nathi	<i>Physalis peruviana</i>	Leaves	wash the leaves	Eat the leaves	Stomachache
Nathi	<i>Physalis peruviana</i>	Leaves	boil the leaves	Drink	Typhoid
Ndimu	<i>Citrus limon</i>	Peel	boil peels	Drink	Common cold
Nduuma (female)	<i>Colocasia antiquorum</i>	Leaves	boil the leaves	Drink	Stomach ulcers
Nduuma (male)	<i>Colocasia antiquorum</i>	Leaves	Boil	Drink	Throat pains
Rosemary	<i>Salvia rosmarinus</i>	Leaves	Boil	Drink	Memory improvement
Thabai	<i>Urtica dioica</i>	Leaves	boil the leaves	Drink	High Blood pressure
Wanjiru wa Rurii	<i>Ajuga remota</i>	Leaves	boil the leaves	Drink	Malaria

The analysed data shows 34 identified and documented traditional medicinal herbs from the Kikuyu community in Kihara Ward Kiambu County. This finding confirmed that the Kikuyu Community still knows about traditional medicinal herbs. In a study in the Githunguri division, Githinji (2014) concurs that traditional medicinal herbs used by the Kikuyu community are shared. The finding is further supported in a study in Nyeri County, where Kamau et al. (2016) found that “*Warbugia ugandensis*” is a typical traditional medicinal herb in the Kikuyu community. This study further identified it as a cure for the common cold and pneumonia, whereas Githinji (2014) found it to be used for malaria, pneumonia and allergies. Kamau et al. (2016) found it was used to cure more than seven other diseases, primarily respiratory, such as asthma and the common cold. These findings show that the uses are similar as the composition of the herbs are similar throughout, even though other people

of the same community in different localities may incorporate additional uses such as for stomach problems, gout, AIDS, toothache, arthritis and cancer (Kamau et al., 2016).

5.2 Challenges of using traditional medicinal herbs

The researchers sought to identify the challenges of using traditional medicinal herbs among the Kikuyu community in Kihara Ward, Kiambu County, Kenya. The following are the challenges identified:

Negative perception sometimes comes from medical doctors who advise patients to avoid using traditional medicinal herbs; therefore, it has led to people shunning traditional medicinal herbs. Some of the interviewees said that:

“My doctor advised me to stay away from traditional medicinal herbs since I have diabetes and that I should focus on one side and not mix the two.” [Interviewee 7]

This demonstrates that rediscovering traditional medicinal herbs is a step in helping people revive that knowledge and understand it. This will help them deal with the negative perception as they follow what has been said and may not have had an interaction with the traditional medicinal herbs.

In concurrence with this finding, Africa Research Institute (2016) found that the negative perception is not a new challenge for traditional medicinal herbs as it has been there since 1963 and stemmed from the leaders and colonialists. Therefore, uprooting the beliefs and perceptions is a difficult task. The bias has been deeply rooted and passed down to medical professionals and individuals. Harrington (2018) argues that traditional medicinal herbs are traditional and states that the only thing traditional about them is their way of communication. Otherwise, herbalists are constantly learning and expanding their knowledge base.

Information on traditional medicinal herbs is not as difficult to access as one might think, so their usage is not restricted.

“Since I have grown up with the medicinal herbs, I know of a few out of my experience, and I know older people have experienced them. Therefore, when we sit together, we can advise on which one to use for what and when the disease is chronic. The herbalist may be involved in helping us know the way forward as they are experts.” [Interviewee 10]

The finding suggests that rediscovery will help bring to light the traditional medicinal herbs for more people other than the old who have directly interacted with them and can use them.

Traditional medicinal herbs also face the challenge of harmful harvesting practices, which makes them scarce in supply. Therefore, the use of certain traditional medicinal herbs would be affected as the traditional medicinal herb's resources would be depleted.

“The herbs become scarce when people use them without understanding that they should be used in an orderly manner where others are left for the next people.” [Interviewee 33]

Rediscovering the traditional medicinal herbs of the Kikuyu community in Kihara Ward identifies the unsustainable harvesting practices depleting the traditional medicinal herbs. This is a step forward in trying to curb unsustainable and harmful harvesting practices, as the problem has been identified, and solutions can be found.

The negative perception of traditional medicinal herbs is an old concept that has led to the government and Kenyans not providing them with the right place they deserve. This led to people not leveraging medicinal herbs' benefits for the country's healthcare sector. This is a

necessary positive change as researchers have found that traditional medicinal herbs are not inferior to conventional medicine (Oketch, 2020). Thus, the perception that “herbalists are cheats and live off the sweat of others”, as the late Mzee Jomo Kenyatta, the ^{first} president of Kenya, stated, should be done away with (Africa Research Institute, 2016). By doing so, the traditional medicinal herbs sector can quickly get funding, which is an issue that hinders the sector from growing (Appiah et al., 2018; Gathara, 2018).

5.3 Role of the government in traditional medicinal herbs initiative

Educating people about traditional medicinal herbs is a mandate of the government, and the perception should be supportive to ensure people utilise the traditional medicinal herbs once they are rediscovered and provided for use. This is what some interviewees had to say:

“The government should educate people to understand traditional medicinal herbs so that we can stop depending on imported medicine since when the supply ends, we are left wondering what to do next.” [Interviewee 17]

“The government should educate people like you who are interested in the traditional medicinal herbs.” [Interviewee 20]

“As an herbalist, I have been informally educated as I learnt from the late Barnabas, who had an herbal clinic. I was able to learn by doing and practising from him. The government can do this on a larger scale where interested participants are provided with the training” [Interviewee 33]

Education can be significant. Raising awareness of traditional medicinal herbs is essential so the general public can understand and utilise the benefits. Rediscovering traditional medicinal herbs will contribute to the government’s different roles as the herbs are located. Therefore, the process of providing traditional medicinal herbs will be seamless.

Regulation of the traditional medicinal herbs sector is mandatory as it deals with the health of citizens, which is a fragile matter. Therefore, the government should regulate the sector to ensure safety. One of the respondents said that:

“Traditional medicinal herbs are natural products; therefore, even when taken, whether in excess or not, it is not harmful to the body. However, there has been a rise in quacks who take just any wild plant and term it an herb. Therefore, ensuring the provided products are safe for consumption is the government’s mandate as it has to protect its citizens”. [Interviewee 1]

Additionally, education can be provided in schools such as those for medical students to help ensure that the knowledge imparted is standardised and that the traditional medicinal herbs provided are safe for consumption (Appiah et al., 2018). This can be done by ensuring the herbalists are educated and aligned with the 2017 Health Act, which ensures traditional herbalists are registered, certified, and standardised (Health Act, 2017).

Lastly, the government creates and implements policies promoting traditional medicinal herbs. This is what some of the interviewees had to say:

“The government has the power to form rules and laws which everyone follows. That is the same with the herbs; they can form laws to help support the use of the herb and change people’s perceptions”. [Interviewee 30]

“The government can help spread use of traditional medicinal herbs by raising awareness through the media and also ensuring people use it in hospitals by forming laws to promote the usage of traditional medicinal herbs”. [Interviewee 8]

The government should form laws that support traditional medicine, as has been done over time. For example, the 1925 Witchcraft Act outlawed traditional medicinal herb practices (Chebii et al., 2020; Gakuya et al., 2020). Since the WHO called the Alma-Ata Declaration of 1978 WHO, the perception of traditional medicinal herbs has started softening (Africa Research Institute, 2016; Chebii et al., 2020). The Kenya Medical Research Institute (KEMRI) introduced the Drug and Research Centre in 1984, which embarked on using traditional medicinal herbs in drug research (Africa Research Institute, 2016). Then, the 2010 constitution amendment supported traditional medicinal herbs since it recognised the contribution of indigenous technologies to Kenya's development. The Kenya Health Act of 2017 allows traditional herbalists to work with conventional medical professionals in a referral system (Health Act, 2017). In 2019, traditional medicinal herbs were recognised as health products, and (TAHPC) was used as the regulatory body following the amendment of health laws in 2019 (Chebii et al., 2020).

This shows the government's role in regulating the traditional medicinal herbs sector, which requires much effort. Away from creating the policies and regulations, the government implements the policies, which leads to different institutions being provided by the mandate to work with the traditional medicinal herbs sector to ensure the policy's success. Therefore, rediscovering traditional medicinal herbs can be essential to their success since they will be present and documented, making them available and accessible.

6 Conclusions

This study identified and documented 34 traditional medicinal herbs from the Kikuyu community in Kihara Ward Kiambu County. This is a rediscovery since the traditional medicinal herbs in the area have been located, and if the people who hold this knowledge die, it will still be present. This study was able to convert the tacit knowledge of traditional medicinal herbs to explicit knowledge in a prototype database that can be built on by other studies. This ensures its presence over time and keeps it away from the knowledge holder.

Therefore, this study concludes that documentation of traditional medicinal herbs' tacit knowledge is essential. However, knowledge documentation is only helpful if people use it; therefore, dealing with the negative perception of traditional medicinal herbs is necessary. This perception guides the usage and policies created to support traditional medicinal herbs.

7 Recommendations

From the conclusions above, this study recommends the following:

- A national database will be populated with the study results to make a system that can help Kenyans quickly access knowledge of traditional medicinal herbs.
- The government should continue traditional herbalists' formal education, as it started at Kisii University, Kenya. To help combat the perception that herbalists are 'crooks' and standardise the practice, leading to easier integration in hospitals.
- Traditional medicinal herbs and herbalists are to be integrated into hospitals to help integrate traditional medicinal herbs with conventional ones and improve Kenyans' perception of traditional medicinal herbs since government endorsement can help improve the negative perception.
- The government should formulate strategies and policies that govern the preservation of traditional medicinal herbs to ensure their future existence.

This study contributes to the scholarly space and for practical value by rediscovering and documenting traditional medicinal herbs from Kihara ward Kiambu county, which had not been done previously for the specific area.

8 Suggestion for further research

- Similar studies to be carried out in other areas of the Kikuyu community (Kikuyu land) to document comprehensive knowledge of the Kikuyu community's traditional medicinal herbs
- Similar studies are to be replicated in different communities to increase the knowledge base of traditional medicinal herbs.

References

- Africa Research Institute. (2016). *Kenya: Traditional Medicine and the Law*. <https://www.africaresearchinstitute.org/newsite/blog/kenya-traditional-medicine-and-the-law/>
- Anggraini, A. (2018). *Introduction to "The Nonaka and Takeuchi" Knowledge Management Model*. Binus University. <https://sis.binus.ac.id/2018/02/05/introduction-to-the-nonaka-and-takeuchi-knowledge-management-model/>
- Appiah, B., Amponsah, K., Poudyal, A., & Mensah, M. (2018). Identifying strengths and weaknesses of integrating biomedical and herbal medicine units in Ghana using the WHO Health Systems Framework: A qualitative study. *BMC Complementary and Alternative Medicine*, 18(1). <https://doi.org/10.1186/s12906-018-2334-2>
- Chebii, W., Muthee, J., & Kiemo, K. (2020). The governance of traditional medicine and herbal remedies in the selected local markets of Western Kenya. *Journal of Ethnobiology and Ethnomedicine*, 16(1). <https://doi.org/10.1186/s13002-020-00389-x>
- Collins English Dictionary. (n.d.). Rediscover. In CollinsDictionary.com dictionary. <https://www.collinsdictionary.com/dictionary/english/rediscover>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). SAGE Publications.
- Fortune Business Insights. (2023). *Herbal Medicine Market Size, Share & Covid-19 Impact Analysis*. <https://www.fortunebusinessinsights.com/herbal-medicine-market-106320>
- Gakuya, D., Okumu, M., Kiama, S., Mbaria, J., Gathumbi, P., Mathiu, P., & Nguta, J. (2020). Traditional medicine in Kenya: Past and current status, challenges, and the way forward. *Scientific African*, 8, e00360. <https://doi.org/10.1016/j.sciaf.2020.e00360>
- Gathara, P. (2018). *DOCTORS WITHOUT ORDERS: Why Kenya should give traditional medicine and healers a chance*. <https://www.theelephant.info/features/2018/12/28/doctors-without-orders-why-kenya-should-give-traditional-medicine-and-healers-a-chance/?print=pdf>
- Githinji, F. (2014). *Utilisation of herbal products and concomitant use with conventional medicine in Githunguri Division, Kiambu County, Kenya*. [Master's thesis, Kenyatta University] 41–52. <https://ir-library.ku.ac.ke/handle/123456789/12055>
- Harrington, J. (2018). Governing traditional medicine in Kenya: Problematization and the role of the constitution. *African Studies*, 77(2), 223–239. <https://doi.org/10.1080/00020184.2018.1452856>
- Illangarathne, D., & Yingming, W. (2015). Ranganathan's Five Laws and its Impact on the Technological Innovations of Library and Information Sciences. *The 12th International Conference on Innovation and Management*. The talk was presented at Wuhan University of Technology, Wuhan, China. 10.13140/RG.2.1.4223.2563

- Kamau, L., Mbaabu, P., Mbaria, J., Gathumbi, P., & Kiama, S. (2016). Ethnobotanical survey and threats to medicinal plants traditionally used to manage human diseases in Nyeri County, Kenya. *TANG [HUMANITAS MEDICINE]*, 6(3), 4-12. <https://doi.org/10.5667/TANG.2016.0007>
- Kigen, G., Kipkore, W., Wanjohi, B., Haruki, B., & Kemboi, J. (2017). Traditional healers used medicinal plants in Sangurur, Elgeyo Marakwet County, Kenya. *Pharmacognosy Research*, 9(4), 333. https://doi.org/10.4103/pr.pr_42_17
- Kothari, C. (2007). *Research Methodology: Methods & Techniques* (2nd ed.). New Age International Limited. <https://ccsuniversity.ac.in/bridge-library/pdf/Research-Methodology-CR-Kothari.pdf>
- Ministry of Health. (2014). *Kenya Health Policy 2014 - 2023*. <https://www.ncikenya.or.ke/documents/kenya-health-policy.pdf>
- Mugenda, O., & Mugenda, A. (2012). *Research Methods: Quantitative and Qualitative Approaches*. African Centre for Technology Studies
- Oketch, A. (2020). Herbal remedies rot at KEMRI shelves as financial constraints keep them from pharmacies. *Nation*. <https://nation.africa/kenya/health/Why-KEMRIs--herbal-remedies-are-not-in-pharmacies/3476990-4721826-147p8ov/index.html>
- Sindiga, I., Nyaigotti-Chacha, C., & Kanunah, M. (1995). *Traditional Medicine in Africa*. Macmillan Publishers.
- The Health Act No. 21 (2017) Kenya Gazette Supplement No. 101 § 10. <http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/HealthActNo.21of2017.pdf>
- The SDG in Action*. (n.d.). UNDP. https://www.undp.org/sustainable-development-goals?utm_source=EN
- Tolo, F. (2013). The Role of Traditional Medicine in Public Health. *KEMRI Bioethics Review*, 3(2), 7-8. <https://www.kemri.go.ke/wp-content/uploads/2019/10/KEMRI-Newsletter-volume-3-issue-2.pdf>
- World Health Organization. (2019). *WHO Global Report on Traditional and Complementary Medicine 2019*.
- World Health Organization. (2023). *Traditional medicine has a long history of contributing to conventional medicine and continues to hold promise*. <https://www.who.int/news-room/feature-stories/detail/traditional-medicine-has-a-long-history-of-contributing-to-conventional-medicine-and-continues-to-hold-promise>
- World Population Dashboard Kenya. (2022). United Nations Population Fund. <https://www.unfpa.org/data/world-population/KE>

SECTION TWO:
INDIGENOUS
KNOWLEDGE AND
INTELLECTUAL
PROPERTY RIGHTS

7. Cultural Recognition and Intellectual Property Rights for Ohangla Dance and Music in Kenya

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Abstract

Kenya has multiple legal frameworks that safeguard the intellectual property rights of dance and music traditions. However, the community expression of culture deemed fundamental to these traditions is only partially safeguarded. The traditions are exposed to exploitation, appropriation, and distortion, creating social and economic inequalities. A holistic approach that acknowledges, honours, and protects these customs is needed. This study aims to propose recommendations that will help preserve the dance and music traditions of the Luo community in Kenya while resolving inequalities. The paper explores the historical and cultural relevance of the two cultural practices, emphasising their importance in community identity and contributing towards achieving Sustainable Development Goal 10 (SDG 10). The study employed a qualitative research design. Data was collected through reviews of current literature and document analysis of legal legislation, policies, and regulations. Data was thematically analysed. The findings underscored the significance of recognising and protecting the cultural heritage in the dance and music traditions in Kenya, shed light on the intricate dynamics of cultural recognition and intellectual property rights of dance and music traditions, highlighted the challenges of rightful recognition and protection of cultural heritage in the face of globalisation. The proposed recommendations can serve as a model for safeguarding the dance and music traditions of communities who experience comparable challenges in Kenya, Africa and worldwide. The findings add to a broader discussion on Sustainable Development Goals, cultural rights, and intellectual property rights in dance and music traditions, particularly in Africa.

Keywords: *Intangible cultural heritage, Luo culture, sustainable development goals, traditions*

1 Introduction

The Luo community are found around Lake Victoria in the western region of Kenya. They extend beyond Kenya's borders to East Africa and the rest of the world. Luos have a vibrant music scene, with Ohangla being a popular genre performed during celebrations, cultural events, and rites of passage ceremonies. Although the origin of the name Ohangla remains disputed, it is argued that the name and style of music were brought to Kenya during the migration of the Luos from Busoga in Uganda and that the name was first used in the 1940s to refer to an emerging dance style (Ochieng, 2019, p. 49).

Ohangla music has a long history of social commentary, allows artists to address social, political, and economic issues affecting the Luo community and sparks discussions through its lyrics and melodies. Cultural events such as the Luo Festival, which celebrates Luo music, dance, fashion, and traditional food, serve as platforms for promoting and showcasing Luo traditions. Ohangla music and dance have become club bangers with other Kenyan communities, such as the "Kikuyu," and several foreign tourists perform this dance. The fusion of Ohangla with other genres bridges the gap between tradition and modernity. Thus promoting the spread, reach, and appeal of Ohangla music. This has made it accessible to a

broader audience in Kenya and beyond. However, the fusion exposes Ohangla to loss and distortion (Okong'o, 2011).

Despite the changes, the Luo community takes pride in preserving its cultural practices and heritage, which calls for cultural recognition as intangible cultural heritage (ICH) and intellectual property rights. Due to its importance to the local and national economy, Ohangla music requires a collaboration between the artists and institutions such as the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in order to find exposure, protection and a structured system of operation (Ochieng, 2019, p. 52). UNESCO is the body responsible for enlisting such ICH after the country of origin has given notice.

2 Literature review

The Sustainable Development Goals (SDGs), unanimously adopted by all United Nations Member States in 2015, offer a comprehensive framework to tackle the world's most urgent social, economic, and environmental issues (United Nations, 2020). Traditional dance and music have cultural and social significance among the Luo community, but their direct impact on specific SDGs may vary based on context and implementation strategies. Traditional arts can be integrated into educational programs to promote cultural diversity and understanding (SDG 4), offer opportunities for both genders to participate and challenge stereotypes to promote gender equality (SDG 5), provide a platform for social inclusion and equal participation (SDG 10), and contribute to peacebuilding efforts by promoting cultural understanding, dialogue, and social cohesion (SDG 16) (Breed et al., 2020; UNESCO, 2012; United Nations, 2020).

Intellectual property rights (IPR) play a crucial role in preserving and promoting dance and music traditions. IPR provides legal protection for artists' and communities' creative works, expressions, and cultural heritage. According to Umar (2022), Chepchirchir et al. (2020) and Chennells (2009), IPR is essential in safeguarding the intangible cultural heritage embedded within dance and music traditions. These rights grant artists, musicians, and communities legal ownership and control over their creative works, ensuring their preservation, recognition, and appropriate use. By securing IPR, dance and music traditions are protected from misappropriation, unauthorised use, and exploitation, safeguarding communities' cultural identity and integrity. IPR and cultural recognition in Kenya are provided for in the Protection of Traditional Knowledge and Cultural Expressions Act No.33 of 2016. Workshops, cultural events, educational programs, and public performances that showcase traditional Kenyan dance and music are the forms that are often used to educate generations on the importance of respecting, celebrating, preserving, and promoting their culture in their original context.

The Isukuti dance, performed by the Isukha and Idakho communities of Western Kenya, is on the UNESCO listing of ICH for urgent safeguarding since it is endangered due to factors such as lack of funds to make costumes and instruments, composers' preference to work in more commercial genres, and lack of successors to transfer the knowledge to (Eleventh session of the Intergovernmental Committee (11. COM), 2018). Although the Kenyan Constitution of 2010 does not have a specific article that explicitly addresses dance, music, and IPR, specific provisions indirectly touch upon these subjects. The Kenyan Constitution of 2010 recognises and protects the cultural rights of all Kenyan citizens, including the freedom to participate in and enjoy traditional dance and music. The Kenyan Constitution includes several provisions and chapters that recognise the importance of cultural heritage, including dance and music. Chapter 2, Article 11, Chapter 4, and Article 44 guarantee individuals and cultural communities the right to enjoy and practice their customs and cultural

expressions. Article 40 protects property rights, including IP, for artistic works. Chapter 10, Article 11A, acknowledges the state's role in promoting cultural diversity. Chapter 11, Article 186, encourages cooperation between national and county governments in cultural matters, highlighting the significance of cultural activities like dance and music (Kenya, 2016a). The Protection of Traditional Knowledge and Cultural Expressions Act No. 33 of 2016 focuses on protecting traditional knowledge and cultural expressions. The Act encompasses various forms of cultural expressions, which include expressions by movement such as dances, plays, and rituals, whether or not they are in material form. The Act also covers tangible expressions such as musical instruments, art, drawings, prints, sculptures, pottery, textiles, jewellery, architectural buildings, and models (Kenya, 2016b). These provisions collectively recognise the significance of traditional dance and music as cultural expressions and affirm the rights of Kenyan citizens to participate in and enjoy their cultural heritage. Similarly, the Kenya Constitution 2010 emphasises the importance of cultural diversity and encourages promoting, preserving, and protecting cultural practices, including traditional dance and music (Kanyabuhinya & Athanas, 2022).

World Intellectual Property Organization (WIPO) recognises the importance of traditional cultural expressions (TCEs) and folklore, including traditional dances and music, as valuable cultural heritage passed down through generations. WIPO's work on TCEs seeks to balance protecting the rights and interests of indigenous and local communities who are the custodians of these expressions and promoting cultural heritage preservation and creativity. The goal is to ensure that communities have control over the use, commercialisation, and safeguarding of their traditional dances and music (Grant, 2013; WIPO, 2018). The involvement of governments and other organisations in the sustenance of music, such as Ohangla, stems from the departure from the little-developed indigenous performances in the villages to the broader and more dynamic economy where the artist must struggle to fit into the new dimensions.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has come up with treaties, conventions and declarations foundation on which governments, policy-makers, non-government organisations and other stakeholders may develop practical approaches to strengthen cultural (including musical) sustainability" (Grant, 2013). Today, they form instruments for safeguarding traditional cultural expressions and protecting and promoting cultural diversity that are influential in governing the relationship between artists and governments (UNESCO, 1989, 2005). UNESCO 2023 convention came up with the Framework for UNESCO Intangible Cultural Heritage on the safeguarding of intangible cultural heritage, which focused on the role of communities and groups in safeguarding intangible Cultural heritage (ICH). This framework led to the design and implementation of the Archivio di Etnografia e Storia Sociale Lombardy Region archive (AESS), which focuses on popular traditions and aims to provide a systematic approach to inventory, catalogue, search, and browse multimedia digital objects related to Intangible Cultural Heritage (ICH) for preservation and safeguarding. This framework is not only used by the Lombardy Region but also adopted by the Puglia and Emilia Romagna Italian Regions, thus satisfying the principle of reusability and interoperability required by the guidelines for the construction of an excellent digital collection (Artese & Gagliardi, 2014).

A dearth of literature focuses on the Ohangla dance and music traditions of the Luo community of Kenya. This study, therefore, addresses the distinct cultural practices of Ohangla dance and music traditions of the Luo community of Kenya amidst contemporary pressures such as globalisation and commodification of such practices. It is, therefore,

imperative that Ohangla dance and music, as well as other dances and music in Kenya, get listed to gain their significance for international support for safeguarding.

3 Methodology

This study used a qualitative research approach involving collecting qualitative data through an extensive review of existing literature and documentary analysis on the topic. This included books, scholarly articles, reports, and other relevant sources on cultural recognition, IPR, and their impact on reducing inequalities in dance and music traditions. The literature review helped identify key concepts, debates, and empirical findings related to the topic. The documents analysed consisted of legal statutes, policies identified earlier, and regulations regarding cultural recognition and IPR. This involved examining national and international legal documents, treaties, conventions, copyright laws, cultural heritage protection policies, and related materials. The purpose was to understand the legal frameworks, provisions, and mechanisms that govern the recognition and protection of dance and music traditions. The combination of literature review and document analysis provided a broader understanding of the subject's cultural, social, and legal aspects.

4 Findings and discussions

The literature review and document analysis reveal the relationship between cultural recognition, IPR, and reducing inequalities in dance and music traditions. The findings shed light on the intricate dynamics surrounding the cultural recognition and IPR of dance and music traditions in Kenya, especially among the Luo in Kenya. The analysis of relevant literature and documentation points to the cultural significance and challenges of dance and music traditions in Kenya, highlighting the importance of recognising and preserving cultural richness, diversity, and rightful recognition. This paper argues that dance and music traditions are embedded in the various ethnic communities in Kenya, such as change among the Luo, and their protection fosters a sense of pride and belonging.

Traditional dance and music forms are considered Traditional Cultural Expressions (TCEs) or Traditional Knowledge (TK), which communities rather than individuals collectively own. TCEs frameworks aim to recognise and respect collective rights as crucial to ensuring the integrity and continuity of these cultural expressions. The reviewed literature explored the existing legal framework in Kenya for protecting intellectual property rights related to dance and music traditions. This finding corroborates the intent of the Kenya government through the legal Protection of Traditional Knowledge and Cultural Expressions Act No. 33 of 2016, which focuses on the safeguarding of traditional knowledge and various cultural expressions in Kenya (Kanyabuhinya & Athanas, 2022; Kenya, 2016b). In Kenya, there are intellectual property rights frameworks in place to protect creative works, including music and dance. The Copyright Act of Kenya (2016a) legally protects musical compositions, choreographic works, and performances. The study found that there are other bodies, such as the Kenya Association of Music Producers, Performers Rights Society of Kenya, Music Copyright Society of Kenya, Music Publishers Association of Kenya, Music Associations Alliance of Kenya, Permanent Presidential Music Commission that are mandated with the regulation of operation of music in Kenya, for the benefit of all stakeholders. The framework provides insights into international perspectives and best practices related to recognising and protecting dance and music traditions (Ochieng, 2019; Perullo & Eisenberg, 2014). Findings further indicate that International organisations like UNESCO have recognised the importance of

safeguarding intangible cultural heritage, including dance and music traditions. As a member state, Kenya can benefit from engaging in international dialogues and policy discussions to strengthen the protection of its cultural expressions. In Kenya, only the Isikuti dance of the Isukha and Idakho communities of Western Kenya has appeared in the UNESCO (2014) List of Intangible Cultural Heritage in Need of Urgent Safeguarding. No other element is on the list for consideration in the UNESCO 2023 List of Intangible Cultural Heritage in Need of Urgent Safeguarding. Given the significance of Ohangla music and dance, Kenya should start vouching for a framework to safeguard Them.

The findings also showed gaps and challenges in successfully addressing the intangible nature of traditional dance and music and effectively enforcing these laws. Given the frequency of enlisting elements in the UNESCO list of ICH, there is a need for tailor-made culturally sensitive regulations that recognise the specificities of TCEs. In agreement with this finding, Kakooza (2014) points out that recognising the specificities of Traditional Cultural Expressions and implementing tailor-made culturally sensitive regulations are crucial steps towards preserving and promoting the richness and diversity of cultural heritage in Kenya and the world over.

The findings revealed initiatives demonstrating the importance of community engagement and empowerment in recognising and protecting dance and music traditions, highlighting the role of education, cultural institutions, and digital technologies in raising awareness, revitalising traditional practices, and fostering intergenerational transmission. Kiiru (2017) posits that there are successful examples of community-led collaborations with cultural institutions such as the Bomas of Kenya and the Music festivals held every year by educational institutions in an attempt to preserve, document, and promote these traditions. Community-led initiatives, collaborations with cultural institutions, and capacity-building programs can facilitate greater ownership and agency and promote and preserve these traditions. The provision of platforms for self-representation and economic benefits can empower communities.

The findings further revealed that there are cases of appropriation and unauthorised commercial use of dance and music traditions in Kenya and the rest of the world, which raises concerns about cultural exploitation. These appropriations often occur without the consent or benefit of the communities from which these traditions originate. Leleto (2019) discovered instances of cultural appropriation and unauthorised commercial use of dance and music traditions, where the Maasai of Kenya's dancing style, cultural symbols, beadwork and traditional clothing popularly known as Maasai shuka have been used by people and companies without proper authorisation or benefit to the community. Goodman and Carlson (2014) argue that cultural borrowing can perpetuate power imbalances and undermine the integrity and autonomy of marginalised cultures. They mentioned the official song of the FIFA World Cup "Waka Waka" by the Colombian singer Shakira, featuring lyrics from the Cameroonian band Golden Sounds' 1986 song "Zangalewa". The use of the lyrics without proper authorisation and acknowledgement raised concerns about the appropriation of African music. These acts, among others, often result in the commodification and exploitation of cultural heritage without fair compensation or recognition to the originating communities. Such practices' ethical and legal implications highlight the need for heightened awareness, education, and policy interventions.

Traditional dance and music often exist in an oral form without clear documentation, posing difficulty in protecting this traditional knowledge, ascertaining ownership and seeking legal protection under the existing IPR frameworks. Many traditions are community-based, making it complex to attribute individual ownership. In addition, the impact of Western cultural dominance and the influence of commercialisation, urbanisation, globalisation, and

modernisation are challenges facing dance and music traditions that lead to the erosion of traditional cultures and practices. Additionally, the lack of comprehensive documentation and archiving systems limits the ability to protect and prove the origin and authenticity of these traditions. This calls for collaborative efforts between communities, cultural institutions, and researchers to establish robust documentation practices. The approach agrees with efforts such as the AESS archival framework by Artese and Gagliardi (2014), which is being used by Lombardy, Puglia and Emilia Romagna regions in Italy for inventory, cataloguing, searching, and browsing of multimedia digital objects related to ICH. Kenya can adopt the framework to document and preserve its traditional cultural expressions.

This study provides insights into distinct Luo cultural practices of Ohangla dance and music and advocates for ICH protection in the presence of commercialisation, globalisation, commodification of cultural practices and cultural exploitation. With a focus on Ohangla, this study contributes to the dearth of literature on safeguarding cultural practices of dance and music traditions in Kenya, Africa, and the world.

5 Conclusion

This paper underscores the significance of recognising and protecting the cultural heritage embedded in Kenyan dance and music traditions and the challenges faced in preserving and protecting cultural heritage in the face of globalisation and increasing cultural appropriation. IPRs are designed to protect the expressions of creators and innovators but often fall short in accommodating the unique nature of indigenous communities' traditional cultural expression and perspectives—the concept of “ownership” clashes with traditional knowledge's communal and collective nature. As a result, traditional dance and music are left vulnerable to exploitation, commodification, and misappropriation.

This research emphasises the need for comprehensive legal frameworks, community engagement, and international cooperation to ensure cultural expression preservation, recognition, and ethical treatment. Collaboration and meaningful engagement between communities, governments, and other stakeholders are essential to developing culturally appropriate mechanisms for protecting, documenting, and transmitting traditional music and dance to foster cultural diversity, empowerment, and sustainable heritage practices in Kenya. Essentially, the preservation and protection of traditional music and dance require a multifaceted approach that balances the rights of cultural practitioners, encourages cultural recognition, and promotes the respectful engagement and appreciation of diverse cultural expressions.

6 Recommendations

The paper recommends adopting or borrowing a framework from the AESS (Archivio di Etnografia e Storia Sociale Lombardy Region) archive. This archive focuses on popular traditions and aims to provide a systematic approach to inventorying, cataloguing, searching, and browsing multimedia digital objects related to Intangible Cultural Heritage for preservation and safeguarding. AESS's archival framework is aligned with the requirement outlined by UNESCO's 2003 Convention for safeguarding ICH, emphasising the need for inventories and their accessibility.

The framework is based on a methodology that minimises design errors and facilitates maintenance while incorporating several features, such as usability, accessibility, scalability, interchange and compatibility, and multilingual support. It provides a user-friendly interface for experts to enter and edit data without technical knowledge or training. The information

is accessible to everyone, including people with disabilities, and does not depend on the web browser used. The system allows concurrent access to data while ensuring information security. It is scalable to adapt to evolving web technologies and supports interoperability with existing metadata standards.

Like the AESS database, the structure can be designed to store and maintain a wide range of data related to intangible heritage, with the core entity (ITEM) made to represent the minimal information unit that can be catalogued, like music. Each ITEM is associated with its supporting physical media, such as digital files. Different categories called TOKENs represent the physical representation of audio and connect it to corresponding SUPPORT. The MULTIMEDIA CONTENT entity stores additional data about the digital files, including author, date, and place. The framework consists of three primary environments, as shown in Figure 1.

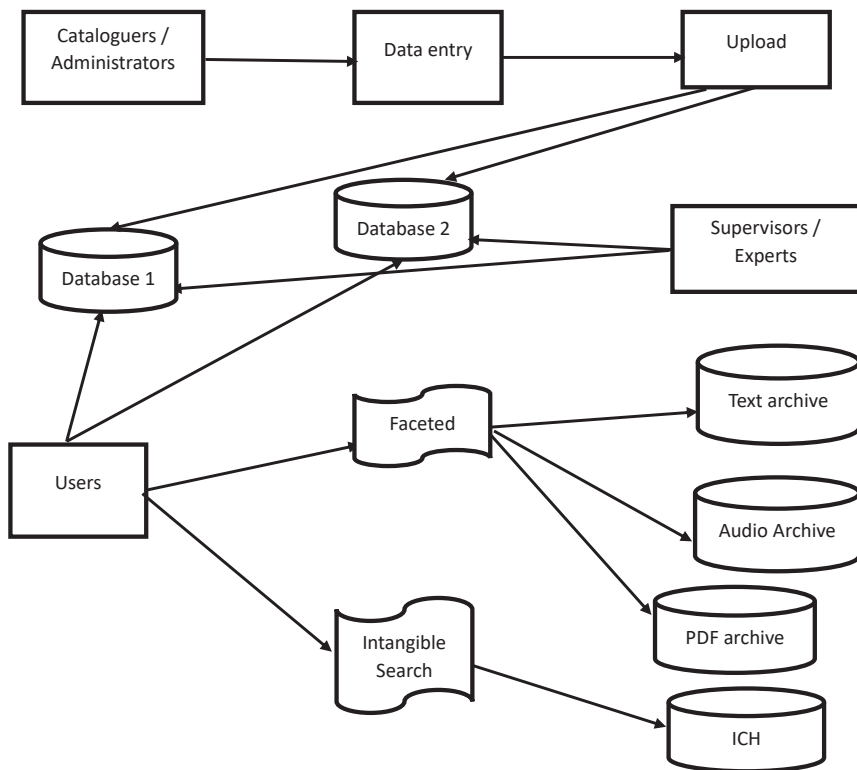


Figure 1: Framework for safeguarding dance and music traditions.

Source: Adopted from Artese and Gagliardi (2014)

Data Entry

Facilitates data insertion, management, and validation. It includes tools for catalogers, supervisors, and administrators. Catalogers can insert new data, documents, and multimedia content, while supervisors can control and validate the entered data.

AESS Search

This environment provides access to the AESS database and other virtual databases. It allows users to browse and search data using predefined queries or free text search.

Intangible Search

It enables users to navigate ICH heritage through indexes, free text search, and a map-based interface.

The framework considers the specific aims, devices, places, and times of use for different user categories. For example, catalogers and supervisors typically use the system in the office with wide-screen computers. At the same time, tourists access the system on smartphones or tablets during their holidays to explore events and enrich their knowledge. The system automatically adjusts the displayed content based on the device and user actions, providing an optimised user experience.

To further enhance the impact and contribution of this study, the following recommendations are proposed:

Comprehensive documentation of traditional music and dance forms' historical, social, and cultural contexts. This can be achieved by establishing documentation centres dedicated to collecting and preserving traditional music and dance. Appropriate technologies can be employed to digitise audio, video, and written materials to make them accessible for research, education, and cultural transmission purposes.

Promote Sustainable Economic Models that support traditional artists and practitioners while ensuring the preservation and continuity of their cultural practices. Advocate for fair compensation and ethical partnerships between communities, artists, cultural industries, and tourism sectors.

Seek communities' input in matters related to traditional music and dance. This will ensure that traditional knowledge, perspectives, and interests are preserved and respected to maintain cultural integrity. Communities and practitioners should be involved in developing and implementing comprehensive, culturally sensitive, and inclusive legal frameworks for IPRs of traditional music and dance.

Develop guidelines to address issues of cultural appropriation and promote ethical practices that honour and respect the traditions of communities. Create awareness through education and awareness programs to foster appreciation and understanding of traditional music and dance forms. These initiatives can include workshops, seminars, festivals, and school curricula highlighting the artistic value of traditional dance and music forms for continued vitality.

By implementing these recommendations, we can promote cultural diversity, preserve ICH, and ensure the rightful recognition, respect, and protection of traditional music and dance forms. These efforts will contribute to communities' sustainable development and enrich global cultural heritage.

References

- Artese, M. T., & Gagliardi, I. (2014). Framework for UNESCO Intangible Cultural Heritage. *Archiving Conference*, 11(1), 132–137. <https://doi.org/10.2352/ISSN.2168-3204.2014.11.1.ART00029>
- Breed, A., Dennison, K., Nzahabwanayo, S., & Kirrily, P. (2020). Mobile Arts for Peace (MAP): Curriculum for music, dance and drama in Rwanda. In *The Applied Theater Reader* (pp. 152–160). <https://doi.org/10.4324/9780429355363-30>
- Chennells, R. (2009). Putting Intellectual Property Rights into Practice: Experiences from the San. In *Indigenous peoples, consent and benefit sharing: lessons from the San-Hoodia case* (pp. 211–229). https://doi.org/10.1007/978-90-481-3123-5_11

- Chepchirchir, S., Limo, J., & Kwanya, T. (2020). Intellectual Property Rights in Digital Libraries: Status, Interventions, Challenges, and Opportunities for Academic Libraries in Kenya. *International Journal of Information Studies & Libraries*, 5 (2) 2020, 93-102
- Eleventh session of the Intergovernmental Committee (11. COM). (2018). *Kenya - diversity of cultural expressions - UNESCO*. <https://ich.unesco.org/en/state/kenya-KE?info=periodic-reporting>
- Goodman, M., & Carlson, D. (2014). Escape and re-colonisation of Waka Waka: Shakira's performance at the 2010 World Cup. *Media Watch*, 5(1), 84–90. https://doi.org/10.1177/0976091120140108/ASSET/0976091120140108.FP.PNG_V03
- Grant, C. (2013). *Music sustainability*. Oxford University Press. <https://doi.org/10.1093/obo/9780199757824-0105>
- Kakooza, A. C. (2014). *The cultural divide: Traditional cultural expressions and the entertainment industry in developing economies*. University of Illinois.
- Kanyabuhinya, B., & Athanas, J. L. (2022). Protection of traditional knowledge and traditional cultural expressions in mainland Tanzania. *The Eastern African Law Review*, 48(2).
- Kenya. (2016a). *The constitution of Kenya*.
- Kenya. (2016b). The Protection of Traditional Knowledge and Cultural Expression Act 33 of 2016. *The Kenya Gazette Supplement*, p. 154.
- Kiiru, K. (2017). National competitive festivals: Formatting dance products and forging identities in contemporary Kenya. *Cultural Analysis*, 15(2), 1–28.
- Leleto, N. L. (2019). Maasai resistance to cultural appropriation in tourism. *The Indigenous Peoples' Journal of Law, Culture, & Resistance*, 5, 21–34. <https://doi.org/10.2307/48671862>
- Ochieng, F. (2019). Exploring the new Ohangla music in the context of urbanisation: The search for relevance for sustainability. In C. M. Maghanga & M. Wanyama (Eds.), *The Kabarak University International Conference on Refocusing Music and Other Performing Arts for Sustainable Development* (pp. 49–53). <http://ir.kabarak.ac.ke/handle/123456789/1>
- Okong'o, J. B. (2011). Ohangla music as a parodic genre and postcolonial Luo experience. *Africa Today*, 57(3), 23-36.
- Perullo, A., & Eisenberg, A. (2014). *Musical property rights regimes in Tanzania and Kenya after trips*. Sage Handbook of intellectual property.
- Umar, M. F. (2022). Breaking the line, comparative re-thinking writivism, music and dance as forms of geographical identity and cultural expression tool in Africa: A focus Kenya and Uganda. *Copyright Law in Africa Series*, 1.
- UNESCO. (1989). *Recommendation on the safeguarding of traditional culture and folklore*. <https://en.unesco.org/about-us/legal-affairs/recommendation-safeguarding-traditional-culture-and-folklore>
- UNESCO. (2005). *Convention on the protection and promotion of the diversity of cultural expressions*. <https://www.unesco.org/en/legal-affairs/convention-protection-and-promotion-diversity-cultural-expressions>
- UNESCO. (2012). *Education for sustainable development*. <https://www.unesco.org/en/education-sustainable-development>
- United Nations. (2020). *Sustainable development goals*. United Nations. <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>
- WIPO. (2018). *Intellectual property and folk, arts and cultural festivals practical guide 2*. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1043_2018.pdf

8. Indigenous knowledge and intellectual property research in Africa: a bibliometric study

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Abstract

Indigenous knowledge is often embedded in the culture of a community, making it difficult to secure. It is not explicit recorded information but rather a way of life. Despite its tacit nature, indigenous knowledge can be exploited for financial value; however, when this happens, it often does not benefit the community from which it is derived. Consequently, there is a need to protect the rights of the communities as bearers of the culture through the adoption of intellectual property rights. There is a scarcity of information about the use of Intellectual property rights to protect indigenous knowledge in Africa. This paper reviews literature about intellectual property and indigenous knowledge in Africa to identify the quantity of research in the area, the emergent themes that have been studied, and the visibility and quality of research on the same. This is a bibliometric study that reviews data pulled from Google Scholar using Hazing's 'Publish or Perish' software and dating from 1990 to 2023. The data was then analysed and presented using Microsoft Excel and VOS viewer. The findings show that there are 153 publications on Intellectual property and indigenous knowledge in Africa, a majority of which were journal articles, and there is little collaboration among authors. The main themes emerging from the publications include intellectual property rights and cultural identity, traditional medicine and Eco-prospecting and development, and international intellectual property conventions. The study recommends more collaboration between researchers and policymakers to ensure the uptake of research and impact through policy change.

Keywords: *Commercialisation, traditional knowledge, indigenous knowledge, intellectual property rights*

1 Introduction

Culture is a way of life; it encompasses shared beliefs, customs, art, and social behaviours that are passed on from generation to generation. Many ethnic communities are bound together by a shared culture that manifests itself through shared language, art, food, rituals, and even economic activity. In addition to these, culture is also the means through which indigenous knowledge is preserved and shared. This knowledge is often shared through apprenticeship, storytelling, and even, in some cases, the written word. Collectively, culture forms the heritage of a people. In Africa, this cycle of culture transfer from one generation to the next was essentially broken during colonisation. The 'old ways' were forsaken and stigmatised as inferior to Western ideologies and technologies (Jimoh, 2018). This led to the indigenous knowledge in African ethnic communities being restrained to historical artefacts and confined to museums rather than everyday life applications (Chandler & Reid, 2020). In recent years, though, there has been a cultural renaissance among African nations and a move towards reviving, preserving, and protecting their traditional knowledge systems and way of life. Among the factors that have spurred renewed interest in indigenous knowledge is the exploitation of culture for commercial purposes. What was once considered inferior is now often touted as a viable product that can be packaged as a tourist attraction and given that the

communities are the custodians of the culture, having their way of life (rituals, customs, food, dressing) packaged as tourist products raises challenges that endanger the sustainability of the culture itself (Ruhanen & Whitford, 2019).

An example of this is the Maasai community of eastern Africa; their signature dress aesthetic, accessories, dances, and rituals have been commercialised for tourists' consumption. The communities whose culture is being exploited in this manner often do not receive compensation despite owning their heritage. This, therefore, raises the issue of commercialisation of culture and intellectual property rights. Who owns the culture? How can it be protected through intellectual property rights? This paper conducts a literature review of research done on intellectual property rights and indigenous knowledge on the African continent.

2 Literature review

Indigenous knowledge in Africa as a research area has been gradually garnering more interest from researchers over the years. Malapane et al. (2022) conducted a bibliometric study on IK in Africa, and their findings showed that interest in IK in Africa as a research area began in 1990 with just around five articles being published in the year; it, however, increased exponentially and peaked in 2021 with over 600 articles being published. Similar trends were shown in a bibliometric study by Kwanya and Kiplang'at (2016), who reviewed publications on IK in Kenya between 1957 and 2015, as well as Resenga & Ngulube (2019) who reviewed publishing trends in IK in Africa between 2008 and 2018 and Onyancha (2024) who tracked the overlap in the use of the terms Traditional Knowledge, Indigenous Knowledge and Local knowledge in research from 2000 to 2021.

The increase in research output on IK could be attributed to the multidisciplinary nature of the subject area, which lends itself to investigation from a multitude of thematic areas in varied disciplines. Emerging themes in IK research include IK applications in agriculture, climate change, and food production (Amare & Gacheno, 2021; Apraku et al., 2021; Makate, 2020); health, traditional medicine, and use of bioresources (Anywar et al., 2020; Amentie et al., 2022; Redvers et al., 2020); economic development, innovation and sustainability (Kohsaka & Rogel, 2021; Kusumastuti et al., 2023; Lazarus & Jinadu, 2020; Prasetyo et al., 2020) decolonisation, governance, and conflict resolution (Namakula, 2022) among others. According to Resenga and Ngulube (2019), the thematic areas most focused on in IK research in Africa are IK and ecology, followed by health and then agriculture. This was collaborated with by Kwanya and Kiplang'at (2016), whose research showed that agriculture, health, and ecology were the thematic areas with the highest number of publications. The focus of research on these critical areas underscores the significance that sustainable food production, health, and the environment have on the economic and social well-being of societies, thus attracting investment for research and development in the area.

Consequently, findings of research in these areas have the potential to have a significant direct impact on communities through the development of new plant and animal husbandry methods, new medicine, and treatment procedures for emerging and existing illnesses, as well as sustainable methods for exploitation of natural resources, all of these have significant commercial value attached to it. This, in turn, has raised questions about the exploitation of indigenous knowledge for material gain. This has been especially pertinent in the destruction of delicate indigenous ecological systems for land development (Urzedo & Chatterjee, 2022), as well as the tokenisation of indigenous cultures for tourism (Camargo et al., 2022). It is inevitable, therefore, that the rights of indigenous people to protect and earn from their

knowledge have become an area of concern to researchers, highlighting the need for legal interventions.

Intellectual property rights such as copyrights, patents, and trademarks are some ways of protecting indigenous communities from being unjustly exploited for their knowledge; however, most countries in Africa lack adequate legal frameworks for IK protection, leaving communities vulnerable to exploitation and inappropriate or no compensation (Nakitare et al., 2024). Given the gravity of this subject, it is distressing that little research on Indigenous knowledge and Intellectual property rights is being conducted. Kwanya and Kiplang'at (2016) indicated that only 3% of the research on IK focused on Intellectual property, Malapane et al. (2022) did not show any indication of Intellectual property as a thematic area of research in their findings while Njiraine et al. (2010), who conducted an informetric study on indigenous knowledge research in Kenya and South Africa from 1980 to 2008, found that only 3% and 12% of the publications touched on IK and law in Kenya and South Africa respectively. These findings indicate that there is a gap in research on IK and IP.

The nature of Indigenous Knowledge is acknowledged by the World Intellectual Property Organisation (WIPO) as being unique in the sense that it is diverse, holistic, communal, highly contextualised, and even spiritual, which does not lend itself to fitting neatly into the existing IP frameworks (Ouma, 2017). These are concepts that give rise to challenges in the ideological and technical challenges of protecting knowledge that is intergenerational, unwritten, and has value spanning cultural, historical, spiritual, and ecological spheres (Kariuki, 2019). To be able to effectively legislate protections for IK, existing IP laws need to be reviewed and revised. Research on IK and IP helps to identify existing inadequacies of current IP legislation with regard to IK. It provides a reference to policymakers as they review legislation on the same.

3 Rationale of the study

Indigenous knowledge, sometimes called traditional knowledge, is an invaluable resource to a community. Indigenous knowledge systems have, among other things, contributed to the sustainability of livelihoods, medical interventions, and environmental protection (Magni, 2017). Researchers agree that indigenous knowledge is critical to sustainable food systems, ecosystem preservation, and biodiversity sustainability. Given the importance of IK for sustainable development, it is necessary to evaluate the quantity and quality of research that has been undertaken in the area with a particular focus on Africa. This is because, despite being a treasure trove of IK, research on Indigenous knowledge has been focused on Indigenous populations in developed nations such as the United States of America, Canada, and Australia. This paper, therefore, evaluates the publications on indigenous knowledge and intellectual property undertaken in Africa from the period of 1990 to 2023.

4 Methodology

This research is a bibliometrics study. Bibliometric studies are important ways to explore the extent of research in a subject area by evaluating the existing publications in the area (Ellegaard & Wallin, 2015) quantitatively. Analysis of bibliometric data enables researchers to find out the volume of research in a subject area, themes of research, and quality of research in the area through examination of citations and collaboration. Bibliometric studies are instrumental in auditing knowledge in a specific subject area and identifying gaps or themes that may be lagging (Kwanya, 2020). Given the wide-ranging topics that are covered under IK and IP, a

bibliometrics study is an appropriate tool to get an overview of the prevailing knowledge in the area. In addition to bibliometric searches, the researcher also reviewed related literature on the subject to help define the parameters of the concepts and discuss the findings. The researcher used Harzing's Publish or Perish software to search the Google Scholar database for relevant publications using the keywords 'Intellectual property', 'traditional Knowledge', 'Indigenous knowledge', and 'Africa'. The search was conducted on September 15, 2023, and the results were analysed and presented using Microsoft Excel, Notepad, and VOSviewer.

5 Findings

The researcher retrieved 173 results from the search. Of these, 13 were citations only and were removed from the results. Seven more were found not to be relevant materials and were then removed, leaving the final total results at 153.

5.1 Quantity of research on IK and IP in Africa

The research found that there were 153 publications on Indigenous Knowledge and Intellectual Property in Africa between the years 1990 and 2023. As indicated in Figure 1, the earliest publication was in 1996, while 2015 saw the most significant number of publications on the subject (15). A search on Google Trends for the period 2004 to 2023 shows that cultural appropriation as a topic of discussion globally gained popularity as a search term in 2015 and peaked in 2018. Breakaway topics of discussion during the same period included braids, dreadlocks, black people, and indigenous people. This could explain the increase in publications during this period, as culture and local knowledge were trending topics of discussion then. The rate of publications on the subject of IK and IP has been erratic through the years; given the small number of articles per year on the subject, it would be difficult for clear theories or models to gain ground as most studies are multidisciplinary and relate to varied industries from trade to medical information.

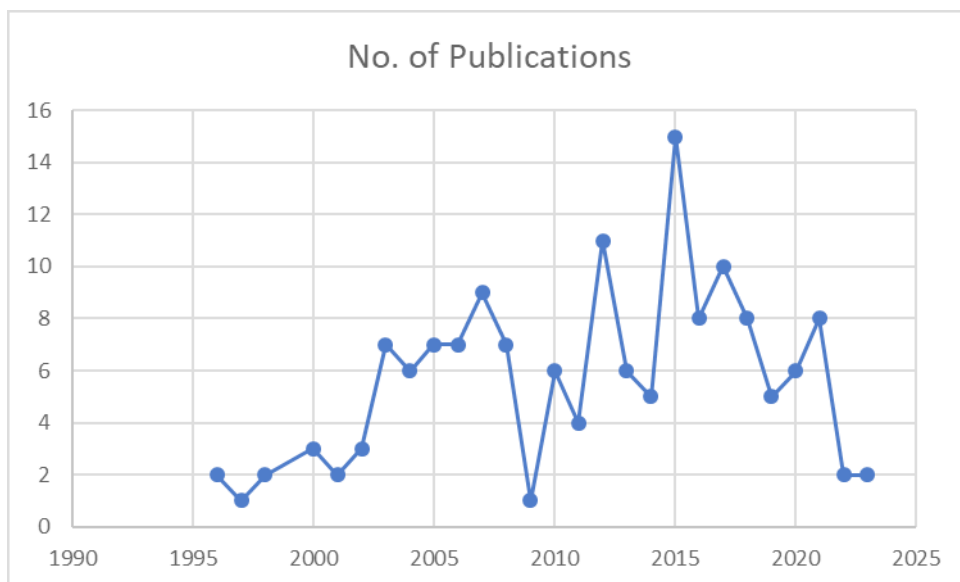


Figure 1: Chart showing the publishing trends on Intellectual property and indigenous knowledge in Africa

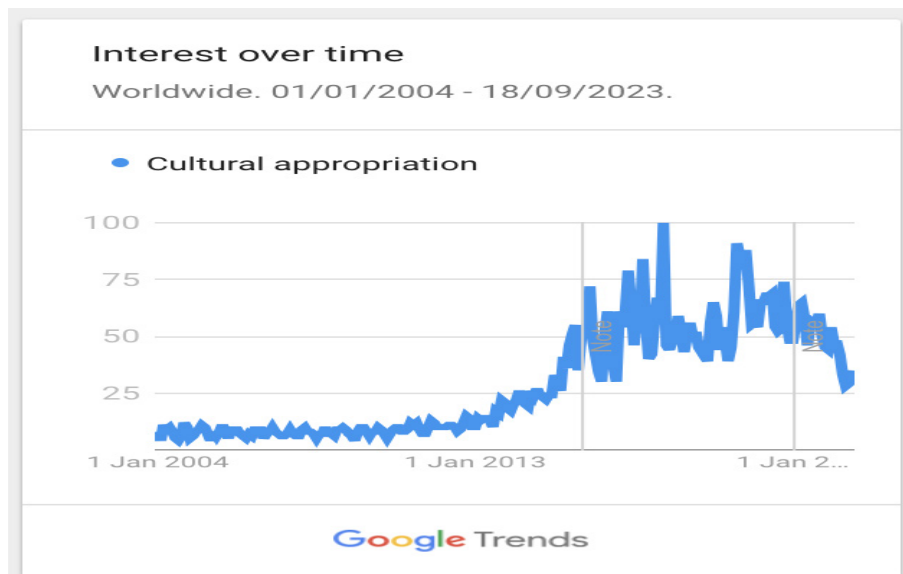


Figure 2: Google search trends on cultural appropriation from 2004 to the present.

Source: Google trends

5.2 Types of publications

The types of publications published on the subject of IK and IP during this period were mostly Journal articles 55.6% (85) and books 17.0% (26). Thesis and dissertations made up 13.7% (21), while working papers and unpublished pre-prints made up 9.8% (15). Chapters in books and conference proceedings had the lowest numbers 3.9% (6)

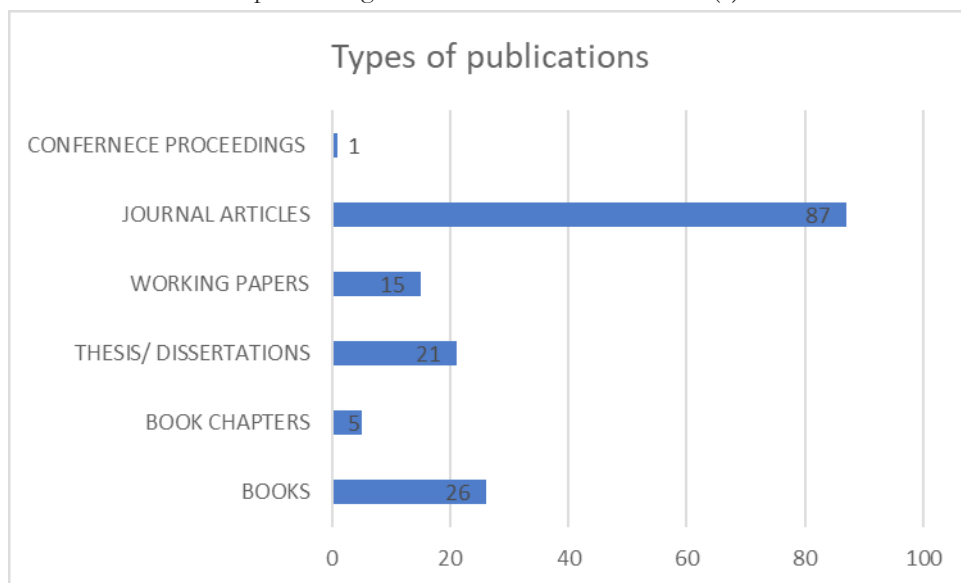


Figure 3: Chart showing types of publications on IK and IP in Africa from 1990-2023

5.3 Emerging clusters from publications

The research themes emerging from the research undertaken during this period are varied. Figure 4 shows an analysis of the abstracts on VOSviewer, which shows four main clusters in the publications. The first cluster, depicted in Figure 4 in red colour, links intellectual property claims and identity was on intellectual property claims and identity. These clusters explore themes around the intricate relationship between indigenous knowledge and cultural identity, which makes defining and assigning intellectual property rights a challenge since they are collective rather than individual ownership.

The second cluster is on traditional medicine, which is depicted in green in Figure 4, links together traditional medicine and drug policies with a reference to an article on An ethnobotanical survey of plants used for the treatment and management of cancer in Embu County by Misonge et al. (2019). Although not directly linked to this cluster, there is a cluster on bioprospecting, corporations, plants, and the Amazon. This is linked to Western corporations' exploitation and use of medicinal plants and other bio assets such as genomes. Bioprospecting raises issues on biopiracy, where valuable biological assets are exploited at the expense of the community in which they were discovered (Holtheuer, 2023).

A third cluster from the image is development, which is yellow, and this links drugs and global intellectual property conventions. These points to the patenting of drugs developed from bioprospecting.

The fourth cluster is the brown cluster, which focuses on colonial power. It is evident that colonialism has had and continues to have a significant impact on the preservation and use of indigenous knowledge. Colonisation was responsible for the destruction of indigenous knowledge systems as well as the stigmatisation of traditional knowledge; this has elicited discussions on the decolonisation of traditional knowledge (Agbakoba, 2023; Burgess et al., 2022).

The fifth and largest cluster is the grey cluster. There are minimal links in the subjects in this cluster; however, they are widely varied. It captures issues on Indigenous knowledge and education, heritage, medium of culture, ownership, aesthetic value, market, and ownership. The lack of linkages between these themes means that these themes have often been referenced in isolation rather than collectively in the literature.

These findings are consistent with themes found by other bibliometric studies on IK, which showed higher volumes of research in areas of IK and agriculture, health, and ecology (Kwanya & Kiplang'at, 2016; Malapane et al., 2022).

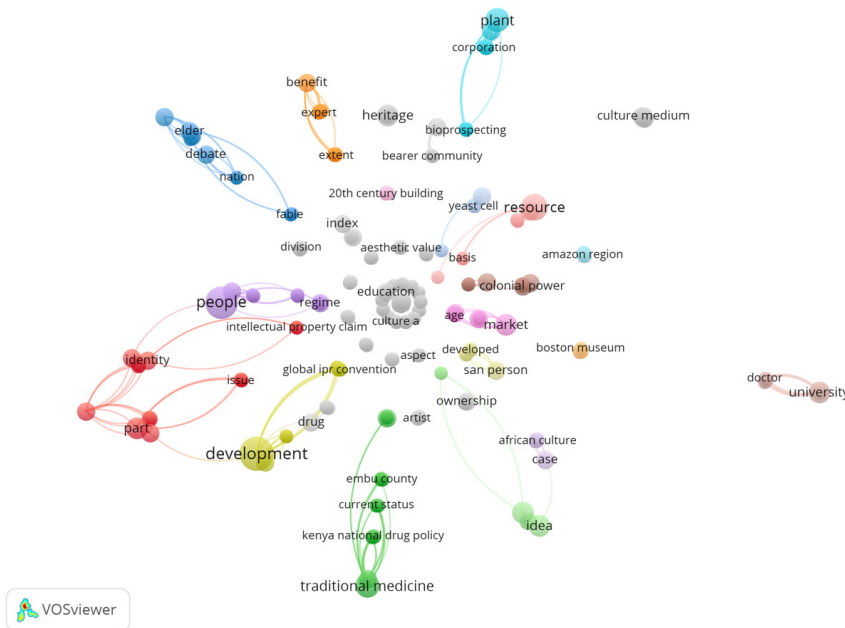


Figure 4: Themes emerging from IP and IK research in Africa

5.4 Quality of research publications

To determine the quality of publications produced on IK and IP in Africa, the researcher examined the visibility of research publications and authorship collaborations. The visibility of the research material was determined through the use of the number of citations as empirical evidence of access and use of the publication. Of the publications retrieved, 19.6% (30) have not been cited at all. Of these, a third were journal articles, while the remaining were books, thesis, and working papers. From this, journal articles have higher visibility than thesis or books and book chapters. 34.6% (52) publications had less than ten citations, while 37.3% (57) of the publications had between 10 to 100 citations. Only 9.1% (14) of the publications had more than 100 citations, with the most cited publication having 302 citations by Kuruk. P published in 1998 on protecting folklore under modern intellectual property rights. The top 10 most cited publications are depicted in Table 1. Among the topmost cited publications, topics focused on traditional medicine and biogenetic resources, folklore and storytelling, and traditional knowledge management systems.

Table 1: The top 14 most cited publications on intellectual property and Indigenous knowledge

S/N	Cites	Authors	Title	Year	Publisher
1	302	P Kuruk	Protecting folklore under modern intellectual property regimes: A reappraisal of the tensions between individual and communal rights in Africa and the United States	1998	HeinOnline
2	271	G Dutfield	Intellectual property, biogenetic resources and traditional knowledge	2010	SCANEARTH

S/N	Cites	Authors	Title	Year	Publisher
3	225	EH Fouberg, AB Murphy, HJ De Blij	Human geography: people, place, and culture	2015	WILEY
4	194	CM Correa	Traditional knowledge and intellectual property	2001	TANSEY
5	194	K Christen	Does information really want to be free? Indigenous knowledge systems and the question of openness	2012	APO
6	168	Á Fernández Llamazares, M Cabeza	Rediscovering the potential of indigenous storytelling for conservation practice	2018	Wiley Online Library
7	164	K Timmermans	Intellectual property rights and traditional medicine: Policy dilemmas at the interface	2003	Elsevier
8	162	D Ocholla	Marginalised Knowledge: An Agenda for Indigenous Knowledge development and integration with other forms of knowledge	2007	IRE
9	152	M Halewood	Indigenous and local knowledge in international law: a preface to sui generis intellectual property protection	1998	HeinOnline
10	126	C. Oguamanam	International law and indigenous knowledge: intellectual property, plant biodiversity, and traditional medicine	2006	University of Toronto Press

The researcher also reviewed authorship and authorship of the publications. There is empirical evidence that the quality of publications that have more than one author is higher (Mammola et al., 2022; Sweileh, 2022; Talaat & Gamel, 2023). Analysis of the authors found that 62.7% (96) of the publications were from singular authorship. 20.3% (31) were publications with two authors, and three or more authors wrote 17% (26). After analysing the authors in VOSviewer, it emerged that there was little collaboration among the authors on the subject, with a possible collaboration between CB Ncube and C. Traynor. This lack of collaboration could be attributed to the diverse nature of indigenous knowledge, which lends itself to being studied in a multidisciplinary. Interdisciplinary collaboration in research often faces challenges such as epistemic and ontological incompatibilities as well as personal or political differences as well as language and terminology barriers (Dalton et al., 2021). It would not be easy, for example, to have research in medicine to collaborate with researchers in anthropology because their interests and methodologies are widely varied. The status of collaborations among authors is visually presented in Figure 5.



Figure 5: Collaboration among authors of IK and IP in Africa

The level of contribution to research on IK and IP was also significantly low, with only nine authors having published more than one article in the area of IK and IP. Ncube was the highest contributor with five articles. Of the five articles published, three of them were in collaboration with two other authors, and the remaining 2 were individual publications. This finding is in line with Lokta's law of 1926, which indicates that as the number of articles published in a subject area increase, the number of authors producing multiple publications in the area reduces (Tran & Aytac, 2021). This is borne out by other bibliometric studies that show that, often, few individuals contribute more to the subject of research. In contrast, a majority of researchers may contribute minimally through the publication of single articles.

6 Discussion of findings

This research set out to analyse the bibliometrics of Indigenous knowledge and intellectual property in Africa, with the primary objectives being to investigate the

6.1 Quantity of research on indigenous knowledge and intellectual property

The findings of the study show that the volume of research done on intellectual property and indigenous knowledge in Africa is relatively low, with only 153 publications being produced over two decades. This could be attributed to the under-representation of African authors on the global scale as well as the general lack of funding for research and development in most African countries (Naidu, 2023). Before 2000, there was little research on IP and IK in Africa; however, in 2000, the World Intellectual Property Organisation (WIPO) launched an intergovernmental committee on traditional knowledge and folklore to develop international legal instruments for the protection of traditional knowledge and genetic resources (Wendland, 2019) this essentially made the protection of traditional knowledge into a global agenda, and this is reflected in the increase in research publications on the same. In 2007, the United Nations made a declaration on the rights of indigenous people, among which are the right to practice and revitalise their cultural traditions and customs without forced assimilation, as well as the right to establish and control their education systems and provide education in their language as following their cultural methods of teaching and learning (United Nations, 2007). This declaration pushed discussion about traditional knowledge, cultural identity, and autonomy into the global arena, spurring interest in the subject area of research on traditional knowledge and related subjects such as traditional knowledge and intellectual property. This could explain the spike in articles from 2005 to 2008. The drop in articles in 2010 could be attributed to the idea that there was little movement on the front of getting international legislation on IP and IK; hence, there was little data to review or investigate. In 2015, the African Regional Intellectual Property (ARIPO) launched the Arusha Protocol for the protection of New varieties of plants, which five countries in Africa signed (Gambia, Ghana, Mozambique, Sao Tome and Principe, and Tanzania). This indicates that there was heightened interest in the protection of bioheritage, especially traditional seeds and plants. In summary, while the production of publications in the area of IP and IK in Africa is erratic, the fluctuations can be tracked to global and regional discussions on the same.

6.2 Quantity of research on indigenous knowledge and intellectual property

The quality of research on IK and IP in Africa is generally low. The findings from the study show that more than half (54%, 82) of the publications have less than ten citations. It was also noted that all the articles that have more than 100 citations had been published more than

five years ago. Research has shown that articles take time to gain citations and that research with high usage in the first six months of their publication is likely to be cited earlier and, hence, higher citations (McGillivray & Astell, 2019). It is clear, therefore, that low rates of citation are indicative of low rates of usage of publications. In their research on the variation of manuscript length, the number of authors and references cited in ecological papers, Fox et al. (2016) showed that citations increase with an increase in the number of authors and an increase in the length of the manuscript. Unfortunately, the findings of this study showed minimal collaboration among others, with more than 60% of the publications being written by singular authors. This reduces the chances of it being used, hence reducing citations.

6.3 Thematic areas of research

The findings of the study showed that areas of research on IP and IK in Africa are yet to be fully explored. This was evidenced by the emergence of small clusters with low levels of links among the concepts, as shown in Figure 4. The majority of concepts were not linked, thus indicating that they were emergent and that more research in the area is needed to unearth the connections between the different concepts in IK and IP with a focus on the African context. This provides an opportunity for areas of research for future researchers to work on as the field of IP and IK in Africa is still under-researched.

7 Conclusion

The value of indigenous knowledge cannot be understated. However, to be able to benefit from traditional knowledge fully, there is a need to curate and preserve it effectively. It is also necessary that the indigenous knowledge used benefits the community or culture from which it is extracted. To this end, there is a need to develop clear intellectual property rights for indigenous knowledge, especially on the African continent. Research in this area would be a guiding platform for influencing policy on the same. The findings, however, show that research in the area has been erratic and of low quality; there has also been a general lack of policy papers or industry reports in the area to indicate the contribution of the research to policy change. Collaboration and proliferation among researchers are also low, and this affects the rate of innovation and development of frameworks and models that can be implemented to resolve the challenge of safeguarding culture while also commercialising it.

8 Recommendations

The researcher, therefore, makes the following recommendations:

- There is a need to encourage cross-industry collaborations to be able to break down the information silos between researchers in different disciplines and thus encourage collaborative research on IP and IK
- Increased collaboration and discussions between researchers and policymakers are needed to encourage the uptake of the research findings for policy implementation. This will make the research more impactful and the protection of IK more effective.
- There is also a need to streamline the concepts and themes of research under IP and IK to provide a foundation for theory development and innovation; clear themes will encourage research to focus on building on existing knowledge rather than essentially re-inventing the wheel in the different sectors.

References

- Agbakoba, J. C. (2023). Decolonisation, Trans-Colonisation and Development: The Challenges of Changing Epistemic Concerns and Indigenous Knowledge Production in Africa. *Creating the New African University*. Brill.
- Amare, G., & Gacheno, D. (2021). Indigenous Knowledge for Climate Smart Agriculture—A Review. *International Journal of Food Science and Agriculture* 5(2) 332-338
- Amentie, M., Morka, A., Senbeta, M., Jaleta, P., Dissassa, N., Ayana, D., & Kelbessa, W. (2022). Indigenous Knowledge of Medicine for COVID-19 or Related Disease in Benishangul Gumuz Regional State: Phenomenological Design. *Journal of Multidisciplinary Healthcare*, 15, 679-688.
- Anywar, G., Kakudidi, E., Byamukama, R., Mukonzo, J., Schubert, A., & Oryem-Origa, H. (2020). Indigenous traditional knowledge of medicinal plants used by herbalists in treating opportunistic infections among people living with HIV/AIDS in Uganda. *Journal of Ethnopharmacology*, 246, <https://doi.org/10.1016/j.jep.2019.112205>
- Apraku, A., Morton, J. F., & Gyampoh, B. A. (2021). Climate change and small-scale agriculture in Africa: Does indigenous knowledge matter? Insights from Kenya and South Africa. *Scientific African*, 12, <https://doi.org/10.1016/j.sciaf.2021.e00821>
- Burgess, C., Bishop, M., & Lowe, K. (2022). Decolonising Indigenous education: The case for cultural mentoring in supporting Indigenous knowledge reproduction. *Discourse: Studies in the Cultural Politics of Education*, 43(1) 14.
- Camargo, B. A., Winchenbach, A., & Vázquez-Maguirre, M. (2022). Restoring the dignity of Indigenous people: Perspectives on tourism employment. *Tourism management perspectives*. 41. <https://doi.org/10.1016/j.tmp.2022.100946>
- Chandler, D., & Reid, J. (2020). Becoming Indigenous: the ‘speculative turn in anthropology and the (re) colonisation of indigeneity. *Postcolonial Studies*, 23(4), 485-504.
- Dalton, A., Wolff, K., & Bekker, B. (2021). Multidisciplinary Research as a Complex System. *International Journal of Qualitative Methods*, 20.
- Ellegaard, O., & Wallin, J. A. (2015). The bibliometric analysis of scholarly production: How great is the impact? *Scientometrics*, 105, 1809-1831.
- Fox, C. W., Paine, C. T., & Sauterey, B. (2016). Citations increase with manuscript length, author number, and references cited in ecology journals. *Ecology and Evolution*, 6(21), 7717–7726.
- Holtheuer, L. (2023). *Biopiracy and Native Title: An Exploration of the Native Title Act 1993 (Cth) and Indigenous Knowledge Protection* [Doctoral thesis, University of Sydney].
- Jimoh, A. K. (2018). Reconstructing a fractured indigenous knowledge system. *Synthesis philosophica*, 33(1), 5–22.
- Kariuki, D. F. (2019). Ideological conundrums and technical challenges in protecting traditional knowledge using the intellectual property system. *Journal of conflict management and sustainable development*, 3(2), 15-32.
- Kohsaka, R., Rogel, M. (2021). Traditional and Local Knowledge for Sustainable Development: Empowering the Indigenous and Local Communities of the World. In: Leal Filho, W., Marisa Azul, A., Brandli, L., Lange Salvia, A., Wall, T. (eds) *Partnerships for the Goals*. Encyclopedia of the UN Sustainable Development Goals. Springer, Cham. https://doi.org/10.1007/978-3-319-95963-4_17
- Kusumastuti, R., Hidayanto, A. N., Juwono, V., Oktafia, E., Sandy, K., & Sya'diyah, H. (2023). Innovation through indigenous knowledge sharing, organisational memory, and indigenous knowledge erosion on indigenous batik enterprise (a structural equation model in action). *International Journal of Innovation and Learning*, 33(1), 71-97.

- Kwanya, T. (2020). Stigmatisation of Indigenous Knowledge: The Case of Night-running in Western Kenya. *Journal of Religion in Africa*, 48(4), 376–392.
- Kwanya, T., & Kiplang'at, J. (2016, July). Indigenous knowledge research in Kenya: a bibliometric analysis. In *Proceedings of the 11th International Knowledge Management in Organizations Conference on The Changing Face of Knowledge Management Impacting Society* (pp. 1-7). <https://doi.org/10.1145/2925995.2926018>
- Lazarus, G. N., & Jinadu, I. (2020). Forms and usage of indigenous knowledge as tools to improve the quality of life in Idemili South Local Government Area Anambra State, Nigeria. *Journal of Library Services and Technologies*, 2(2), 17–27.
- Magni, G. (2017). Indigenous knowledge and implications for the sustainable development agenda. *European Journal of Education*, 52(4), 437–447.
- Makate, C. (2020). Local institutions and indigenous knowledge in adoption and scaling of climate-smart agricultural innovations among sub-Saharan smallholder farmers. *International Journal of Climate Change Strategies and Management*, 12(2), 270–287.
- Malapane, O. L., Musakwa, W., Chanza, N., & Radinger-Peer, V. (2022). Bibliometric Analysis and Systematic Review of Indigenous Knowledge from a Comparative African Perspective: 1990–2020. *Land*, 11(8), 1167. <https://doi.org/10.3390/land11081167>
- Mammola, S., Piano, E., Doretto, A., Caprio, E., & Chamberlain, D. (2022). Measuring the influence of non-scientific features on citations. *Scientometrics*, 127(7), 4123–4137.
- McGillivray, B., & Astell, M. (2019). The relationship between usage and citations in an open access mega-journal. *Scientometrics*, 121(2), 817–838.
- Misonge, O. J., Kamindu, G. N., Sabina, W., & Muita, G. (2019). An ethnobotanical survey of plants used for the treatment and management of cancer in Embu County, Kenya. *J. Med. Plants*, 7, 39–46.
- Naidu, E. (2023, November 23). Africa's article output grows, but R&D funding is lacking. University World News. <https://www.universityworldnews.com/post.php?story=20231122073213618>
- Nakitare, J., Otiike, F. and Mureithi, L. (2024). “Harnessing the economic value of indigenous knowledge in Kenya: a qualitative review of the legal framework”, *Global Knowledge, Memory and Communication*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/GKMC-09-2023-0324>
- Namakula, E. B. (2022). Rethinking United Nations peacekeeping responses to resource wars and armed conflicts in Africa: integrating African indigenous knowledge systems. *Journal of Aggression, Conflict and Peace Research*, 14(4), 320–333.
- Njiraine, D., Ocholla, D. N., & Onyancha, O. B. (2010). Indigenous knowledge research in Kenya and South Africa: an informetric study. *Indilinga African Journal of Indigenous Knowledge Systems*, 9(2), 194–210. <https://hdl.handle.net/10520/EJC61594>
- Onyancha, O. B. (2024). Indigenous knowledge, traditional knowledge, and local knowledge: What is the difference? An informetrics perspective. *Global Knowledge, Memory and Communication*, 73(3), 237–257.
- Ouma, M. (2017, February 27). Traditional knowledge: The challenges facing international lawmakers. WIPO. https://www.wipo.int/wipo_magazine/en/2017/01/article_0003.html#:~:text=In%20many%20instances%2C%20traditional%20knowledge,of%20knowledge%20and%20indefinite%20protection.
- Prasetyo, N., Carr, A., & Filep, S. (2020). Indigenous knowledge in marine ecotourism development: The case of Sasi Laut, Misool, Indonesia. *Tourism Planning & Development*, 17(1), 46–61.
- Redvers, N., Schultz, C., Vera Prince, M., Cunningham, M., Jones, R., & Blondin, B. S. (2020). Indigenous perspectives on education for sustainable healthcare. *Medical Teacher*, 42(10), 1085–1090.

- Resenga, M. J., & Ngulube, P. (2019). Indigenous knowledge in Africa: A bibliometric analysis of publishing patterns. *Publishing Research Quarterly*, 35, 445-462.
- Ruhanen, L., & Whitford, M. (2019). Cultural heritage and Indigenous tourism. *Journal of Heritage Tourism*, 14(3), 179-191.
- Sweileh, W. M. (2022). Analysis and mapping of global research publications on shift work (2012–2021). *Journal of Occupational Medicine and Toxicology*, 17(1), 1-14.
- Talaat, F. M., & Gamel, S. A. (2023). Predicting the impact of no. Of authors on no. Of citations of research publications based on neural networks. *Journal of Ambient Intelligence and Humanized Computing*, 14(7), 8499-8508.
- Tran, C. Y., & Aytac, S. (2021). Scientific productivity, Lotka's law, and STEM librarianship. *Science & Technology Libraries*, 40(3), 316–324.
- United Nations. (2007, September 13). UN Declaration on the rights of indigenous peoples. Indigenous foundations. https://indigenousfoundations.arts.ubc.ca/un_declaration_on_the_rights_of_indigenous_peoples/
- Urzedo, D., & Chatterjee, P. (2022). The colonial reproduction of deforestation in the Brazilian Amazon: Violence against Indigenous peoples for land development. *The Genocide-Ecocide Nexus* (pp. 146-168). Routledge.
- Wendland, W. (2019, December). Protecting indigenous knowledge: A personal perspective on international negotiations at WIPO. WIPO. https://www.wipo.int/wipo_magazine/en/2019/06/article_0004.html

9. Indigenous Knowledge and Intellectual Property Rights: A Reasoned Discussion

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Abstract

This research paper reviews the current relationship between indigenous knowledge and intellectual property rights. It is based on a study that utilized a qualitative research design with data collected from the review of existing literature obtained online. It thus borrows extensively from publicly available resources, which are presented in the references section and accessed online during its development. The paper explores what some have described as ‘an uneasy relationship’ between indigenous knowledge and intellectual property rights protection and utilization, especially in regard to ownership – community vs individual ownership -access and benefit sharing. It also presents some notable cases of success and failure in the relationship. The paper delves into current efforts and deliberations at the global, regional, and national levels towards solving the challenges observed in the past in the said relationship and towards presenting a better framework for the utilization of intellectual property rights in indigenous knowledge protection and utilization. The paper concludes by applying the observations made to present reasoned recommendations that will allow for the embracing of intellectual property rights in indigenous knowledge protection and utilization for sustainable development. The authors posit that a balanced relationship between the indigenous knowledge holders and the IP system will have a positive impact towards the achievement of most of the SDG goals, but more specifically, goals 1, 2,3,8,9, 12 and 17.

Keywords: *Indigenous knowledge, intellectual property, sustainable development goals*

1 Introduction

Indigenous knowledge is considered the total sum of knowledge and experiences put together for a given set of ethnic groups based on specific characteristics that form the ideal for making decisions (Gupta et al., 2015). It, therefore, covers the practices, information, and beliefs which are unique to each culture. Indigenous knowledge, which is used interchangeably with traditional knowledge, is defined as the know-how of indigenous people, with a perspective of what they have acquired in knowledge over the generations, that has been tried and proved to be flexible to cope with change. It signifies the total knowledge of seventy per cent of people on earth—some ten thousand distinct peoples and cultures (WIPO – IGC, 2006).

Matowanyika (1994) and Langhill (1999) emphasized that in Africa, indigenous knowledge is viewed as systems that have been used locally for quite a long time and which are founded upon the indigenous languages. They also highlighted that it covers the systems that marry with the local environment and practices and also those that cover novelties from communities. Chepchirchir et al. (2018) found indigenous knowledge as a concept that covers knowledge that is deemed as traditional, rural, local or technical, while Kwanya (2020) asserted that the knowledge is indigenous and is therefore adjusted to suit the prerequisites of the community.

The Convention establishing the World Intellectual Property Organization in 1967 defined the term intellectual property to cover rights that include scientific work, performances by performing artists, literary and artistic works, broadcasts, recordings and inventions in all spheres of human efforts. They also included trademarks, service marks, commercial names, industrial designs and protection against unfair competition. Intellectual property protection covers Trademarks, Patents, Copyrights, Industrial Designs, Geographical Indications and Trade secrets.

The Convention's characterization of Intellectual Property clarifies that "intellectual property" is an extensive concept that may include inventions and matter not forming part of the existing categories of intellectual property, provided they result "from intellectual activity in the industrial, scientific, literary or artistic fields." It also demonstrates that Intellectual Property is evolutionary and adaptive.

The United Nations Brundtland Commission in 1987 defined sustainability as meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. The commission further noted that sustainable development is not a fixed state of harmony but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs. The commission focused its attention on, among others, the areas of population, food security, loss of species and genetic resources, and industry with the realization that all of these are interconnected and cannot be treated in isolation, one from another. The definition and focus areas of the commission thus served to place indigenous communities in an essential position in the concept of sustainable development as indigenous communities seek to protect indigenous knowledge that embraces the people, plant species, and other genetic resources.

2 Relationship between Indigenous Knowledge, Intellectual Property and the need for protection

The fundamental importance of people's indigenous knowledge can be observed from two perspectives: first, as traditional knowledge, which includes traditional medicine, and second, as the peoples' cultural expressions and customs. Article 31 of the United Nations Declaration on the Rights of Indigenous People (2007) provides that indigenous people have the prerogative to develop, maintain as well as regulate their heritage, knowledge and expressions as well as those characteristics that manifest in medicines, knowledge of fauna and flora, literature, designs, sports and games, performing arts and human and genetic resources.

The value of knowledge and its expression can be seen in how people identify themselves and within the culture, which has a significant value in a given community. Secondly, it can be looked at from the great value accrued in terms of the development of products. It is, however, important not to restrict the score to just the commercial value that is derived but also to the benefit which a new product can have on communities and humanity as a whole. Beyond the economic value, there should also be moral considerations. Some aspects of indigenous knowledge can only be shared with individuals when they have earned the right to have the knowledge and are deemed fit to practice. This may include medicinal techniques and participating in spiritual ceremonies. Disregarding some of these cultural rules may be seen as disrespect to the originating or holder community.

The World Intellectual Property Organization (WIPO), in Leaflet number 12 on WIPO and Indigenous Peoples, notes that indigenous peoples seek to safeguard their knowledge as well

as practices from exploitation for commercial purposes. There is a significant increase in the misappropriation of indigenous knowledge, given the advancement in technology, for commercial gains. As research and development capabilities keep increasing, pharmaceutical and research entities are patenting and claiming ownership of traditional medicines even though indigenous people have had these medicinal components and know-how for many generations. These entities, by doing so, deprive indigenous people of their rightful economic and social share of the total accrued benefits from their traditional knowledge and practices.

Indigenous people argue that they have legitimate rights to control, access, and utilize information in any way, including restricting others' access to knowledge or information that derives from their unique cultural histories, expressions, practices, and contexts. They are looking to the intellectual property system to secure these ends.

3 Conflicts concerning definitions, ownership, access and benefit sharing

Some difficulties exist at the juncture of indigenous knowledge and intellectual property law due to the heavy influence of the origins of the intellectual property system, which is derived from and is uniquely Western/European (Brad et al., 1999). This is especially true when the intellectual property system has been applied to inform the identification and classification of property. Intellectual property law supports certain cultural elucidations about ownership and authorship, which only partially supports and complements indigenous people's understanding of their knowledge and practices.

Whereas there have been many efforts towards the protection of indigenous knowledge, there is still no consensus reached in regard to the protection of the rights of the indigenous people in relation to their cultural system of knowledge in terms of how to secure it within the establishment of the intellectual property system or other over-arching framework or policies.

Indigenous peoples' interests in intellectual property law raise issues that encompass both legal and non-legal elements. Difficulties experienced are classified as not just commercial but also issues of ethics and morality, as well as religious and historical issues. The inappropriate use of sacred cultural symbols and artefacts may not lead to financial losses. However, it would be considered offensive to the community that holds the rights to the artefacts and symbols.

The challenges experienced by indigenous people while seeking to protect their knowledge under the existing intellectual property laws arise mainly from the failure of this knowledge to meet requirements that have been set in regard to intellectual property protection. On the other hand, where the requirements set for protection are met, there are potentially prohibitive costs for obtaining or defending a given intellectual property right that may curtail adequate protection.

The process of protecting indigenous knowledge has been a daunting one, and the problem has manifested. It is experienced in a not-so-straightforward manner whereby you find that intellectual property rights overlap with other aspects of the law, ethics and policies (Bell & Paterson, 2009).

Some of the challenges experienced include:

- a) **Definition of indigenous knowledge**—The term has been used interchangeably and synonymously with traditional knowledge, but a few authors who feel that

the terms, though related, have differentiated meanings and scope have contested this definition. The authors present that indigenous knowledge is the traditional knowledge of indigenous peoples, and thus, indigenous knowledge is part of the traditional knowledge category, but traditional knowledge is not necessarily indigenous. That is to say, indigenous knowledge is traditional knowledge, but not all traditional knowledge is indigenous.

- b) **Ownership (individual vs community ownership)** - The arrival of colonialists disrupted the framework or notions of ownership that existed and replaced them with an exclusionary system of rights to property. Under the pre-colonial systems, it was assumed that indigenous knowledge could be held by an individual or group in trust for the benefit of the entire community. In contrast, intellectual property regimes provide an individual or company with exclusive rights to exclude others from benefiting from what is protected for a given period. In many indigenous worldviews, property rights are distinctly seen as belonging to the whole community. This is a way of upholding and developing group identity and survival rather than leaning towards individual economic gains.
- c) **Bioprospecting and biopiracy** - In certain circumstances, communities were made to believe that their knowledge was being looked at further through the process of intensive research (bioprospecting), and this knowledge was expropriated without their consent. The research companies would take the indigenous knowledge, seek intellectual property over it, and earn a fortune on the intellectual property with no tangible returns or knowledge of the originating peoples/communities (biopiracy).
- d) **Access and benefit sharing**—Brian (2021) argues that communities are in a better economic position when they realize benefits such as access to food, quality, healthcare, and reasonable housing from their indigenous knowledge. In the past, there have been various cases where indigenous knowledge has been used to progress research, leading to products, processes, and services being protected under intellectual property rights with no beneficial returns to the holding communities. The originating indigenous people also risk reduced access to their indigenous knowledge.
- e) **Scope of protection**—The scope of protection of indigenous knowledge under the intellectual property system is not clearly outlined. A clear definition of the scope would allow for the development of a distinct intellectual property rights system that covers indigenous knowledge in the same way as other types of property are protected.
- f) **Public domain** - Under the intellectual property system, knowledge and creative ideas that are not protected under the relevant intellectual property regime or whose period of protection has expired are in the Public Domain. Generally, Indigenous peoples have yet to use intellectual property rights to protect their knowledge, so the knowledge is often treated as if it is in the public domain without regard to Customary Laws. The precept that all Intellectual Property, including indigenous knowledge, is intended to enter the Public Domain eventually is a problem for Indigenous peoples because Customary Law dictates that certain aspects of TK are not intended for external access and use in any form (Young-Ing, 2006).

4 Notable successful cases

An example of how the challenge of misuse of traditional artefacts can be overcome and the rights of indigenous people restored through the use of intellectual property rights can be found in the Snumeymux people case. In the early 1990s, non-indigenous residents of Gabriola Island started using the Snumeymux peoples' petroglyph images for commercial purposes, culminating in the naming of a music festival after a well-known petroglyph image, 'The Dancing Man'. The festival adopted the image of 'the dancing man' petroglyph as its logo and used it for promotional purposes. The indigenous people (through the Snumeymux Band) sought and were awarded a Public Authority Trademark (awarded in October 1998) that forced the music festival and business community from using the images derived from petroglyphs (Young-Ing, 2006).

The Kani Tribe, from southern India, collaborated with scientists in the invention and development of Jeevani, an anti-stress / anti-fatigue sports drug. The Tribe offered their collaboration through three selected tribal members and their tribal healers known as Plathis. The resultant two patents were then commercialized through an Indian pharmaceutical manufacturer, and a trust fund was established to facilitate the sharing of the benefits arising from the commercialization of the drug (WIPO, 2020).

WIPO, in its publication, Intellectual Property and Genetic Resources, Traditional Knowledge and Traditional Cultural Expression (2020), provides a number of success stories in the use of IPRs in indigenous knowledge protection and utilization. These cases include a) A Database of Official Insignia of Native American Tribes that prevents others from registering these insignia as trademarks in the United States; b) New Zealand's trademark law prevents the registration of trademarks that offend, and this applies especially to Maori symbols; c) India's Patent Act clarifies the status of TK within patent law; d) Mr. Cun Fablao, a designer from the Yunnan Province, China, received industrial design protection for his traditional-based silver-plated tea-set.

Documentation can help protect traditional knowledge by ensuring that there is a secret or confidential record of the knowledge reserved explicitly for a given community. Some formal registries support the protection of knowledge, with other protective mechanisms, such as databases, playing a pivotal role in defensive protection. Australia has also made great strides in the protection, restoration, and utilization of Intellectual Property Rights in indigenous knowledge.

5 Notable failure cases

An Intellectual Property Rights system that needs to be more responsive to the property rights needs of indigenous knowledge has presented an unfortunate situation whereby individuals or corporations misappropriate indigenous knowledge for their financial benefit. In contrast, the scenario is totally different for the originating holders of the knowledge, who are usually poor communities in rural areas who do not directly benefit from the accrued benefits.

In 1984, Loren Miller filed a patent application for a distinct and new variation of the species *banisteriopsis caapi*, which he learnt of and discovered growing in someone's garden in the rain forests of the Amazon. His stated initial exploratory idea was to identify if the plant had any medicinal value in the treatment of cancer and psychotherapy. According to his patent application, which was granted in 1986, the bark of the plant had been used by the people in the Amazon region to produce a ceremonial drink called ayahuasca, which is consumed

during sacred religious and healing ceremonies. Because the plant had yet to be previously documented, it was patented in the United States as it met the novelty criteria. This was heavily disputed and became a controversial issue during a reexamination upon a request that was filed by the Amazon communities. However, the patent ultimately survived and expired in June 2003.

Even though maca (*Lepidium meyenii*) was used by the Inca for fertility purposes for centuries, applications for patents were filed in the United States, where the examiners of the patent determined it to be novel and non-obvious. The applicants for the patent, therefore, satisfied the definition of novelty. Claiming the use of maca alone to boost fertility would not be sufficient for the criteria set forth in the definition of novelty. The applicants for the patents claimed the combination of the Maca and Velvet deer antler, and the patent was subsequently granted. Velvet deer antlers have also been known and documented to be helpful in enhancing fertility, but no prior art has been established documenting the two plants used in combination.

The turmeric plant, a component of *ayurvedic* medicine, has been used for thousands of years for the treatment of sprains, wound healing and inflammatory conditions. Two scientists from the United States in 1995 were granted a patent on its use for healing wounds. The Indian Government challenged this, although the appeal failed because the Indian government was required to provide proof that the plant had been used in India specifically for healing wounds. The proof was required to be in the form of academic papers predating the application of the patent (Prasad & Aggarwal, 2011). The US researchers acknowledged that the plant had been used in India for traditional medicine purposes in regard to the treatment of various ailments. However, they further argued that research had yet to be done to showcase the effects of turmeric. The patent was thus granted, indicating that the process that led to its discovery and use by the Indian people could not be regarded as research, which meant that all traditional knowledge could not be patented. The implication was that any scientific researcher who can take traditional knowledge and verify it through a recognized scientific research process without adding anything more can apply for a patent to his/her benefit.

The neem tree, which is predominantly found in India, has more than 35 patents granted in the United States and Europe for its pesticide properties (Chitsike, 1997). Due to its high demand in the market, the local communities have been deprived of access to and utilization of the plant despite the fact that they have preserved it for generations. If the 35 patents were distributed among Indian-based entities, issues of biopiracy would not arise.

In the case of Zimbabwe, a debate arose involving the University of Zimbabwe, the Zimbabwe national traditional healer's Association (Zinatha), the University of Lausanne in Switzerland and an American Pharmaceutical company, Phytera, over the use of the patent of the root of a tree called *Swartzia madagascarensis*, which is predominately found in tropical Africa. A patent on antimicrobial diterpenes was granted in 2000 by a professor at the University of Lausanne. The patent relied heavily on indigenous knowledge found in Zimbabwe regarding the use and properties found in the root. An agreement was therefore signed between the University of Zimbabwe and Lausanne that "in the event of finding any product which may require the application of intellectual property rights, this will be subject of joint negotiation and application". However, in an addendum to an MTA that was included in 1997 between the University of Lausanne and Phytera, the two parties agreed to a 1.5% sharing of royalty payments with no involvement of Zinatha and the University of Zimbabwe. The researcher was obligated to share 50% of any royalties with the botanical garden in Zimbabwe and the Zimbabwe University.

The *Prunus Africana*, a tree whose bark has medicinal components that are useful in the treatment of prostate cancer, hypertension, and other ailments, has been used by the Marakwet community in Kenya for ages. The tree was exploited in the discovery and development of medicines that are used in the treatment of benign prostate hyperplasia, with substantial profit margins being enjoyed by the pharmaceutical companies that saw the tree's exploitation leading to near extinction. However, the African communities, who have been using the bark for thousands of years, have yet to be compensated or recognized for the development of the end products. However, they have carried with them indigenous knowledge.

A Kenyan local shrub known as *Maytenus Buchanan* is well known and used for its medicinal components and value by the Digo community, one of the Mijikenda Sub-Tribes. The American National Cancer Institute used the shrub in the manufacture of a drug used in the treatment of Pancreatic Cancer, as it contains the Maytansine component. The community received no recognition or financial proceeds from the use of their traditional knowledge.

The current and ongoing debate is on the exportation of the indigenous Baobab tree, which is found in Kilifi, Kenya. There are a lot of mixed feelings on the reasons behind its exportation when the country has been trying to recover lost forest cover. The tree produces fruits that are high in vitamin C, antioxidants, calcium, potassium and fibre. The bark of the tree also has medicinal properties that can be infused and used in beauty products. It has been argued that this is an apparent exploitation of Kenya's biodiversity as there have been no documented benefits to be accrued to the government or the local community from its exportation.

6 Current efforts and deliberations regarding the relationship

This section examines current or ongoing efforts at the global, regional and national levels aimed at addressing the challenges encountered in the past in the relationship between indigenous knowledge and the intellectual property system towards forging a better framework for the utilization of intellectual property rights in indigenous knowledge protection and utilization.

6.1 Global / International Level

The World Intellectual Property Organization (WIPO) is the primary international body through which discussions and debates on the interaction of indigenous knowledge with intellectual property have been filtered. Since 2001, WIPO has hosted a regular meeting, the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC), to discuss the issues.

Work within the intellectual property (IP) community on the protection of traditional cultural expressions (TCEs) goes back to the 1960s. The impetus came from a growing sense in developing countries that folklore embodied creativity and was part of the cultural identity of indigenous and local communities; it was therefore seen as worthy of IP protection, especially since new technologies were making folklore increasingly vulnerable to exploitation and misuse.

The 1967 revision of the Berne Convention for the Protection of Literary and Artistic Works, where protection is based on originality and identifiable authorship, fell short of ensuring adequate protection for TCEs. The members of WIPO and UNESCO in 1982 developed model provisions that set the ground for the establishment of national laws that served as a source of inspiration for those countries that were interested. The work on interactions

between intellectual property, genetic resources, and traditional knowledge is more recent. It emanates from concerns regarding the role that intellectual property plays in the achievement of global policy objectives as varied as the conservation of biodiversity (as enshrined in the Convention on Biological Diversity, 1992), food security, free and fair trade, and development. The linkages, which are established through discussions that take place in international forums, have significant implications for the intellectual property system. The advancement of new technologies, such as biotechnology, has highlighted the economic benefits which are becoming increasingly important elements of patentable inventions. This has brought forth the argument that the patent regime should help to prevent misappropriation and promote fair sharing between holders of the assets, which is mainly biodiversity-rich countries, and those with the technology to access and develop them.

In an effort to solve or overcome definitional challenges, as noted earlier, WIPO has offered a range of characteristics that seek to encompass much of what indigenous people and other experts describe as indigenous/traditional/local knowledge. The classification of knowledge into these categories (GR, TK and TCEs) – mainly under the WIPO IGC - helps create order, which makes the issue more manageable for those who discuss it and need to develop remedies. However, this order needs to be understood as a bureaucratic product that serves particular ends. These categories do not necessarily represent how indigenous peoples experience their knowledge systems or how such knowledge systems are talked about. They do not (and arguably cannot) adequately capture the complexity of indigenous peoples' epistemology and ontology. It is worth being mindful that even the categories that have been developed and are now used in international meetings, while established to help describe 'types' of knowledge, are newly constructed and, therefore, can inadvertently erase the inevitable and integral moments of overlap between these kinds of knowledge in practice.

A needs assessment was conducted through fact-finding missions that WIPO carried out between 1998 and 1999. The assessment was done to assess the needs and expectations of the indigenous communities and emphasized the need for the prevention of unauthorized acquisition of IPRs, particularly patents, in regards to traditional knowledge by documenting and publishing this knowledge as a searchable prior art. There is also a great need to raise awareness of intellectual property systems, especially among indigenous and local communities. The need for facilitation of dialogue and contact between traditional knowledge holders and the private sector, government and non-governmental organizations in assisting in the development of modalities that will facilitate cooperation between the different entities was also identified.

It is unmistakable that some of the expectations and needs conflict with or portray competing policy objectives. WIPO has not been able to document and mediate the needs or resolve resultant conflicts satisfactorily but has instead managed to provide as much information as possible regarding the information received from FFM informants. WIPO recognizes its limitations in addressing all the needs and collaborative efforts by other relevant organizations as well as processes. The identified needs pose challenges for the entire intellectual property community and entities, including WIPO and its member states. In the execution of its mandates as a specialized United Nations Agency, WIPO has the responsibility of promoting intellectual property worldwide while continuing to address conceptual problems and undertaking a practical and technical examination of the application of the intellectual property system in regard to the protection of traditional knowledge.

In 1996, the WIPO Performances and Phonograms Treaty succeeded in protecting performers' rights to express folklore. An international treaty on the protection of audiovisual performances, adopted in June 2012 in Beijing, includes performers of expressions of folklore among its beneficiaries, thereby extending the rights already granted to them by the WIPO Performances and Phonograms Treaty of 1996.

The IGC process motivated the increased recognition of traditional knowledge in the patent system. From 2002, a given number of traditional knowledge journals were incorporated as minimum documentation in regard to applications under WIPO's patent cooperation treaty and in traditional knowledge taxonomy tools that have been integrated into the international patent classification as of 2003. WIPO is also in the process of preparing a list of traditional knowledge-related databases as a means of defensive disclosure against misappropriation of Intellectual property rights. In 2002, the IGC accepted technical standards for the documentation of TK developed at a WIPO meeting in Cochin, India.

WIPO has also developed and regularly updates an online database of relevant contractual practices. It ensures that guidance is given on intellectual property aspects that are mutually agreeable, fairly, and equitably and that benefit sharing is embraced.

6.2 International Conventions and Treaties

International conventions and treaties are essential for indigenous knowledge as they set standards and guidelines for business, trade, intellectual property, human rights, access and benefit sharing, conservation, and management of biological resources. All these areas impact indigenous knowledge. The major International Agreements affecting IPRs and traditional knowledge are the Convention on Biological Diversity (CBD) and Trade-Related Intellectual Property Rights (TRIPs). The provisions of TRIPs and CBD have tried to develop a system of protection of traditional knowledge globally, which needs to be further strengthened in terms of providing incentives for the disclosure and dissemination of valuable traditional knowledge.

The Convention on Biological Diversity (CBD) establishes three main goals in order to maintain the world's ecological resources: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources. Article 8(j) of the Convention provides that subject to its national legislation, a State Party shall respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant to the conservation and sustainable use of biological diversity and promote their more comprehensive application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices. The disclosure and dissemination of traditional knowledge are to be achieved by linking the grassroots knowledge systems with the global opportunities for financing the commercial use of biological diversity.

Other United Nations organizations that have sought to address the interaction of Intellectual Property with Indigenous knowledge include The United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Development Programme (UNDP) and the International Labour Organization (ILO). UNESCO and WIPO established the Model Treaty on the Protection of Expressions of Folklore against Illicit Exploitation in 1982. The Model Treaty recognizes indigenous peoples as the traditional owners of artistic

heritage, including folklore, music, and dance, which were created within indigenous territories and passed down through the generations. In 1994, UNDP published a study on indigenous knowledge and intellectual property rights entitled 'Conserving Indigenous Knowledge, Integrating Two Systems of Innovation'. The results of the study, which Rural Advancement Foundation International conducted, were disseminated in regional meetings of indigenous organizations to raise awareness of traditional knowledge and to address ways in which indigenous peoples can preserve and protect their cultural heritage and intellectual property.

6.3 Regional Level

Member States of the African Regional Intellectual Property Organization (ARIPO) adopted the Swakopmund Protocol on the protection of traditional knowledge and expressions of folklore on August 9, 2010, at Swakopmund in the Republic of Namibia. Section 27 of the Protocol provides that the Protocol would come into force three (3) months after six (6) states have deposited their instruments of ratification or accession with the Government of the Republic of Zimbabwe. Namibia deposited the sixth ratification on February 11, 2015; hence, the Swakopmund Protocol entered into force on May 11, 2015.

The purpose of this Protocol is (a) to protect traditional knowledge holders against any infringement of their rights as recognized by the Protocol and (b) to protect expressions of folklore against misappropriation, misuse and unlawful exploitation beyond their traditional context. The Protocol confers on the owners of rights the exclusive right to authorize the exploitation of their traditional knowledge in addition to the right to prevent anyone from exploiting their traditional knowledge without their prior informed consent. The owners of the rights shall be the holders of traditional knowledge, namely the local and traditional communities, and recognized individuals within such communities, who create, preserve and transmit knowledge in a traditional and intergenerational context in accordance with the provisions of section 4 of the Protocol.

The Protocol also provides for regional protection and equitable benefit-sharing. Section 9.1 provides that the protection to be extended to traditional knowledge holders shall include the fair and equitable sharing of benefits arising from the commercial or industrial use of their knowledge, to be determined by mutual agreement between the parties, duration of protection, and recognition of the knowledge holders.

The Protocol has the following benefits to ARIPO member states: a) it enables the knowledge holders and local communities in the Member States to register transboundary traditional knowledge and expressions of folklore at ARIPO; b) the knowledge holders and local communities Member States are able to submit, for record purposes, traditional knowledge and expressions of folklore in their territories. This can be done through the national competent authority; c) the knowledge holders and local communities in the Member States can be able to license their traditional knowledge and expressions of folklore lodged at ARIPO and obtain benefits arising from the commercial use of such knowledge and folklore and obtain fees from such licenses; d) the knowledge holders and local communities in the Member States are able to use the alternative dispute settlement procedures at ARIPO to settle disputes arising from traditional knowledge and expressions of folklore shared by different communities across national boundaries as the need arises; and e) it enables ARIPO to establish databases on codified and non-codified traditional knowledge and expressions of folklore. The information in the databases will only be used upon prior informed consent from the knowledge holders with the consultation of the databases, also generating income for the member states.

6.4 National Level

The Kenyan State must promote all forms of national cultural expression, recognize the role of indigenous technologies in development, and protect intellectual property rights. In addition, the state has to support, promote, and protect the intellectual property rights of the people of Kenya while at the same time providing for the sustainable management and use of natural resources and the protection of biodiversity and genetic resources. This is well articulated in the 2010 Republic of Kenya Constitution.

Before statutory intervention in 2016, Kenya had a national policy on Traditional Knowledge, Genetic Resources and Traditional Cultural Expressions. The policy (2009) was conceived and crafted to enhance the protection of traditional knowledge in Kenya. It is aimed at laying the foundation for a national framework that seeks to preserve, protect, and promote sustainable use of indigenous knowledge as well as developing systems that would have a national development agenda. It sought to provide for benefit sharing, sustainable development, international cooperation and good faith as guiding principles.

The Protection of Traditional Knowledge and Cultural Expressions Act, 2016 is currently the primary legislation in Kenya and the framework for protecting indigenous knowledge. The Act describes traditional knowledge in a broad way that captures innovations, practices, and the know-how of Kenyan know-how.

7 Discussion, findings and implications

Knowledge derived from local communities plays a crucial role in the improvement of developing countries (Briggs, 2005; Chepchirchir et al., 2018). The World Bank (1998) states that traditional knowledge provides the foundation of problem-solving within communities. This is based on the fact that this knowledge is easily accessible and is easily applied within society on a daily basis. This is the knowledge that the local communities can relate to and resonate with. This is because the knowledge is easily accessible and can be applied daily in society. Kwanya (2019) explains that indigenous knowledge develops and is disseminated orally from one generation to the next.

A key concern in the intersection of Indigenous knowledge with intellectual property law has also been the inevitable translation of Indigenous knowledge systems into frameworks of Western property, complete with principles of alienation, exclusion, and exclusive possession. Such property systems often need to be culturally compatible, as the translation into Western paradigms requires foundational transformations in how knowledge is understood and how it is shared.

Senanayake, 2006, notes that almost all the development actors have now recognized the value of participatory approaches in decision-making for sustainable development. Indigenous knowledge provides the basis for grassroots decision-making. It has been found that the indigenous knowledge of ecological zones, natural resources, agriculture, aquaculture, forest and game management is far more sophisticated than previously assumed (Posey, 1995). Furthermore, this knowledge offers new models for development that are both ecologically and socially sound. Therefore, it is a well-known fact that development activities that work with and through indigenous knowledge have several significant advantages over projects that operate outside them. This can be seen in the fields of agriculture, environment, biodiversity, education and medicine.

Local knowledge helps local communities manage environmental issues (SDG 12 and 13) while adapting to various environmental changes (Kamara, 2005). This highlights that local

communities have made a considerable contribution to the achievement of sustainable development. Indigenous knowledge has a substantial impact on agriculture (SDG 2), tourism (SDG 1 & 8), politics, health (SDG 3), and education (Kwanya, 2015). There is, therefore, a need to legitimize rights to control, access and utilization of the indigenous communities with the intellectual property law as a means of securing their unique cultural histories, expressions, norms and practices.

In the place of an efficient intellectual property system that seeks to protect traditional knowledge, it will ensure that there is continued creation and innovation that is based on that knowledge (SDG 8 and 9). Intellectual property rights are not just anchored on the protection of rights but also the recognition of and respect of the contributions of human creators. Intellectual property thus plays a crucial role in the protection of the dignity of the holders of traditional knowledge and by recognizing property rights in relation to knowledge, issuing holders with a certain degree of control of the use of their knowledge and also its use by others. The protection of traditional knowledge is also beneficial to third-party entities, which are also able to enjoy access to protected traditional innovations.

Many of the problems encountered by IK holders are less legal than operational – TK holders often lack the know-how and financial know-how to take advantage of the IP system, whether in its present or evolved form, and they need support in this respect. There are, nevertheless, specific conceptual difficulties. However, the fact that existing standards of IP may not be in perfect harmony with elements of TK worthy of protection should not be seen as an insuperable obstacle. IP has consistently evolved to protect new subject matter, the emergence of which was unforeseeable even twenty years earlier. Given its evolutionary and adaptive nature, it is not inconceivable that IP principles might provide adequate protection for traditional knowledge.

8 Recommendations

Whereas in the past, there has been an ‘uneasy relationship’ between IK & IP, this paper posits that there is a need to embrace Intellectual property rights for indigenous knowledge protection towards sustainable development. There is a need to embrace communal protection and management regarding indigenous knowledge by providing an enabling environment that seeks to document and add value to practices that ensure the continuity of such knowledge.

Indigenous peoples are gradually becoming involved in the creation of frameworks for the use and access to their knowledge systems. The engagement of the indigenous communities will promote a baseline on how to deal with problems when they emerge, provide conflict resolution mechanisms that can be arrived at through legislation, and reference policies that address the wide range of interests in accessing their knowledge. While realizing the diversity of indigenous communities and their existing and developing knowledge management strategies, it will be necessary to initially support and embolden these approaches and subsequently draw significant intersections on which international frameworks of protection could be based.

Implementing the findings from the WIPO Fact Finding Missions (FFMs) as set out in the 1998-1999 report will solve some of the significant challenges and allow for the utilization of IP in IK identification, protection and utilization for sustainable development not only in Kenya but in the world. Some of these findings, apart from those highlighted above, include participation by both the national and regional intellectual property offices and the wider intellectual property community in relation to traditional knowledge-related processes where

intellectual property rights issues are discussed; there is a need to study the relationships that exist in traditional knowledge and intellectual property rights more so in regards to testing of options for the joint acquisition, management and enforcement of intellectual property rights by the traditional knowledge holders.

As a short-term solution, testing for the applicability and use of the existing intellectual property rights tools and traditional knowledge protection through technical community level engagement through projects and case studies while providing for technical information and continuous capacity building for the traditional knowledge holders as well as government representatives as a possible option can be used to enforce traditional knowledge protection using intellectual property.

A long-term solution could include the development of intellectual property tools that seek to protect traditional knowledge that is not protected by the existing intellectual property tools. The amplification of an international framework for traditional knowledge protection, using, among other things, the WIPO-UNESCO model provisions for national laws on the protection of expressions of folklore against illicit exploitation, can be applied. The provision of advice and correct information to traditional knowledge holders in regard to the execution of intellectual property protection for traditional knowledge could also be used as a long-term measure.

There is a need to provide legal and technical expertise in the documentation of traditional knowledge, which includes the right advice and information on the implications of documenting traditional knowledge. The advice and information can capture regulations, guidelines, policies, protocols and agreements that are in place, as well as the access to and the benefit-sharing prospects of genetic resources. Guidance and assistance for traditional knowledge holders regarding how to negotiate, draft, implement and enforce contracts is critical in ensuring that the holders of knowledge have the correct information at any given time.

In addition, effective IP systems that protect and maintain IK will depend on a better understanding of the various systems of innovation and intellectual property (formal and customary) and, equally, upon the participation of all stakeholders, governments and local communities in the process.

References

- Hansen, S. A., & VanFleet, J. W. (2003). A handbook on issues and options for traditional knowledge holders in protecting their intellectual property and maintaining biological diversity. *American Association of the Advancement of Science (Ed.)*. Washington, DC. <http://community-wealth.org/sites/clone.community-wealth.org/files/downloads/book-hansen-vanFleet.pdf>.
- Imperatives, S. (1987). Report of the World Commission on Environment and Development: Our common future. *Accessed Feb, 10(42,427)*. Available at <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf> Accessed: 1st July 2023.
- Nzomo, V. (2015). IP Kenya Online Article: ARIPO Swakopmund Protocol on Traditional Knowledge and Expressions of Folklore Enters into Force in May 2015 Available at: <https://ipkenya.wordpress.com/2015/04/03/aripo-swakopmund-protocol-on-traditional-knowledge-and-expressions-of-folklore-enters-into-force-in-may-2015/#:~:text=ARIPO%20Swakop->

- mund%20Protocol%20on%20Traditional,in%20May%202015%20%7C%20IP%20Kenya.
- Senanayake, S. G. J. N. (2006). Indigenous knowledge as a key to sustainable development. *Journal of Agricultural Sciences* 2(1), 87-94.
- Wikipedia. (2023). Indigenous intellectual property. https://en.wikipedia.org/wiki/Indigenous_intellectual_property#cite_note-54
- WIPO. (2000). *Intellectual Property Needs and Expectations of Traditional Knowledge Holders: World Intellectual Property Organization (WIPO) Draft Report on Fact-finding Missions on Intellectual Property and Traditional Knowledge (1998-1999)*. World Intellectual Property Organization.
- WIPO. (2023). The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, Background brief No.2. Available at: <https://www.wipo.int/edocs/pubdocs/en/wipo-pub-rn2023-5-2-en-the-wipo-intergovernmental-committee-on-intellectual-property-and-genetic-resources-traditional-knowledge-and-folklore.pdf>.
- WIPO. (n.d.). Indigenous Peoples. WIPO Leaflet number 12 – Available online at: <https://www.ohchr.org/sites/default/files/Documents/Publications/GuideIPleaflet12en.pdf> Accessed on July 8 2023.
- WIPO. (n.d.). Intellectual Property and Traditional Cultural Expressions/Folklore – Booklet No. 1. WIPO Publication No. 913(E) Available online at: https://www.wipo.int/edocs/pubdocs/en/tk/913/wipo_pub_913.pdf Accessed on July 1 2023.
- Young-Ing, G. (2006). Intergovernmental Committee On Intellectual Property And Genetic Resources, Traditional Knowledge And Folklore, Tenth Session Geneva, November 30 To December 8, 2006, WIPO Panel On, “*Indigenous And Local Communities’ Concerns And Experiences In Promoting, Sustaining And Safeguarding Their Traditional Knowledge, Traditional Cultural Expressions And Genetic Resources*” Competing Jurisdictions Over Traditional Knowledge In The Northern Americas November 30, 2006. https://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_21/wipo_grtkf_ic_21_ref_grtkf_20_10.pdf

SECTION THREE:
INDIGENOUS
KNOWLEDGE AND
EDUCATION

10. Historical Interventions on the Psychological Well-being of Adolescents in Uganda using on a Socio-Cultural Approach

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Abstract

Internationally, the boundaries of cities have expanded, leading to an increase in the adolescent population residing and studying there, mainly due to the interconnectedness of the world as a global village. Adolescence, characterised by rapid change and various challenges, exposes young individuals to a myriad of psychosocial demands. In Uganda, as in many other African countries, adolescents from different regions often belong to vulnerable social categories and face risks such as forced migration, various forms of violence, early pregnancies, rape, sexual abuse, and genital mutilation, among others. These risks raise concerns about the mental well-being and thriving of adolescents in the region. Furthermore, there is interest in understanding how adolescents were mentally healthy in traditional settings in the past. This study aimed to investigate how adolescents in traditional communities maintained their mental well-being. A transdisciplinary participatory research approach was employed, involving the preparation of transcripts for all Focus Group Discussion (FGD) data and the development of qualitative data codes based on ancient and optimistic mental involvements from each region. Additionally, qualitative data themes were developed to explore the fundamental principles guiding the study.

Keywords: *Mental health, ancient and optimistic mental involvements, adolescents in Uganda*

1 Background information

Uganda, like many other African countries, has a significant adolescent population, with two-thirds (66.7 per cent) of Ugandans being under 24 years old (PMA 2020). Approximately one in five (18.6 per cent) are adolescents aged 15 to 24, while about 15 per cent are aged 10 to 19 years. Adolescents in various regions are part of susceptible social groups and are highly exposed to risks such as rape, defilement, and drug abuse, despite being the majority in those regions. Understanding what enhances the psychological well-being of adolescents in this generation, such as music, parental support, and lifestyle choices, is essential. The study sought to investigate how adolescents were traditionally kept psychologically well in the past. The purpose of this study was to explore how adolescents in traditional communities maintained their mental well-being and how adolescents in this generation perceive psychological well-being traditionally in their respective communities.

2 Methodology

This study employed a qualitative transdisciplinary participatory research design. According to Jahn (2008), this approach entails addressing complex societal and real-world issues by involving those affected by the situation in the research process and facilitating the co-production of transformative knowledge. By utilising a transdisciplinary research design and strategy, we made

a deliberate effort to integrate the perspectives of stakeholders and beneficiaries to enhance understanding of traditional interventions aimed at improving adolescents' psychological well-being (Creswell & Plano Clark, 2011, 2018; Tashakkori & Teddlie, 1998, 2010).

The study was conducted in Uganda, situated in Eastern Africa. Uganda is comprised of four regions: Central, Northern, Western, and Eastern. We selected Uganda as our study area due to its substantial adolescent population, which prompted our interest in investigating traditional approaches to enhancing adolescents' psychological well-being.

The study adopted a qualitative transdisciplinary participatory research approach, collecting qualitative data from 24 adolescents aged 11 to 20 and 32 elders from four regions in Uganda: central, eastern, western, and northern regions. Eight adults from different regions in Uganda participated in each focus group discussion, utilising methods such as interviews, drawings, photovoice, focused group discussions, and participant data validation workshops.

Transcripts of all Focus Group Discussions were prepared, and qualitative data codes were developed based on historical interventions from each region. Qualitative data themes on the fundamental tenets guiding our study were developed, and data were analysed using thematic analysis. All the information obtained from adolescents' workshops and photo voices was critically synthesised and analysed carefully.

3 Literature review

In Schwartz's (2022) study, it is argued that children can attain greater levels of calmness, happiness, and overall health through engaging in enjoyable activities in nature. These activities, which can be enjoyed by both parents and children simultaneously, significantly enhance their mental well-being by reducing stress levels. Schwartz (2022) further advocates for families and individuals to cultivate habits of exploring nature as a means to achieve emotional happiness. However, despite the benefits of these activities, Schwartz (2022) underscores the importance of integrating tools such as traditional activities and interventions towards adolescents' mental wellness.

Schwartz (2022) emphasise the importance of finding joy in nature for both homes and classrooms, as it contributes to improved health and well-being. However, they note a general oversight by Kiley in failing to emphasise historical approaches to maintaining adolescents' mental well-being.

Musanje et al. (2023) lament how psychosocial interventions have greatly influenced medication adherence among adolescents with HIV in sub-Saharan Africa; however, limited attention was given to traditional methods for enhancing adolescents' mental health, especially in ancient times in Africa, particularly in Eastern Africa. They note that while psychosocial interventions have greatly influenced medication adherence among adolescents with HIV in sub-Saharan Africa, little has been mentioned about traditional methods used to promote mental health. The authors aimed to investigate traditional interventions for adolescents' mental well-being in Uganda.

Marshall et al. (2012) noted that individuals who demonstrate confidence tend to persist after failure, showing resilience in pursuing their objectives. They also explain that individuals can derive mental wellness from various activities or achievements, such as sports, social interactions, or familial relationships. Similarly, Harris and Orth (2020) emphasise the pivotal role of social relationships, especially warm parental relationships, in shaping self-esteem.

Their study is remarkable, but it needed to tackle the historical tools that were employed in shaping adolescents' mental well-being. Furthermore, Marshall et al. (2012) highlight the importance of prayer in restoring wellness during times of failure. Additionally, these perceptions are intricately shaped by societal norms, including prevalent activities and social interactions within communities. Family dynamics also play a pivotal role in shaping adolescents' self-esteem and their perception of self-worth within their communities.

There are various studies, including those mentioned above, addressing the issues of mental health in different settings and several social categories. However, few studies addressed concerns about traditional interventions for adolescents' mental well-being in Uganda, and little was known about historical interventions for the mental well-being of adolescents in Uganda.

4 Findings of the study

From the different focus groups, adolescents' workshops and photo voices. The results were further analysed and discussed below.

Since the children of long ago are now big people, data was collected from the elders who provided information on how adolescents' psychological well-being was ensured long ago. No particular criterion was followed when choosing the elders. However, elders from different parts of Uganda were contacted to provide information and respond to the different questions asked during the focus groups; it was a random selection. Elders ensured adolescents' psychological well-being socially, economically, politically, culturally, and religiously to prepare them to fit in every sphere of life; this was a way of ensuring that they were psychologically well.

They used to give adolescents gifts and clothes on essential days, tell them words of encouragement, entertain them through various forms of oral literature, punish them for keeping the right path, communal parenting to ensure proper ethics, train them to be clean, trained them to be united, provide proper feeding, organise parties and celebrations to relax. They educated them formally and informally, and they made sure that the children performed very well in their studies and always punished them for poor performance.

4.1 Gifting adolescents

In ancient times, parents often rewarded their children with gifts to ensure their psychological well-being. This practice is supported by researchers from the National Institutes of Health, along with colleagues from around the world, who measured brain activity among individuals who both received and gave gifts. They observed that all regions of the brain were activated (National Institutes of Health et al., n.d., as cited in mghclaycenter.org). The people from the central used to refer to this as "okugaba obulabo" For example, they used to gift their children with animals like goats, birds, and chickens when they did something extraordinary, and during the time serving food, they were gifted with extra portions of food which they refer to as "okuddiza" and after serving this child would be given the source pan which had a source to eat all the remaining soup, which they referred to as "okukomba essepiki". Novotney (2022) argues that Several scholars argue that gifting regulates the entire brain, which breeds pleasure, social connection, and trust, creating a "warm glow" effect on adolescents.

Among the Nubians, adolescents were gifted with their traditional wear called "kuru baba" "kikoi", and the Westerners were given traditional wear which is called "omwenda". These

presents would make the adolescents very happy, hence being psychologically well. In addition to presents, adolescents would receive words and actions of encouragement from elders, which boosted their psychological well-being. People from the central would praise children by saying,

“babi kulya balungi mirimu, olimbula bazinga, owanakati owenkeje...” which means or is interpreted as “Babi kulya balungi mirimu” means that it’s hard to feed children. However, they are helpful when it comes to doing tasks in a home. Olimbula bazinga means I will love you till your death.

“Owanakati, owekeje” These were popular sources among the people in the central area, and so they were used to praise the adolescents who would have pleased the elders. Being generous is not just loveable, caring and thinking about others improve adolescents’ psychological well-being and overall quality of life.

4.2 Love and affection

Furthermore, elders would treat the children with love and affection when they did something good, especially for the whole family. For example, among the people from the central region, whenever a child fetched water from the well, it was appreciated in a way that elders would help them remove the jerry can, pot, or container from their head peacefully without hurting them. This kept them in high spirits and, hence, psychologically well. Love is a strong pillar in supporting mental well-being. In the western region, children were rewarded with a carabash of milk, when ever, they did some thing outstanding. Additionally, still in the western region of Uganda, great importance was attached to virginity among young girls. A small goat and Herds of cattle were given to the to the family of the girl who got married a virgin, this inspired several girls to to keep their virginity without involving in fornication so that their families can also get the rewards when they get married virgins. This was the practice in all the regions. In relation to the above, divorce was unheard of because these children were prepared and orient well into adulthood and marriage. This was greatly done by the maternal aunties and uncles. Young boys were nurtured into responsible men by going with their fathers to rear the animals.

It has been demonstrated that love, compassion and joy boost human immune system, thereby empowering the body to fight against different diseases and infections. Powerful relationships have been seen in prognoses in chronic illnesses like cancer. This leads to a reduction in signs and symptoms of anxiety and depression. Schwartz (2022) explains that Science explains that warmth and affection expressed by parents to their children result in permanent positive attributes throughout the life of those children, hence their psychological well-being.

4.3 Words of encouragement

Among the Acholis from the north, adolescents were told words of encouragement to keep them robust, courageous and bold. This was not done in plain words, but they always told stories about elders who came before them; in these stories, they described how elders fought and killed big and strong animals like elephants. This would encourage them to be strong and bold in executing tasks, and with every success, they would get happy, which always left them psychologically well. Social support is a well-recognised protective factor for children’s mental health. While many interventions exist that seek to mobilise social support to improve children’s mental health, not much is known about how this can best be done Bauer et al. (2021).

Long ago, people in Uganda used the above and other words and actions of praise to appreciate adolescents, which has been reported to have ensured their well-being. For example “Babi kulya balungi mirimu, akwata empola atuukawala nawolovu atuuka ku kibuga.. ”. They also explain that social support, love, and affective words enhance people’s mental health (Bauer et al., 2021).

Making time for one’s child will make them feel that they are essential to you. Have fun while doing activities together, like watching a movie or playing games that they enjoy. Furthermore, research studies show that well-being is a combination of physical, mental, and emotional health. Well-being is also about fully engaging in life in all its various events and activities (Raising children.net.au), the Australian parenting website.

4.4 Entertainment through various forms of oral literature

Oral literature is the verbal form of literature that precedes the written form of literature. It is passed on from one person to another through word of mouth. Oral literature contains folk tales, ballads, dances, and myths, and they serve the purpose of educating the people. This was an everyday activity among various groups of people. For example, from the central, people used to compose songs. Elders would train adolescents how to sing and dance. They also used idioms referred to as “ebisoko” folk tales, “enfumo” and proverbs referred to as “engero”. For example, such idiom included the following in the table below:

Table 1: Idioms and proverbs employed by elders for children’s education

Original Phrase	Meaning
Akwata empola atuukawala.	Patience leads to success.
Akajja obunaku keemanya.	Your goals shape your attitude.
Enkolo tennyigwa.	The foundation is always crucial in everything.
Atalina mannyo mukama gw’awa ennyama.	Those without teeth are the ones whom god blesses with meat.
Ebibimba bikka.	Everything eventually comes to fruition.
Bugu bugu ssimuliro.	Rushing yields no blessings.

Being able to understand the idioms, explain the meaning of the proverbs, and answer questions correctly after listening to the folktales would give adolescents much joy, which enhances their psychological well-being. This is backed up by research conducted by the National Health Institute, which concluded that making time for your child will make them feel that they are essential to you. Have fun while doing activities together, like watching a movie or playing games that they enjoy. This is informed by the (National Center for Biotechnology Information, 2021).

Among the northerners like the Acholis, they had riddles and told stories of long ago. In these stories, they told the young and the youth of the successful stories and the way of life of their forefathers; they, too, taught adolescents the casual dances for their culture, which is referred to as “Lakaraka”. In the evenings, when at their grandparent’s place, they were exposed to a number of proverbs as a way of educating them; this was a source of entertainment which ensured their psychological well-being. This is informed by Rebecca Marcus, who emphasises that brain games are very significant in several ways; for example,

they improve focus, concentration and memory, they make individuals active and vibrant in their daily activities, and they may prevent age-related cognitive decline and dementia. Brain teaser games are also good for the brain. Research by Michael (2020) shows that participating in jigsaw puzzles boosts cognition and visual-spatial reasoning.

Like in other regions, adolescents from the north were always thrilled when they answered the riddles correctly, as well as learning their traditional dance and dancing perfectly.

On the side of the Nubians, adolescents were taught their traditional dance called the “duruka” dance, the westerner were taught their traditional dance called Ekitagururo for the Banyankole, Ekizino for the Bakiga, in the northerner region, children were taught Larakara dance, in the eastern region the Imbalu dance, and in the central region children were was taught Bakisimba Nankasa Muwogola to the adolescents as a way of entertainment, played different types of games, “Libu maama” that imitated the family setting, taught songs referred to as “Kungu” and danced the “duruka dance” while singing, they were also given time to play after completing their house chores. These helped to ensure that adolescents were psychologically well. This is informed by research findings that dance of any type gives physiological and psychological benefits to healthy and medically vulnerable populations.

Ensuring the psychological well-being of adolescents among the Western people was not far from the ways of the above people; they had various games like skipping, playing no ball, and imitating their parents, and this was supplemented by the stories from which they learnt a lot which was told around the fireplaces in the evenings. Brain teaser games are also good for the brain. Research shows that participating in jigsaw puzzles boosts cognition and visual-spatial reasoning Michael (2020).

4.5 Punishments

Adolescents were given punishments to show bad conduct and keep them on the right path. Growing up into a responsible, right person is a way the elders ensure the psychological well-being of adolescents. For example, among the central people, if a girl got pregnant before marriage, this was referred to as “kusoba” and was also called “amawemukirano” this girl would not share a bedroom with her young sisters, so she usually occupied an isolated room out of the main house. This would show the other adolescents in the home how they should behave around boys, which kept them psychologically well. In addition, the people from the central region would intimidate and scare adolescents to enhance good morals. For example, In the Kiganda culture, if someone committed suicide, they would beat the dead body severely and even burn the grave to show the rest and the children- adolescents that this is an evil act which should not be done.

Furthermore, in the Gisu culture, adolescents are given slight punishments after several warnings. Elders would wait for the adolescent to finish all the meals and punish them at night because they did not want the neighbours to know so as to maintain dignity and respect. Additionally, in the Gisu culture, adolescents were trained not to participate in early marriages because this would lead to a poor future. They were always told stories relating to fierce animals like snakes, lions and many others, telling them that the suffering and pain they would go through if they married early was similar to the pain they felt when these fierce animals beat them or struggled with them as the men they marry might neglect them with their unborn children. This is supported by different psychologists’ behaviourist theories, like B.F Skinner’s and Ivan Pavlov’s, which emphasise negative reinforcement to do away with bad behaviour.

4.6 Communal parenting (trained, supervised and controlled by the community)

Long ago, adolescents' psychological well-being was also ensured through training them to be patient, focused, and not to panic like among the Acholi. They connected adolescents to the maternal side for grooming. They were mainly connected to their grandmothers, who monitored their conduct. At their grandparents' place, they were given much love and affection, which made them psychologically well.

In the Gisu culture, the adolescents were exceptionally trained on how to do housework, house chores, and all other domestic work. Adolescents would support themselves to be independent, take good care, and become responsible citizens. Parents made sure that adolescents were aware of what they should not do as grown-up children and how to cope with the challenges of growing up. Adolescents were not shouted at, and their secrets or concerns were not shared with neighbours.

The impact of the above way of life is highlighted by Profe and Wild (2016, p. 1), who rationalise that "mother and closest grandparents' involvement were positively associated with prosocial behaviour of children. They further argue the importance of considering grandparents in interventions to promote adolescent mental health". Still, among the Acholi, children or adolescents were entrusted with the elders. That is, the boys with uncles and girls with aunts helped team them and grow into responsible adolescents, and this made them [adolescents] psychologically well. Social connections are cornerstones of health and well-being, and for adolescents, the connections with family, peers, and community have a critical effect on their development.

In addition, among the Nubians, adolescents were not allowed to talk or walk while eating; they were also not allowed to sit around when elders were talking, especially when they had a visitor. Collectively, the elders in the community ensured that adolescents respected this conduct. The approval from elders made them psychologically fine. Research strongly suggests that family remains a central influence in the lives of adolescents even as the importance of peers and the internet increases. Compared with less connected peers, adolescents who are connected to at least one parent experience fewer emotional problems, fewer suicide attempts, less conduct disorder, better school performance, higher self-esteem, and less involvement in violence and substance use.

4.7 Cleanliness

Adolescents were taught how to clean themselves and their surroundings. A case in point is the Acholis, who teach their adolescents domestic chores. A 2014 study published in the journal *mindfulness* found that participants who took part in 'mindfully' washing the dishes reported a 27% reduction in nervousness along with a 25% improvement in 'mental inspiration'. For example, a girl is supposed to be hard-working. Both the mother and the aunt train her in grinding, cooking, digging, and other domestic activities. Individuals who are stressed and anxious concentrate on doing household chores like organising drawers, washing dishes, or mopping floors, which can enhance mood and bring their level of anxiety down. What makes a mother proud is when her daughter knows all the domestic chores like smearing the floor (dark, black day, cow dung), which also makes adolescents psychologically well – learning all the chores and mothers being pleased with them made them psychologically well.

Among the Gisu, at ten years, the girls would be oriented about the different body changes they are likely to experience, for example, experiencing their menstrual periods, cleaning

their bodies, shaving their pubic hair, bathing some local herbs for giving them blessings and clearing their bodies, for example, brushing their teeth using eucalyptus tree and coffee plants, using ash powder, charcoal and clean water from the well. Hair in the bathtub can cause resentment and be a source of bad feelings, which is likely to impact your mental well-being. Another study in 2017, published in *The Lancet*, concluded that 30 minutes spent blitzing your home could reduce your risk of heart disease by one-fifth - as long as the chores require some physical exertion and the session lasts the entire half hour. A 30-year-old woman weighing 130 lbs would burn approximately 130 calories mopping the floor for 30 minutes or 85 doing miscellaneous housework.

4.8 Unity

People of long ago also used unit or togetherness to ensure adolescents' psychological well-being. Abdallah & Gabr (2014) contend that social support from family, friends, and others boosts the quality of life and acts as an essential protective mechanism against mental health problems. For example, Acholis used to sit in congregations and eat from one big bowl as a whole family; this bonded all the people in the family, which enhanced adolescents' well-being.

This was also a way of life among the Nubians who taught their children to play together to ensure unity; they also ate from one tray; this would make adolescents feel accessible around elders, and they were free to open up and share anything that may be bothering them hence ensuring their psychological well-being.

Among the westerners, to stay together, all family members, including adolescents, would visit neighbours, friends and relatives on important and public holidays. This helped them stay united, and the interactions made the adolescents happy, which made them psychologically well. Blum et al. (2022) support this idea when they say that social connections are cornerstones of health and well-being. For adolescents, the connections with family, peers, and community have a critical effect on their holistic development and, hence, improving their psychological well-being.

4.9 Feeding

Proper feeding also helped to ensure the psychological well-being of adolescents. For example, the Nubians gave Kisira and Talsa, their traditional foods, to adolescents, while the Westerners gave them milk, fruits, millet, porridge, yoghurt and others. The Gisu would eat Malewa, which grows naturally on Mountain Elgon, as a cultural meal. Lowry says that Most people think that diet and exercise improve the physical health of the human body. "Diet and nutrition is one of the main factors that influence mental health outcomes,"

Eating healthy and proper portions would make adolescents happy, hence making them psychologically well. In relation to the above arguments, studies have shown that nutritional counselling combined with a decrease in junk food and an increase in nutrient-rich foods such as legumes and fish can have a significant, positive impact on mood and well-being.

4.10 Celebrations

Celebrations played a significant role in making adolescents psychologically well long ago. For example, the Westerners celebrated all important days with their relatives' neighbours and friends. They always celebrated birthdays by keeping milk in a pot for a month, and on their birthday, it was given to children, which made them psychologically fine. Celebrations

among the Nubians were communal. Yang and Wang (2022) further explain that family rituals, family systems and subjective well-being are correlated in pairs, showing a significant positive correlation; Family rituals and family systems have significant predictive effects on the subjective well-being of college students; The cohesion and adaptability play part of mediating roles between college students' family rituals and subjective well-being (pg. 1). They celebrated Idd days. On Idd days, they ate plenty of food and visited neighbours, friends, and relatives from morning to evening; the excitement this came with gave adolescents much joy. Hence, they were psychologically well.

4.11 Cultural norms and practices were used to enhance adolescents' psychological well-being

The cultural way of life of different communities enhanced the psychological well-being of adolescents. They were given cultural wear, trained in the cultural way of life, prepared for marriage and the central people gifted girls who got married virgins. The Acholis also gave animals during marriages and praised their children for good conduct at marriage. For example;

In the central region, if a girl got married to a virgin, a piece of cloth without any hole was given to the girl's parents as a sign that they took good care of their daughter. This was a recognisable cultural award, a very prestigious sign to adolescents that helped them be careful around the opposite sex; adolescents who were able to behave in the right way were happy about their conduct, and this made them psychologically well. Furthermore, in the Eastern region, for example, the Gisu culture nurtured their adolescent boys into circumcision; that is to say, boys at 12 years would be introduced to circumcision (Imbalu). That is a must-do by all Gisu adolescent boys. This was carried out in a congregation while moving around the whole village, singing and dancing "akadodi" to inspire other young boys who were still infants and those who had not carried out circumcision yet. Some specific elders participated in this. Notable clans, for example, Ente (Ikhafu), Babikala, and many others, would participate in circumcising the young boys to help them become responsible men. In relation to the above, still, in the Gisu culture, adolescents were made to grow up as a community, and boys were allowed to build their houses at their parent's homes, but girls were greatly encouraged to get married. This way, children were trained to be independent. Girls would have a share of their parents' property and also their husbands'.

4.12 Talking about marriage and love stories

The Acholis talked about marriage and love stories. Parents would nurture their children into marriage, and they organised marriage ceremonies, where the groom's family would crawl a reasonable distance to the girl's family and ask for her hand in marriage. The girl's parents would say "ayekene" (I have accepted this man to marry my daughter). Every adolescent loved this cultural practice, and they all wished to grow and have this celebration. This related to a study by Arslan et al. (2022) concluded that reading stories resulted in positive change in learners' mindfulness, optimism, happiness, and positive emotions and also caused a reduction in depression, anxiety, pessimism, and other negative emotions over five weeks, with a small to large effect sizes. So, the process of growing up looking up to this ceremony made them psychologically well.

4.13 Cattle rearing

To prepare them to face the world, parents trained adolescents in economic activities like cattle rearing, which the Acholi trained their children to do. Learning how to rear animals and doing it right made adolescents psychologically well among the Acholi people. People from the West empowered adolescents both formally and informally with education by taking them to schools within their vicinity, and academic excellence made adolescents happy and, hence, psychologically fine. Additionally, in the Gisu culture, the adolescents would learn from their grandparents to rear cattle, which they used to sell all over East Africa for a living. Gisu also carried out agriculture; they would grow coffee, cassava, sorghum, bananas, yams, sugarcane, sweet potatoes and many others. Adolescents were also nurtured into growing and carrying out agriculture to help them have plenty of food to eat and to grow. The money from agricultural products would be used to pay school fees.

4.14 Agriculture (farming)

From the central and eastern, they taught people how to dig and farm both for cash and domestic purposes. Children were taught how to make art and design products, such as mats, necklaces made from beads, baskets made from banana fibres and banana leaves, handbags, decorations, and many other products. Children would enjoy the harvesting season. For example, in the Gisu tribe from eastern Uganda, girls would go with their parents to harvest; they used to enjoy the fruits and help them in picking and harvesting ready mangoes, oranges, and strawberries. They would eat the fresh fruits while harvesting and keep the rest in the store for sale and future use. Gisus also carried out agriculture; they would grow coffee, cassava, sorghum, bananas, yams, sugarcane, sweet potatoes and many others. Economically, the Gisu learned from our grandparents to participate in cattle keeping and cattle selling all over East Africa. We would use the money to pay school fees. In agriculture, we would grow coffee, cassava, sorghum, bananas, yams, sugarcane, sweet potatoes and many others.

4.15 Hunting

Hunting, especially for the boy child, would always go with his father to participate in the activity. This way, children would learn how to get enough meat for their families. Meat as sauce and a meal is used to enhance the happiness of the entire family, and children would really get very excited about eating meat at home. They would invite their friends from the neighbourhood to come and dine with them. For example, in Buganda, they even developed various sayings like "SSennyanya enku twokye ennyama," meaning collect firewood and roast our meat. Songola oluti ne tulya ku nnyama enjokye enjigge ewoomabulala, which can be translated as sharpening the stick and eating the meat because the roasted meat is very delicious.

4.16 Bark cloth making

In Buganda, in addition to the above, children were also taught bark cloth making; from this activity, they would give children beautiful bark cloth for putting on when they went for essential occasions like worshipping their small gods, for example, the god responsible for wealth and money was called Jajja Ddungu, the one for children Nabuzaana, the one for rain Musoke and Mukasa, for fortune Kiwanuka and very many other gods. What is more, they would also put on bark cloth as their piece of cloth in their everyday life, for bed sheets and blankets and presents, given as part of dowry during the marriage ceremony. To strengthen adolescents' relationships, they would always send a piece of bark cloth to their friends. This would significantly enhance the psychological well-being of their friends.

4.17 Fishing

Fishing was another activity taught to children to make them psychologically well. They would go fishing with their fathers and elders from different communities. They would come back home with fish. The fish caught would be used as a meal (sauce) and for commercial purposes. Children, especially adolescents, would enjoy fish because it made their meals delicious. This was carried out in most parts of Uganda. For example, in the central part of Uganda, the Baganda would go fishing in Lake Nalubaale (Lake Victoria). Young boys considerably followed the footsteps of their elders and also stood independently and fished for themselves.

4.18 Iron smelting

Iron smelting was another economic activity that was carried out in Buganda. They would concentrate on making products from Iron like forks, pots, cups, plates, jerricans, and saucepans. Adolescent boys enjoyed this activity very much because they would even sell some of these products or exchange them for another product which they did not have. This would significantly make them very happy; this activity was carried out communally. Boys would go with the male elders to enable them to learn how to fish. They used to enjoy fishing. The parents of long-ago maintained adolescents' well-being parents of long ago through training them to be religious. For example, the Nubians were constantly reminded and trained to thank Allah (Lord) and the person who cooked food. They gifted them with kanzus and hijab, which are religious wear. They also trained adolescents to praise god after eating food. Worshipping god made adolescents psychologically well, and the religious gifts supplemented this. Adolescents were always taught to praise god. They would go to the nearby prayer places; we were taught always to give charity in the church.

4.19 Children were indoctrinated into a custom of believing and worshipping their small gods

Worshipping their small gods, for example, the god responsible for wealth and money was called Jajja Ddungu; for example, they sing the one for children Nabuzaana, the one for rain Musoke and Mukasa, for fortune Kiwanuka and many other gods, Kibuuka was for warfare in Buganda, Namalere for Lakes, Muwanga for peaceful homes, and very many others. Adolescents would always be guided to believe in these small gods and seek refuge from them whenever they had any challenges. They were always guided to keep up praising their small gods whenever they were going to do any activity or event. The Gisu religiously would go to the nearby prayer places, and we were always taught to give charity in the church.

4.20 Practical Implications of the study

Traditional ways of making adolescents psychologically well resulted in higher academic achievements and lower behavioural and psychological problems among adolescents of long ago, unlike interventions for this generation, which have bred street children, school dropouts, early marriages and our adolescents imitating the Jamaican way of life which has affected the generation negatively.

Overall, indigenous interventions toward adolescent mental health focus on traditional methods such as maintaining order and discipline, shaping external behaviours through consistent rules, and upholding adult authority, among several other approaches discussed above, to enhance adolescents' psychological well-being. This suggests that the government,

parents, and all other stakeholders should adopt indigenous interventions toward adolescent psychological well-being. This will enhance discipline and respect for authority figures, establish structures, and produce morally and mentally healthy adolescents, unlike modern therapies, which have bled and witnessed several cases of mentally ill adolescents.

5 Conclusion

In conclusion, historical interventions such as storytelling, communal parenting, and cultural practices played a crucial role in ensuring adolescents' psychological well-being. These traditional methods offer insights that could inform contemporary approaches to adolescent development and mental health promotion. Adopting indigenous interventions may contribute to the holistic well-being of adolescents in modern society. Elders played a vital role in ensuring the psychological well-being of adolescents through various means, including social support, gifts, encouragement, and entertainment through oral literature. These practices were instrumental in nurturing resilient and well-adjusted individuals in the community.

The elders primarily ensured the psychological well-being of adolescents in the past. Elders trained, controlled, and nurtured adolescents to become responsible individuals. They gifted, praised, punished, and guided them along the right path, which helped foster a responsible community. Approval from the elders in all their endeavours, as well as making their parents happy, contributed to adolescents' psychological well-being. This is supported by findings obtained from a participant in the study who stated, "Psychological well-being means being praised in public, having positive remarks made about me, making my mother happy, and feeling content with whatever I do, which makes me psychologically well (happy). Even if I live in an impoverished house, as long as people are making positive statements about me, I will be thrilled. My mother resides in a mud house, but people praise her for her exemplary character (good character). I am perfectly content with living in a mud house with my entire family, as long as people are praising us for our good character" (Participant C, as cited in Personal Communication, 2023).

Historical interventions such as storytelling, rewarding and promising, using historical narratives, seeking refuge from their gods for happiness, employing proverbs and idioms, engaging in productive conversations with elders, and communal parenting were among the interventions used by parents in the past to maintain their children/adolescents' psychological well-being. These historical interventions could be revisited and utilised to help achieve and implement sustainable development goals in Africa.

6 Recommendations

- Further investigation into historical indigenous interventions for promoting adolescent psychological well-being across Africa is warranted.
- Additional research focusing on adolescents residing in African slums is necessary. Exploring socio-cultural approaches to enhancing adolescents' mental health could be instrumental in preventing mental illness.
- It is essential to re-evaluate our perception of slums through a socio-cultural perspective.
- Reconsidering traditional methods of nurturing adolescent psychological well-being can contribute to the development of academically proficient and well-rounded individuals,

thus aiding in the reduction of behavioural and psychological issues among adolescents from several generations.

7 Ethical considerations

- Institutional Review Board (IRB) approval was obtained from the Makerere University Ethics Review Board before data collection.
- Assent was sought from adolescent participants.
- The informed consent was obtained from guardians/parents.
- Participation in the study was voluntary and confidential; all the stakeholders signed the confidentiality policy.

References

- Abdallah, A. R., & Gabr, H. M. (2014). Depression, anxiety and stress among first year medical students in an Egyptian public university. *Int Res J Med Med Sci*, 2(1), 11-19.
- Alshammari, A. S., Piko, B. F., & Fitzpatrick, K. M. (2021). Social support and adolescent mental health and well-being among Jordanian students. *International Journal of Adolescence and Youth*, 26(1), 211-223.
- Arslan, G., Yıldırım, M., Zangeneh, M., & Ak, İ. (2022). Benefits of positive psychology-based story reading on adolescent mental health and well-being. *Child indicators research*, 1-13.
- Bauer, A., Stevens, M., Purtscheller, D., Knapp, M., Fonagy, P., Evans-Lacko, S., & Paul, J. (2021). Mobilising social support to improve mental health for children and adolescents: A systematic review using principles of realist synthesis. *PLoS One*, 16(5), e0251750.
- Blum, R. W., Lai, J., Martinez, M., & Jessee, C. (2022). Adolescent connectedness: a cornerstone for health and well-being. *BMJ*, p. 379.
- Creswell J. W., Plano Clark V. L. (2011). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Creswell J. W., Plano Clark V. L. (2018). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Harris, M. A., & Orth, U. (2020). The link between self-esteem and social relationships: A meta-analysis of longitudinal studies. *Journal of personality and social psychology*, 119(6), 1459.
- Health Status Calculator. (2024, February 22). HealthyLife.com. <https://www.healthylife.com/status-calculator>
- Jahn, T. (2008). The Jahn model for transdisciplinary research. *Journal of Transdisciplinary Environmental Studies*, 7(1), 1–15. Reprinted with permission.
- Kawalya, C., Munene, J. C., Ntayi, J., Kagaari, J., Mafabi, S., & Kasekende, F. (2019). Psychological capital and happiness at the workplace: The mediating role of flow experience. *Cogent Business & Management*, 6(1), 1685060.
- Kinyanjui, M. (2019). African Markets and the Utu-buntu Business Model: A Perspective on Economic Informality in Nairobi.
- Li, L., Cao, H., Yang, L., Yan, C., Wang, X., & Ma, Y. (2022). Risk perception and mental health among college students in China during the COVID-19 pandemic: A moderated mediation model. *Frontiers in psychiatry*, 13, 955093.

- Lyubomirsky, S., Dickerhoof, R., Boehm, J. K., & Sheldon, K. M. (2011). Becoming happier takes both a will and a proper way: an experimental longitudinal intervention to boost well-being. *Emotion, 11*(2), 391.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of general psychology, 9*(2), 111–131.
- Marshall, N. A., Park, S. E., Adger, W. N., Brown, K., & Howden, S. M. (2012). Transformational capacity and the influence of place and identity. *Environmental Research Letters, 7*(3), 034022.
- Maslow, A. H. (1971). *The farther reaches of human nature* (Vol. 19711). New York: Viking Press.
- McAdams, D. P. (1988). *Power, intimacy, and the life story: Personological inquiries into identity*. Guilford press.
- Michael E. DeBakey Department of Surgery. (2020, October 29). Healthcare, Mental Health.
- Musanje, K., Camlin, C. S., Kanya, M. R., Vanderplasschen, W., Louise Sinclair, D., Getahun, M., ... & Kasujja, R. (2023). Culturally adapting a mindfulness and acceptance-based intervention to support the mental health of adolescents on antiretroviral therapy in Uganda. *PLOS Global Public Health, 3*(3), e0001605.
- National Center for Biotechnology Information. (2021). The Influence of Parenting Styles on the Psychological Well-Being of Adolescents: A Cross-Sectional Study. *Journal of Child and Family Studies, 30*(11), 2925-2935. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8136658/>
- Schwartz, S. (2022). *Finding Eco happiness: Fun Nature Activities to Help Your Kids Feel Happier and Calmer*. Linden Publishing.
- Seligman, M. E. (2006). *Learned optimism: How to change your mind and your life*. Vintage.
- Seligman, M. E., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: empirical validation of interventions. *American psychologist, 60*(5), 410.
- Shapiro, S. L., & Carlson, L. E. (2009). *The art and Science of mindfulness: Integrating mindfulness into psychology and the helping professions*. American Psychological Association. PMA (2020).
- Yang, S., & Wang, W. (2022). The Role of Academic Resilience, Motivational Intensity and Their Relationship in EFL Learners' Academic Achievement. *Frontiers in Psychology, 12*. <https://doi.org/10.3389/fpsyg.2021.823537>

11. Indigenization of Career Choice Trajectory in Uganda: Drawing from the Curriculum Dilemmas at Education Transitional Levels

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Abstract

This paper showcases the need for indigenizing modern education to reflect on the local context so that the graduates fit within their environments. The paper argues that indigenous knowledge production stands to offer practical values, attitudes and direction for our learning institutions' career training agenda. The study employed a qualitative approach using an exploratory survey design, and it was conducted in central Uganda, drawing from 106 students' experiences at different education transitional levels. Using purposive sampling, final year students were selected from various levels of education: 30 from lower secondary level, another 30 from higher/advanced level, and 46 from university final years. The findings reveal that the elitist education curriculum continues to present serious problems and challenges to students and subsequent graduates. The findings further indicate a general myth that everything indigenous is presumed inferior. For this reason, most students aspire for university degrees regardless of whether that would be finally fulfilling. It is stressed that students who drop out along the career pathways are usually considered to be academic misfits. However, more findings showed that the majority of students only read to pass the exams. Owing to this, the study calls for the integration of sociocultural knowledge and context-specific approaches in the education curriculum to be responsive to the demands of the fast-changing world. This will enable students to graduate with environmentally relevant expertise to meet personal and national development goals. The findings offer a basis and an insight for education reformers in the new direction of contextualizing education.

Keywords: *White-collar jobs, local knowledge, Western education philosophies, curriculum reforms*

1 Background information

There is continued concern that the white-collar job curriculum introduced by the colonial masters remains alien to the African context and hardly leads to career satisfaction. Yet there is a variety of local "knowledge" and practices in every sociocultural setting that form the ground for indigenization. Indigenization is an attempt to customize the introduced education philosophies and approaches into people's lived realities (Sinclair, 2020). This harmonizes the foreign methodologies with the mainstream backgrounds of diverse local knowledge (Kagoda, 2009). Nonetheless, the inability to complement education curricula with emerging context-specific careers tends to put transformative practices in jeopardy (Reddy & Fadji, 2020). The current education system in Uganda, like in other former colonies, with its copy-and-paste approach to Western education philosophies, does not prepare candidates to meet emerging societal needs and demands. Nonetheless, it is largely disconnected from social, economic, historical, and cultural contexts. Considering enormous financial investments in education, it necessitates drawing from the merits of indigenous knowledge to make education programs more functional and relevant.

Indigenization of career choice trajectory means giving students an opportunity for careers that are tailored to solving real-life challenges in their respective environments. Moreover, indigenous knowledge is unique and presents the understanding and interpretation of the world specific to particular communities. It diverges from the Westernized global knowledge elitist model, which does not form the basis for addressing people's daily needs. In this case, it provides fundamentals in agriculture, health care, food preparation, and natural resource management depending on community needs and opportunities that can be harnessed (Lim et al., 2019). Career decisions should thus prepare students to confront immediate environmental concerns. Indigenous education, by its nature, was spontaneous and open to all in the study of arts: carving, masonry, clay, cloth making, building, construction, cooking, and home management, which made people productive in different societies (Kagoda & Sperandio, 2009). This attribute was entirely negated by modern education and requires deconstruction for reconsideration.

The world is gradually changing, including students at primary, secondary, and higher education institutions. An elitist education curriculum does not adequately respond to this pace of change in culture, society and technology. Today, education is aligned with the capitalist philosophy of modernization, which must be changed to meet the needs of the learner and society (Kagoda, 2017). This paradigm emphasizes economic developments based on biases and assumptions of modern education, disregarding the existing informal apprenticeship in blacksmith, backcloth manufacture, iron ore, and others (Duncan, 2022). The myth that indigenous Ugandans say they do not have an education is responsible for the current career dilemmas faced by students because it does not reflect on environmental concerns (Ampaire, 2022). Whereas attempts were made in Africa and Uganda in particular to reject improper colonial dominance at the dawn of independence, little was done to address inadequacies in formal structure which maintains the imperial legacy (Khushal, 2021).

Uganda is responsive to the need for curriculum reforms, which is unfortunately sponsored by those who continue to ignore local issues. It has severally voiced concerns on the curriculum's disconnectedness from the development goals of NDP III and Vision, 2040. The call for science agenda is to make education practical and appealing to the needs of communities. The National Science, Technology and Innovation Policy (2009) and National Science, Technology and Innovation Plan (2012/2013- 2017/2018) all reflect on the fundamentals of indigenous knowledge. The National Curriculum Development Centre (NCDC) is undertaking various efforts to orient the curriculum to national development needs.

Nonetheless, these changes have remained ad hoc on taught content because of the same theoretical ideology. The primary education curriculum was last expedited in 2007 with a change in subjects. In 2020, the lower secondary curriculum (LSE) was rolled out to make education relevant with a project-based methodology. It is hoped that by the end of 2024, a new curriculum for higher secondary education will be operational to absorb LSE graduates and address the development trajectory.

The disruption of indigenous knowledge has had bold consequences on students' career choices, and the hallmarks of the colonial perspective still permeate our education system today (Reddy & Fadji, 2020). Literature evidence points to some courses and subjects that are taught as a waste of resources (Byamukama, 2020; Nakkazi, 2014). The transition along education levels embeds scrutiny because students who fail to progress become education failures, an element that was nonexistent in the traditional African context. They likely lack the practical skills to harness the environment, which is tantamount to wastage (Ampaire et al., 2021). For instance, science is taught in theory, and graduates continue to spend money

on soap, salt, cooking oil, and other items they should be able to make in their 'project-based' learning. Relatedly, the white-collar job perception stigmatizes students who enrol in technical and vocational training as it is considered inferior.

For this reason, there are low technical enrolments, 1.2% at primary, 8% at ordinary, and 15% at advanced levels (UNESCO, 2019). Owing to this, competition for grades on alien-taught content lacks lenses of community rootedness and relevance. This paper showcases vital aspects of the indigenous fundamentals that could be incorporated into the current education to reimagine these pedagogical concerns. The research provokes debate to challenge the myth of neocolonial epistemological standards, generating solutions to the African context. Specifically, this study interrogates the strengths of indigenous knowledge in providing answers to the gaps in the current education model in Uganda and the education curriculum dilemmas at educational transitional levels in Uganda.

2 Literature review

There's considerable debate that modern education lacks connection with the native standard and its craving for a university degree as a sign of education success with cut-off points that drag students outside their career anchors. However, the Phelps-Stokes Commission on Educational Policy recommended its integration into Africa (Kallaway, 2020). So many courses like indigenous languages and cultural studies are despised, yet they are attained at a cost and with prospects (Ampaire, 2022). This plunges graduates into confusion, frustration and disappointment as they don't get employed or end up in what they never studied, which affects their productivity and career satisfaction (Ampaire et al., 2021). Evidence is replete that Ugandan graduates with degrees and masters are flocking to the Middle East for odd jobs as guards, maids, receptionists and *shamba* boys. However, the environment offers an array of rich opportunities which are left unexploited in most cases.

Any education that negates context-specific content is abstract and detached from reality. Moreover, the relevant model ought to analyze critically the environment as a major teaching aid, especially now that Western education has misrepresented the importance of indigenous knowledge (Ezeanya-Esiobu, 2019). This imposition of the Western epistemological paradigm with supremacy has culminated in the erosion of methods of knowledge for the natives (Root et al., 2019). However, the linkage of knowledge, skills, values, concepts, and attitudes learnt with environmental frameworks is a critical constituent of pedagogy. According to Smith (2019), the environmental setting is the first and best teacher.

Literature findings indicate that indigenous knowledge evolves naturally as environmental needs unfold (Sinclair, 2020; Matallana-Peláez, 2020). There is evidence that aspects of natural curriculum unfold from within communities and, therefore, cannot be understated (Bowman & Rebolleda-Gomez, 2020). Research findings by Kallaway (2020) and Kagoda (2009) reiterate that the curriculum that focuses on environmental awareness - plants, animals, agriculture, hygiene, nutrition, and economic environment - is functionally effective. If these fundamental aspects of life were incorporated into the training frameworks at various levels, students would be functionally effective and productive cadres (Kallaway, 2020). Before the advent of formal education, indigenous basic skills made individuals valuable in their socio-economic ventures for survival (Hamilton-Ekeke & Dorgu, 2015).

The current education structure based on students' selection, resources, and categorization of schools on the grounds of financial ability denies social mobility and perpetuates the

marginalization of certain sects of society (Afful-Broni et al., 2020). Similarly, the inequities presented by elitist education deserve to be challenged through indigenization (Khushal, 2021; Khalifa et al., 2019). Drawing examples from Ghana, Aboagye (2021) pointed out that inequities and wastage presented in colonial education have made some parents reluctant to enrol children in schools. This is because of its prohibitive costs and returns, which do not seem to justify the investment. A report by UNICEF (2020) stated that unequal school systems, characterized by many children failing to continue, tend to impair the life chances of young people and the future of the respective country. As it is today, the success of many children in education very much depends on where they are born and how wealthy they may be than the learning outcomes and nonexistent practical skills (UNICEF, 2020; Khalifa et al., 2019; UNESCO, 2019).

The current education prepares students for a white-collar job-seeking mentality and breeds inequities in the employment sector, unlike the indigenous curriculum, which trains the populace for productive work (Kallaway, 2020; Dupraz, 2019; De Haas & Frankema, 2018). In Uganda, for example, although there were some labour market opportunities created during the colonial era, they were unevenly distributed. These inequities can be mitigated by integrating the fundamentals of indigenous-oriented skills that will inculcate a job-making orientation in the young generation (Seed, 2020). Despite significant progress in literacy awareness on the continent, a large portion of the African population remains illiterate, yet it is an indicator of education success. In 2020, UNICEF reported that one in three people aged 25 and 64, and one in five young people aged 15 and 24, were illiterate. The same report revealed that the average adult literacy rate varies from 52% in Western Africa to 79% in Southern Africa. With almost one adult in two being illiterate, Western Africa has nearly a third of Africa's illiterate adult population. Adult illiteracy is also acute in Central Africa, where one in three adults is illiterate (UNICEF, 2019). Another report by UNICEF (2020) indicated that African countries have some of the highest out-of-school rates in the world, citing resistance to the Eurocentric-Western paradigms deeply rooted in systems, structures, and policies.

The myth that there was no education in Uganda and Africa as a whole and to consider indigenization as primitive deserves intellectual and policy challenge. After all, there is replete evidence that the world civilization began in Africa. The theory of deconstruction would be essential to challenge the colonial myth about indigenization (Kagoda, 2009). To perceive indigenous knowledge negatively is elusive and deserves critique with all the contempt to displace such absolutism. The circumstances in which colonizers enforced their own culture, ideology, and models of knowledge have since revolved in their setting and don't justify why other realities should continue being hidden. This calls us to rethink and reconstruct the curriculum that allows critical experiences to appear in training models where students relate to societal actualities as they make career choices.

3 Research methodology

The study employed a qualitative approach using an exploratory design, and it was conducted in the central region of Uganda. This region is a collection of all students in the country from diverse backgrounds, some of whom are alienated from traditional sociocultural settings. This could quickly draw views of the national character. A total of 106 final-year students were selected using purposive sampling from different transitional levels. These included 30 students at ordinary, 30 for advanced, and 46 university students. The students were asked to provide experiences on their career trajectory in relation to the formal curriculum.

An interview guide was developed to keep the discussion focused. The students were subjected to interviews for wide experiences. Interviews were preferred to provide a latitude of in-depth explanations of curriculum dilemmas. An introduction letter was used to access schools and attain permission. Each interview lasted for about 35-45 minutes. Participation was voluntary, and respondents not willing to continue were free to withdraw. The purpose of the research was explained, and confidentiality was assured.

Interview notes were transcribed into data sets, and all the content was collected from the field without editing. This was followed by six thematic analysis procedures presented by Braun and Clarke (2006). Finally, the findings were summarized to establish a flow pattern.

4 Findings and discussions

This section presents the findings and discussion concurrently. The presentation follows two generated themes: curriculum dilemmas and strengths of indigenous knowledge.

4.1 Curriculum dilemmas in Uganda

Elitist education continues to present students with curriculum dilemmas, which are organized according to the following sub-themes: education exclusion, relevance of knowledge, and career satisfaction, as shown in Table 1.

Table 1: Dilemmas at Education Transitional Levels

Exclusion nature of the curriculum	Freq	%
Some students fail to progress along different transitional levels	96	91
Students are forced to study what they are offered at school regardless of their passion	89	84
Many subjects are burdensome and do not contribute to the future career	78	74
Some schools are not affordable; they are for the privileged	86	81
Relevance of the Curriculum Knowledge		
Students read for the sake of passing exams and forget what is taught	106	100
Most students memorize content with little room for application	104	98
Employment after school is difficult to attain, and knowledge obtained has little relevance after school	92	87
Students are not bothered about skills acquisition but passing with better grades in examination	67	63
Career Satisfaction and Productivity		
Aspiration for a university education is a norm regardless of whether the course is rewarding	103	97
Education, in most cases, does not change status	93	88
There are general perceptions that anything indigenous is inferior	87	82

Source: Field Data

4.1.1 Exclusive nature of the curriculum

The participants indicated that education curriculum embedded exclusion at various transitional levels. The majority of the students (91%) ascertained that students fail to progress to further levels due to selection based on grades. This situation leads to a waste of resources as some students retreat to their villages with hardly any skill to harness the environment. For instance, students who drop out are considered failures because of limited or no skills attained while at

school. This may imply that the curriculum is segregative and does not offer levelled ground in life. These findings concur with Khushal (2021) and Khalifa et al. (2019), who argued that inequities presented by Western education deserve to be challenged through indigenization. The students who fail to transition to the next level entirely have no practical skills for survival. This depicts that the curriculum, with its methodology, is detached from the realities of communities. The majority of students, 84%, alluded they were forced to study what was offered at school regardless of personal aspirations and passion. This is due to selection, grading and cut-off points, which deny them schools, subject combinations or courses at the university of their preference. Therefore, some students end up in careers that are not of their choice and are more detached from what the environment offers, implying they are excluded from what they presume to be helpful in life. Quite often, students have no choice but to accept what is available, which sometimes puts them in abstract courses despised as wasteful even at the policy level. This is an example of a curriculum constructed by the contributions of students. The findings agree with Byamukama (2020) and Nakkazi (2014), drawing from Makerere University's experiences that some courses and subjects were a waste of resources. This is a dilemma because students interact with a curriculum that offers them wasteful avenues that lead to improvident ventures.

In addition, narratives from 74% of students showed they were studying many subjects, especially at an ordinary level, which was burdensome and did not add much. It was alluded that some subjects do not contribute to HSC subject combinations and university courses. Students stressed that some subjects hardly contribute towards tertiary education and do not translate into a productive work life. This shows the extent of redundancy within the content, which does not contribute to national development. This is in line with Ampaire (2022), who found that some students end up in courses on curriculum with little value in answering the questions of daily development needs. The findings from 86 students revealed some schools were for a certain cross-section of the populace. It was stated that even when some students pass unless with a bursary, such schools are unaffordable because of costs. This same situation evidently was reported at the university where expensive courses which were good are a preserve of who can foot the costs. Some students are meant to stay in poor schools even when they have the potential and good grades to enrol in so-called first-class schools. This is a typical legacy of colonial education, which had reserved schools for sons of colonial masters and chiefs. These findings support Ezeanya-Esiobu and Ezeanya-Esiobu (2019), who argued that the disruption of indigenous knowledge has serious consequences on students' career decisions. This implies that education is a prestige, not a right.

4.1.2 relevance of the curriculum knowledge

All the study participants indicated that they had read it for the sake of passing the exams. The motivation for revision was to score good grades in examinations. This shows that the intention of education was not to transfer knowledge for personal and societal benefit. At each transitional level, students take on subjects they have passed well during examinations. The findings concur with Masaka (2016) on the impact of colonial legacy in Zimbabwe, who revealed a disconnect between the applicability of the curriculum and community life. The theoretical and abstract nature of learning cannot be overstated in most African economies. This explains why the Uganda National Science, Technology and Innovation Policy (2009) calls for science education that focuses on creative thinking to promote industrial development. The majority of participants, 98%, mentioned that most of the taught content lacked

practical aspects and references to environmental concerns. However, a rich environment would provide relevant teaching materials and aids for learning. One participant remarked,

Some teachers abstractly relay content. They even encourage us to photocopy materials from books and read on our own. Even science itself is taught like history. What is learnt in one level may not add much to another level [University student]

This shows how limited the classroom content can be for the community sometimes. This points to the theoretical and exam-based centeredness of content that overshadows relevance to the immediate environment. This relays gaps in the institutionalized curriculum given divergent regional and community dynamics. These findings are supported by studies by Kallaway (2020), Hamilton-Ekeke and Dorgu (2015), who report that before the advent of colonizers, indigenous basic skills made individuals functional in their tribes and valuable in social economics. This calls for a context-specific pedagogy that is environmentally relevant.

The majority of the students (87%) intimated that employment was difficult to attain because sometimes the knowledge obtained is not relevant after school. Those who drop out along the way may not be different from those who drop out at primary seven apart from speaking good English. This shows how the curriculum is alien to students, as evidenced by the rampant unemployment levels. It is further demonstrated by graduates in odd jobs that would not have warranted heavy investment in education, like boda riding and Middle East brain drain. These findings are supported by UNICEF (2020) on the unequal school systems characterized by many children failing to continue, which tends to impair life chances and the future of the country.

4.1.3 Career satisfaction and productivity

Findings from almost all students revealed aspiration for a university degree regardless of whether it was rewarding. This is a perceived measure of career success. However, they mentioned that this was not concomitant with career satisfaction and productivity. Most students relayed that education success in Uganda was seen through the lens of attaining the highest-level qualifications for whatever course/program studied. This indicates that students are not so bothered about the skills, values, and competencies acquired but rather the superior qualifications prescribed by the set standards. This signals why some students enrol and pay for certain courses at the university, which are labelled 'lousy' for which even jobs are not available after graduation as long as it boosts their self-esteem. This situation has become an integral part of student's social life and career prospects. These findings are in agreement with Root et al. (2019), who report that the imposition of the Western epistemological paradigm culminated in the erosion of methods of knowledge of indigenous people. The appetite for the white-collar qualification has eroded the linkage of knowledge with environmental frameworks as a critical constituent of pedagogy.

The findings from 93/106 participants showed that the education framework does not prepare students for changed status. It was unlikely to answer questions of social mobility and address issues of poverty eradication. Issues of rampant unemployment among the youth were raised. The argument was based on the prominent farmers and traders in businesses who had no sound educational background. It was pointed out that sometimes students are forced to pursue courses and combinations even when not wanted because they are available in their career trajectory. These experiences resonate with findings that the curriculum broadly prepares job seekers (Kallaway, 2020; De Haas & Frankema, 2018).

The findings further indicated that 82% of students showed a general perception that anything indigenous was inferior. This attitude tends to affect the practical orientation of vocational

training, which would otherwise be helpful. These findings support the elitist philosophy, which disregarded people’s lived experiences with an intention to subdue the black population (Duncan, 2022). Similarly, Ezeanya-Esiobu (2019) noted that Western education eroded the originality of indigenous knowledge. The imposition of the Western epistemological paradigm with supremacy sent a perception that what is indigenous is inferior. This is supported by Nsameng (2006), who echoed that a push to adopt a Eurocentric universal view knowledge syndrome reduced experiences of worldwide humanity to a homogeneous, minority status in a marginalized manner.

4.2 Strengths of the indigenous knowledge

This section looks at the strength of indigenous knowledge, and the overarching theme is discussed under sub-themes of human needs-based pedagogy and inclusion of self-reliance skill frameworks as shown in Table 2:

Table 2: Strengths of Indigenous Knowledge

Human Needs-based Pedagogy	Freq.	%
Learning using context realities makes students experts in harnessing the environment	88	83
Societal transformation with social skills support development is possible	81	76
Learning from social and cultural contexts can minimize stigma based on course grading and vocational subjects	78	74
Inclusion for Self-reliance Skill Framework		
Every school attendant attains survival skills	77	72
Appreciation of apprenticeships which are productive	64	60
Differentiated roles along gender	52	49

Source: Field data

4.3 Human needs-based pedagogy

The study findings indicated that students appreciated the human needs-based pedagogy. The majority of participants (88/106) mentioned that learning based on context realities prepares graduates to be experts in utilizing the environment. This implies that by the time they transition to another level of education, students will have the skills that the environment offers. Attaining skills would make students productive and make learning less abstract. These findings agree with Lim et al. (2019), who reported that traditional knowledge provides a wide array of fundamentals for agriculture, health care, food preparation, resource management, and geography, depending on the community’s priorities. Therefore, there is a need to orient students to confront societal challenges. Similarly, 76% of the participants affirmed that teaching from a local context would lead to societal transformation with supportive social skills for development. This would make the curriculum rich and more relevant to equip students with skills to exploit opportunities in the environment. One student remarked,

We need practical and skill-oriented programs... so that one moves out of school ready to be productive. This way, graduates become job makers, not job seekers- so hopeless! Hands-on careers can lead to self-employment. [University Student]

These findings portray that students appreciate the need to change the current education system. This concurs with Hamilton-Ekeke & Dorgu (2015), who assert that a Eurocentric curriculum negates the indigenous basic skills that make individuals functional and relevant. The participants (74%) pointed to learning tailored to social-cultural contexts that could

minimize stigma towards vocational courses. It was mentioned that although practical education prepares learners to add value to society, many were hesitant to take that route because of stereotypes. It was indicated that skill-oriented education can open avenues for productivity. Therefore, we need to challenge the negative orientation and stigma based on theoretical training with grading. This is supported by Root et al. (2019), who noted that the imposition of Western epistemologies culminated in the erosion of methods of knowledge of indigenous people.

4.4 Inclusion of self-reliance skills framework

The study participants (72%) felt that any curriculum that embeds inclusion would result in school attendants attaining survival and relevant skills. These findings are supported by Bowman and Rebolleda-Gómez (2020), who argue for the need to uproot narratives of colonial legacies from our education systems. In addition, 64/106 students stated that environment-based teaching, if universalized, would make them appreciate apprenticeship. Apparently, some youths do not enrol in education because they feel it is not worth the investment. Hence, the need to rethink the curriculum model to address the apparent confusion so that learners can appreciate its value is necessary. This concurs with Dupraz (2019) that indigenized curriculum prepares and trains young people for productive work. This illustrates that youth who enrol in an indigenized education will, by design, develop relevant skills. There was a concern that the social values in the social setting of students provide biased gendered role differentiation that later spilt over to the world of work. Relatedly, some students (49%) expressed concern that girls tend to follow female role models while boys do the same with male role models. These findings, however, contradict Mtemeri (2019), who reported that some students in Zimbabwe did not agree to have been influenced by gender in their career decisions. This explains how some females have penetrated the traditionally male-dominated STEM academic fields, leadership positions, and the business arena (Afful-Broni et al., 2020; Kagoda & Sperandio, 2009).

5 Conclusion

The study focused on the need to align Uganda's education with indigenous knowledge of students' lived experiences, drawing from the challenges presented by the modern-elitist curriculum. It analyzed the theoretical, practical, and methodological frameworks from the indigenous epistemologies. Findings from literature and students' narratives indicate that education which distances itself from context has challenges and impairs them from realizing life goals. Alien education is responsible for school dropout-wastage and graduates that do not get absorbed in the employment sector. The students are not fully equipped to utilize the rich environment in agriculture, local medicine, craft, art and many others. Indigenizing is, therefore, long overdue to orient education to the community development needs so that graduates can be functional and effective in various contexts. Even when it calls for integrating vernacular instruction to suit the geographical and local setting so that those in coffee-producing areas are transformed into experts in coffee production, cattle keeping, fish mongers, cotton growers and so on as experts.

6 Recommendations

The study recommends that educationists and academia should undertake collaborative research to generate knowledge in the local context and interrogate the prevailing theoretical concepts to

challenge education assumptions that are heavily built on imperial legacies. This paper argues that since academicians are central to knowledge production, this should take an inductive theory approach to expose aspects of the mischiefs of Western education on the indigenous population to offer a firm ground for decolonizing education in Uganda.

The study also recommends that the government of Uganda, the Ministry of Education and planners in various anchors should redress and rethink the colonial and imperial perceptions in the national development agenda, which require a reconstruction of concepts through which modern inequalities and education challenges are rooted. Much as Uganda, for example, has expressed and appreciated the weakness of the current education curriculum in media, it has been slow in addressing and challenging these aspects. This study recommends that further education reforms the country undertakes should consider a rethinking of concepts and discourses that have colonial characteristics, including re-examining the colonial way of understanding formal education, which will open changes and chances for indigenizing the curriculum.

The study recommends approaches that will popularize native knowledge and local pedagogy. There should be deliberate efforts to decolonize the perception that everything Western is the standard and the line to pursue. This has bred the thinking that anything indigenous is inferior and not useful. The euro-centric system has nurtured the current academics occupying important offices who bring out this change. This poses the hurdle for such scholars to challenge a system that has made them despise the fact that the system has disfavored the majority and reduced them to destitution.

References

- Aboagye, P. Y. (2021). Inequality of Education in Colonial Ghana: European Influences and African Responses. *Economic History of Developing Regions*, 36(3), 367-391. <https://doi.org/10.1080/20780389.2021.1921571>.
- Afful-Broni, A., Anamuah-Mensah, J., Raheem, K., & Dei, G. J. S. (Eds.). (2020). *Africanizing the School Curriculum: Promoting an Inclusive, Decolonial Education in African Contexts*. Myers Education Press.
- Ampaire, A. (2022). *Career Stereotypes and Aspirations as Predictors of Students' Independence in Career Choice at Education Transitional Levels in Uganda* (Doctoral Dissertation-Makerere University).
- Ampaire, A., Kajumba, M. M., & Muwagga, A. (2021). Do Students' Career Aspirations Influence Their Career Choices? A Qualitative Survey of Advanced Level Secondary School Students in Uganda. *African Journal of Education, Science and Technology*, 6(3), 361-368.
- Bowman, M., & Rebolleda-Gómez, M. (2020). Uprooting Narratives: Legacies of Colonialism in the Neoliberal University. *Hypatia*, 35(1), 18-40. <https://doi.org/10.1017/hyp.2019.13>.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Byamukama, M. T. (2020). Social Workers are Not Useless, Irrelevant. *The New Vision* 31st January 2020.
- De Haas, M., & Frankema, E. (2018). Gender, Ethnicity, and Unequal Opportunity in Colonial Uganda: European Influences, African Realities, and the Pitfalls of Parish Register Data. *The Economic History Review*, 71(3), 965-994.
- Duncan, G. A. (2022). The Changing Face of Colonial Education in Africa: Education, Science and Development. *HTS Theologese Studies/Theological Studies*, 78(1). <https://doi.org/10.4102/hts.v78i1.7163>

- Dupraz, Y. (2019). "French and British Colonial Legacies in Education: Evidence from the Partition of Cameroon." *The Journal of Economic History* 79 (3): 628–668.
- Ezeanya-Esiobu, C. (2019). *Indigenous knowledge and education in Africa* (p. 115). Springer Nature.
- Ezeanya-Esiobu, C., & Ezeanya-Esiobu, C. (2019). Indigenous Knowledge and Curriculum in Africa. *Indigenous Knowledge and Education in Africa*, 1-10.
- Hamilton-Ekeke, J. T., & Dorgu, E. T. (2015). Curriculum and Indigenous Education for Technological Advancement. *British Journal of Education*, 3(11), 32-39.
- Kagoda, A. M. (2017). Appraising the Coverage of Gender in Geography Education in Uganda Secondary Schools. *Advances in Social Sciences Research Journal*, 4(11), 204-215. <https://doi.org/10.14738/assrj.411.3245>.
- Kagoda, A. M. (2009). Integrating Appropriate Indigenous Knowledge in the Geography Lessons in Secondary Schools of Uganda. *Current Research Journal of Social Sciences*, 1(3), 117-122.
- Kagoda, A. M., & Sperandio, J. (2009). Moving beyond the historical and cultural understanding of educational leadership. *Women leading education across the continent: Sharing the spirit, fanning the flame*, 49-56
- Kallaway, P. (2020). *The Changing Face of Colonial Education in Africa: Education, Science and Development*. Routledge. Maximillian
- Khalifa, M., Khalil, D., Marsh, T. E. J., & Halloran, C. (2019). Toward an Indigenous, Decolonizing School Leadership: A Literature Review. *Educational Administration Quarterly*, 55(4), 571–614. <https://doi.org/10.1177/0013161x18809348>
- Khushal, S. (2021). Review of Africanizing the School Curriculum: Promoting an Inclusive, Colonial Education in African Contexts. *Education Review*, p. 28.
- Lim, L., Tan, M., & Saito, E. (2019). Culturally Relevant Pedagogy: Developing Principles of Description and Analysis. *Teaching and Teacher Education*, 77, 43-52.
- Masaka, D. (2016). *The Impact of Western Colonial Education in Zimbabwe's Traditional and Postcolonial Educational System (s)* (Doctoral dissertation, University of South Africa).
- Matallana-Peláez, S. E. (2020). From Gender to Embolization: Toward a Decolonial Ontology. *Hypatia*, 35(3), 373-392.
- Mtemeri, J. (2019). Family influence on career trajectories among high school students in Midlands Province, Zimbabwe. *Global Journal of Guidance and Counseling in Schools: Current Perspectives*, 9(1), 24–35.
- Nakkazi, E. (2014). Universities Must Focus on Sciences, Not Useless Arts. University World News.
- Nsamenang, A. B. (2006). Human Ontogenesis: An Indigenous African View on Development and Intelligence. *International Journal of Psychology*, 41(4), 293–297.
- Reddy, V., & Fadiji, A. W. (2020). Learners' educational aspirations in South Africa: The role of the home and the school. *South African Journal of Education*, 40(2), 1–13. <https://doi.org/10.15700/saje.v40n2a1712>
- Root, E., Augustine, S., Snow, K., & Doucette, M. (2019). Evidence of Co-Learning Through a Relational Pedagogy: Indigenousizing the Curriculum through MIKM 2701. *Canadian Journal for the Scholarship of Teaching and Learning*, 10(1), <https://doi.org/10.5206/cjsotl-rcacea.2019.1.8006>
- Seed, R. E. (2020) 'Western secularisation, African Worldviews and the Church', in B. Van den Torren, J.B. Bangura & R.E. Seed (eds.), *Is Africa incurably religious? Secularisation and discipleship in Africa*, pp. 47-58, Regnum, Oxford.
- Sinclair, R. (2020). Exploding Individuals: Engaging Indigenous logic and decolonizing science. *Hypatia*, 35(1), 58-74. <https://doi.org/10.1017/hyp.2019.18>
- Smith, L. T. (2019). *Indigenous and decolonizing studies in education*. E. Tuck, & K. W. Yang (Eds.).

Routledge, Taylor & Francis Group.

Government of Uganda (2009). The National Science, Technology and Innovation Policy.

UNESCO .(2019). “Education in Africa.” Accessed 3rd August, 2023. <https://uis.unesco.org/en/topic/education-africa>.

UNICEF. (2020). Transforming Education in Africa: An Evidence-based Overview and Recommendations for Long-term Improvements A Report by UNICEF and the African Union Commission.

World Bank. (2018). *Facing Forward: Schooling for Learning in Africa*.

12. Initiation and Health Education: The Feasibility of Message Delivery Through a Traditional Cultural Channel

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Abstract

This article contains information relevant to studying how people deal with health challenges. It also documents dual agendas among collaborators and the community. It is a cautionary tale for planners of health and other interventions. Its late publication is connected to the life spans and public knowledge of two of the collaborators who, over time, have become neutralised. The purpose of this paper is to recount and elucidate a project to enhance the messages of initiation among the Abagusii community in Kenya. The methodology was operational and experimental, intended to determine efficacy and guide future interventions. The experimental intervention was highly successful. The managers were corrupt and misappropriated the funding. Future projects may succeed with proper financial controls. Donors and project designers or implementers should find ways to ensure the integrity of their work.

Keywords: *Initiation, indigenous knowledge, project design, corruption, Kisii culture, circumcision*

1 Background information

A portion of World Bank funds for AIDS and STD control through the STI project was allocated to local NGOs, CBOs and private companies. The Futures Group, through the HIV/AIDS Prevention and Care Project (HAPAC), administered this money. Donna Pido, a consultant social scientist, formulated the concept in 1993 and took this concept and proposal for the *Abasegi*¹: Initiation Sponsors' Education Project to Mansfield Management Services Limited, a Kisii-owned consulting firm. The Futures Group funded it as a research project to determine the feasibility of message delivery regarding HIV/AIDS during initiation.

Mansfield administered the funds. Pido, as Principal Investigator, did the research with six to eight assistants in spite of Mansfield's constant interference and non-adherence to the contract. From January 1999 to the end of the Project, Mansfield made administrative decisions independently of the research design, log frame and input from PI. Since completion, PI has not maintained contact with the collaborators or the community due to personal safety issues brought by Mansfield. In 1992, the AIDS epidemic changed with the introduction of Antiretroviral medications. The community adjusted to diminished energy levels, and work options accommodated this.

After three decades of observing absolute acceptance of messages delivered during initiation, PI guessed that compelling AIDS prevention messages could be spread effectively through the activities of initiation.

1 Initiation sponsor; see p. 19 for a full explanation

2 Contextual information on initiation

Initiation transforms children into adults under supervision through surgery, instruction, and ceremonies. The basic components are removing the initiate from society, a physical or psychological ordeal, seclusion, training, and replacing the person in society. It is a simple formula with many variations and possibilities for elaboration and simplification. It is also the entry point into lifelong continuing education.

Colonisers and missionaries in the twentieth century told Africans that their culture was terrible, triggering a separation of truth from its required replacement. Religion and government sides came together in the schools where students learned to conceal by behaving one way while believing their own.

The public, through the schooling system, has adhered to the compartmentalisation of knowledge, knowing that print and other mass media cannot be taken as seriously as messages and information delivered through vernacular channels. Messages delivered through initiation have ascendancy and retain their force throughout adult life.

3 Methodology

The project's objective was to explore the use of a cultural channel for the dissemination of AIDS self-protection messages. This knowledge would enable efforts to front-load young people before their sexual debut.

This qualitative study consisted of a data gathering and analysis component and a pilot IEC intervention followed by a final analysis. It was carried out through archival research and extensive participant observation, video, still and sound recording, and structured and unstructured interviews. The field component was conducted in the Mosocho and Marani Divisions of Kisii District until August 1999 and then narrowed to the Mosocho Division. There were several discussions/interviews with Kisii in Nairobi and South Nyanza. Workshops were conducted with staff, clergy, initiation sponsors, new initiates, parents, grandparents and health workers in attendance.

We recorded data in the December 1998 initiation season during attendance at initiation events in 15 families. All were in their rural residences. For the 1999-2000 initiation season, we recorded data only from the 27 families who had registered their attendant. We also recorded data in one hospital and several clinics where children went for their operations.

In August 1999, we held a two-day workshop for clergy, including the major churches in *Bogusii*² and some very small denominations. Mansfield cancelled the series of seven other workshops without consultation. From January to August 1999, we drafted and tested a new syllabus of messages that included accurate information about sex and gave the initiates behavioural guidelines to protect them and their associates from HIV.

In November 1999, we recruited initiation sponsors from 27 families in the Mosocho Division and conducted a training workshop. In December 1999, we conducted operational research during multiple initiation ceremonies. Data analysis and reporting took place in early 2000 in spite of intensified harassment by Mansfield.

Message development was based on two main premises: that we could provide children with enabling health messages before sexual debut and that the attendants would be able to deliver the messages.

Okwaroka initiation is a series of ‘jumps’ away from childhood toward adulthood. We used this as the cornerstone of Gusii culture, cooperation, and respect to build and integrate the overall messages.

Sponsors (*Abasegi*) delivered the new syllabus to their initiates during the initiation in December 1999. In January 2000, we held a debriefing workshop for parents, attendants and new initiates, with participation by health workers and one initiate who was circumcised in the hospital.

4 Findings

The findings of this study are presented hereunder using the key themes of the objectives of this paper.

4.1 Initiation and circumcision are conflated

Most people conflate initiation and circumcision. Circumcision includes a range of surgical genital modifications for boys and girls. Initiation is the ceremonial transformation of children into adults.

The conflation of initiation with circumcision for girls has caused misunderstanding, leading to denying girls an educational opportunity and women’s symmetrical social status to men.

In the logic of circumcision that says clitoridectomy cools libido, parents make a positive connection between the operation and abstinence from sex. Abstinence is one of the desired behaviours to avoid infection with AIDS, yet the health education community is telling people not to circumcise girls.

Male circumcision is also deemed to dampen libido and enable self-control. Indirectly, the conflation of boys’ circumcision/initiation with protection against HIV infection is beginning to have consequences in Bogusii. In other parts of Kenya, men began to believe that circumcision is ‘kingo kabisa’ complete protection.

4.2 Initiation is Alive and Well

Although drastically altered in some situations, the basic pattern of removal from the human community, reworking and returning to the human community as an adult human is thriving. We expected some rejection by the community, but the opposite was true.

On several occasions, participants in ceremonies exhorted PI to go back and tell the other Wazungu³ that girls’ circumcision is good. Several women wanted to make sure that PI got the best possible view and the best information to this end.

When we suggested introducing AIDS messages into the initiation process, the overwhelming response was a delight. There was great enthusiasm in general. Parents expressed relief; Grandparents were generally interested but were more reserved.

The few people who thought that it would be a waste of time were generally associated with the civil service in some capacity.

Community acceptance greatly exceeded expectations. Church leaders, assistant chiefs and village elders accepted and encouraged the community and us. Parents welcomed us. At our

last workshop in January 2000, parents asked to have the project continued and to include them more.

Our research design did not anticipate this response, and we were ill-prepared. Parents were profoundly relieved that someone would do for them what Gusii custom prohibits - talk to their children about sex and HIV.

4.3 There are many stakeholders/audiences in the initiation

Initiation is a community activity centred on the transiting youth. Everyone has a stake in it. The **initiates** have their future lives at stake. If they succeed, they enter adult life with their heads held high. Failure leads to mitigated status forever.

Parents and co-parents have an enormous social stake in ushering their children into adulthood. By initiating their children, they prove to the community at large that they are competent. **Siblings** of the initiates have a stake in keeping the household functioning while their siblings go through initiation.

Grandparents, as guardians of culture, are frustrated with their lack of knowledge about the AIDS epidemic. They know what their responsibilities to their grandchildren are, but they do not know what information can/should be passed on from their own knowledge or what they should take from the barrage of new information. **Other relatives and neighbours** are possibly burdened with jealousy or ill intentions and can cause supernatural or other problems.

There are basically two kinds of official **initiation attendants**. The *Omo-segi* for both boys and girls is the critical attendant, and the relationship is lifelong. The *Abasichi* assist the *Abasegi* in a trainee capacity. All of the *Abasegi*, *Abasichi* and attendants, in general, are generically called *Abateneneri*, the ones who 'stand up' for someone else. *Abateneneri* have a stake in getting their initiates through the process with flying colours. The **Chiefs** have a dual stake in ensuring that law and order are maintained and that people are able to conduct their ceremonies in the right way. Likewise, the **Churches** want to keep their hard-won flocks and keep the families close to church institutions while at the same time discouraging initiation as pagan. Only the Catholics seem able to accommodate initiation without much interference.

Schoolteachers have many problems associated with initiation. They have a stake in responsible children, but the frustration they encounter from October to December and through March is serious. When the new initiates come back to school in January, they are often arrogant and uncooperative. They mistreat their juniors and their uninitiated peers - now no longer peers.

4.4 Initiation is under attack from several quarters

In the 20th century, Gusii culture came under a two-pronged attack from a colonial government and colonial religions. Abagusii were hard-pressed to modify their culture in conformance with European and Christian 'ideals'. Abagusii confronted the churches by finding scriptural and doctrinal justifications for male circumcision. Girls' is not mentioned anywhere in the Bible. Historically, it was the gentiles' refusal to accept male circumcision that motivated Saints Peter and Paul to decide that Christians did not need to be circumcised. Throughout our work, we met people who wanted to be right with their church but were unwilling to give up either boys' or girls' circumcision.

For a century, *Abagusii* have been carrying on their culture while acting out what the churches and government have required. Everybody says what they think will get the authorities,

temporal and spiritual, off their backs and will enable them to continue doing what they, as *Abagusii*, must do. Many families deny that they will circumcise their girls. When we expressed neutrality, the families became much more welcoming.

Men and women were firmly committed to the circumcision of girls. We looked for *Maendeleo ya Wanawake* women but were told that these women were in disgrace and would not show their faces. Though the community is firmly committed to girls' circumcision, they ignore how it is done. They do not consider the amount of tissue that is removed.

In nearly every family we observed, our stand on girls' circumcision was raised. Fear of interference with the surgery held people back.

The linkage between the surgery and the transformation appears to have interfered with people's ability to continue meaningful initiation without the operation. We were told, but did not try to verify, that girls who had gone through the PATH/*Maendeleo ya Wanawake* training were later circumcised.

Since at least the 1980s, the government of independent Kenya has opposed girls' circumcision, also conflating it with initiation. Since then, the government has taken an official stand against girls' circumcision, perhaps under pressure from UNICEF and WHO. Initiation has come under fire as backward, primitive, and anachronistic, yet nobody knows how or when to define a person as an adult without initiation. Initiation without circumcision is nothing, meaningless. Nobody has attacked boys' circumcision.

4.5 Anxiety over money, alcohol, churches, government, witchcraft, and supernatural pollution is high

The initiation season is a time of great psychological, social and economic stress for all concerned. Some families are so badly off that they have their children circumcised in secret so as to avoid the impossible expenses. Families in our sample were very concerned about witchcraft being worked against their children or families because of jealousy.

The families' situation is impossible. If they do it wrong, they are damned socially and supernaturally. Doing it right brings impoverishment and invites negative supernatural manipulations by hostile friends, neighbours and relatives. There is a great fear of slip-ups causing ritual pollution that requires expensive cleansing, including the slaughter of an animal, which most families can ill afford. There is little concern for hygiene during the operations. The anxiety, the tension and the haste to get it over with lead to lapses of concern for the initiates' physical welfare.

4.6 There is a range of message delivery opportunities by audience and by event

Our experience during the pilot intervention indicated that we had focused too narrowly on the initiates and their attendants. Boys and girls are each expected to receive secret, gender-specific messages during their initiation. Neither gender dares to try to find out what the other is learning. This provided us with the perfect opportunity to introduce secret components into both boys' and girls' seclusion training. Data from both the 1998 and 1999 seasons revealed that boys are given anti-gender-equality (anti-gynanic) messages during their seclusion in the context of torture and hazing. Some of these messages are openly hostile to intergender communication and cooperation. Girls, on the other hand, receive few, if any, practical messages beyond those having to do with household management and how to be submissive to their husbands. They are quizzed on the names of plants but are not told or asked what their uses or meanings are.

Some of the most compelling messages of initiation are delivered in an atmosphere of physical stress, particularly during hazing or torture for the boys. The two crucial factors here are that the boys enter adult life with a painfully delivered but more precise, more pragmatic road map than do the girls. Since physical hazing has been so much a part of male training throughout history and with a wide geographical spread, we were interested to know just how crucial physical discomfort, pain and mutilation may be in making behavioural messages stick. The requirement for gender segregation and secrecy, however, opened opportunities for the pilot intervention to bring the desired messages couched as gender-specific secrets. The boys' segregated training session provided an opportunity to introduce Gylany to their minds and hearts through discussion and the exchange of ideas.

For the girls' segregated sessions, we brought two female trainers, a nurse with self-defence training and a lab technician who was a karate champ. They later reported that some of the mothers were asking for the same training for themselves. Female teachers in several schools also asked for this kind of training.

4.7 The channel lends itself to a broad range of messages

We were asked repeatedly to include messages about teenage pregnancy, early marriage, drug abuse, respect, honesty and crime, among other topics.

4.8 There are unfamiliar complexities to message delivery through this channel

Message delivery through initiation presents challenges to the health educator in part because it is, to date, an unorthodox approach in a field with fairly set methodologies. Delivery of messages during initiation cannot depend directly on print materials but can utilise them in preparation for the actual delivery

4.9 There were glitches in the intervention

- We assumed a narrow target audience
- We did not take other ceremonial occasions into account. The training time frame was too short and fell during a time when the whole community was 'worked up.' By the time we had our training syllabus ready, it was already November, and the initiation fever had begun.
- We assumed that there would be resistance to our proposed intervention. We underestimated receptivity to the idea and were not able to cater to the volume of interest we encountered.
- We did not detect the extent of folkloric understanding of HIV/AIDS until it was too late. We were equally unprepared for health workers' folklore, which quite astonished us, and we decided it was outside the scope of this study. We met several medically trained people, nurses and COs who had attended and been certified in HIV/AIDS awareness education by the government. In the course of many discussions, we discovered that a great deal of the content of their message delivery was folkloric and inaccurate and that these messages were delivered with the utmost sincerity and confidence. We also learned that these trained people were focusing on the non-sexual modes of HIV transmission, at least in part because of their own embarrassment and difficulty in discussing sexual matters.

5 The setting in Bogusii

Desperation permeates the atmosphere around both HIV/AIDS and Initiation in Bogusii. Parents are desperate because they lack the resources to do the job right and are conflicted as to what 'right' is. They are desperate that their clergy will frown on what they are doing, desperate that the chief will pop in and stop them from brewing beer or circumcising their daughters, desperate to protect themselves and their children from AIDS. They are desperate to displease their ancestors and to continue their line. The Churches are desperate because they have discovered that neither the clergy nor their flocks are following their messages.

The researchers found a society in which several factors constrain people from saying what they really think or from doing openly what they must do. People were questioning their roles and behaviours in the face of an epidemic that had forced a change in all the rules.

We found a system that was basically intact but changed in detail over the last few decades. Some would interpret this as a breakdown from a hypothetical point of pristine purity. This interpretation does not take into account that cultures and societies change regardless of historical events.

We looked at a point in a continuum and found that the institution of initiation was surviving a 100-year-long attack. This survival is in spite of what many of its adherents say in public.

6 Initiation as a channel

Looking at the situation through the lens of desperation to arrest the AIDS epidemic, we need to pull back and assess the possibilities and constraints, the advantages and disadvantages of pursuing initiation as a channel in AIDS education. The beauty of this channel is that, by targeting the initiates, it contacts all the stakeholders and, indeed, the entire community in a culture where action is communal and responsibility is not individualised.

The same compartmentalisation of knowledge mentioned above separates African knowledge from 'other' and diminishes its worth. Mutually exclusive settings and roles are categorised as 'primitive' and 'modern,' hospital and bush, and Christian and non-Christian.

This has led to health professionals' failure to recognise the utility of certain traditional channels of communication, initiation being the most notable. At the grassroots level in the homesteads, however, understanding is instantaneous.

Initiation is replete with rich message opportunities through songs, pronouncements, performances, costumes and implements. However, the context is complex and presents challenges to materials developers that may be best left to the communities with encouragement to innovate.

We were looking at a system of education that ensures continuity and the survival of the group by teaching under combined circumstances of high motivation and physical duress. High motivation makes the effort worthwhile, while physical duress acts somehow to make the lessons memorable and to ensure acceptance and adherence.

Gusii initiation, in keeping with a widespread tradition of initiation, ensures lock-step obedience to certain rules while at the same time informing choice and providing historical/mythological background for behaviour to round out a cultural context and develop a sense of appropriateness in identity.

A shortcoming of the initiation channel is that, in societies where girls' initiation has been abandoned or is being discouraged, females may not be accessible through this channel and may not have another channel of equal validity available.

7 Message options

According to reports and observations, the channel is acceptable, at least in the *Ekegusii*-speaking community. We have identified most of the reasons why this channel lends itself to inculcating AIDS-related messages.

We have no follow-up data or other information that can prove the channel's efficacy. All we have is the enthusiastic report of people we worked with who think this is a good idea.

References

- Ayiemba, H. E. O. (1986). Some Demographic Characteristics of the District. In Kisii District Socio-Cultural Profile. Gideon Were ed. Nairobi: University of Nairobi, Institute of African Studies.
- Bogonko, S.N. (1986a). Education and Training in Kisii District Socio-Cultural Profile. Gideon Were ed. Nairobi: University of Nairobi, Institute of African Studies.
- Bogonko, S.N. (1986b) History. in Kisii District Socio-Cultural Profile. Gideon Were ed. Nairobi: University of Nairobi, Institute of African Studies.
- Creeger, Senta (1999) Making the Cut. Independent Study Project, School for International Training, Nairobi.
- Eliade, M. (1958). Rites and Symbols of Initiation. Woodstock Connecticut: Spring Publications.
- Government of Kenya. (1969). Population Census, Government Printer, Nairobi.
- Government of Kenya. (1990a). *Oboene Igoro ya AIDS*. Nairobi: National AIDS and STD Control Program, Ministry of Health.
- Government of Kenya. (1990b). *Komenya na AIDS ime Yekenyo*. National AIDS and STD Control Programme, Ministry of Health.
- Government of Kenya. (1996). Talking to Your Patients/clients about AIDS and STDs. Kenya-Belgium STD Control Programme and National AIDS and STD Control Programme, Ministry of Health.
- Government of Kenya, Ministry of Finance and Planning (2000) Provisional Results of the 1999 Population Census. Nairobi.
- Kenyatta, J. (1953). Facing Mount Kenya: The Tribal Life of the Kikuyu. London: Secker and Warburg.
- Klumpp, D. P. (1976). Gusii and Education. Unpublished paper. Joint Program in Applied Anthropology, Teachers College, Columbia University New York
- LaFontaine, J. (1985). Initiation. New York: Penguin Books.
- Levine, R. & Levine, B. (1965). Nyansongo: A Gusii Community in Kenya. Six Cultures Series Volume II, John and Beatrice whiting eds. New York: John Wiley and Sons.
- Mayer, P. (1953a). *Ekeigoroigoro*: A Gusii Rite of Passage. MAN Volume 53, 1953, pp3-6.
- Mayer, P. (1953b). Gusii Initiation Ceremonies. Journal of the Royal Anthropological Institute, Vol. 83, Parts I and II, 1953, pp 11-36.
- Mayer, I. (1972). Gusii of Western Kenya. In Angela Molnos ed. Cultural Source Materials for Population Planning in East Africa, Institute of African Studies, Nairobi: East African Publishing House.
- Monyenye, S. (1977). The Indigenous Education for Abagusii People MA Thesis, University of Nairobi.

- Murdock, G. P. (1959). *Africa: Its Peoples and Their Culture History*. New York: McGraw Hill Book Company Inc.
- Nyansera, K. B. (1994). *Female Circumcision, Its Persistence Among the Abagusii of Kenya*. MA Thesis, Institute of African Studies, University of Nairobi, Nairobi.
- Nyamwaya, D. (1986a) introduction. in *Kisii District Socio-Cultural Profile*. Gideon Were ed. Nairobi: the University of Nairobi, Institute of African Studies.
- Nyamwaya, D. (1986b). *Health and Medicine*. in *Kisii District Socio-Cultural Profile*. Gideon Were ed. Nairobi: University of Nairobi, Institute of African Studies.
- Nyamwaya, D., & Bogonko, S. N. (1986). *Sagacity in Kisii District Socio-Cultural Profile*. Gideon Were ed. Nairobi: University of Nairobi, Institute of African Studies.
- Ochieng', W. R. (1973) *A Pre-Colonial History of the Gusii of Western Kenya*.
- Pido, D., & Jenniskens, F. (1993). *Report on Qualitative Research on Syphilis in Pregnancy*. Mothercare Working Paper #18, Arlington: John Snow International.
- Pido, D. (1996). *Report on the Jisimamie Campaign, Kenya Belgium STD Control Programme*.
- SunTzu (1981) *The Art of War*. London, Hodder and Stoughton.
- Turner, V. (1966). *The Ritual Process*. Ithaca: Cornell University Press.
- Turner, V. (1969). *Symbolization and Patterning in the Circumcision Rites of Two Bantu-speaking Societies*. In M. Douglas and P. Kaberry eds. *Man in Africa*, London: Tavistock Publications.
- Turner, V. (1974). *Betwixt and Between*. In *Betwixt and Between*. L.C Mahdi et. al. eds. LaSalle Illinois: Open Court.
- VanGennep, A. (1909). *Rites of Passage*. Paris.
- Volk, J. (1977). *An Analysis of HIV Misconceptions Among the Joluo, Abaluhya and Abagusii of Western Kenya*. Independent Study Project, School for International Training, Nairobi.
- Were, G. S. (1982) *Kisii District Socio-Cultural Profile*. GOK, Ministry of Planning and National Development and the Institute of African Studies, Nairobi.

13. Role of Indigenous knowledge in formal education: A case study of the Ateso Community

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Abstract

The success of any education system depends on its aims and content. Indigenous African education has its base on the immediate environment, real and imaginary, from which many things are learnt from the ecosystem. Before independence, the missionaries introduced Western education in Kenya, which, with time, started eroding the already enriched traditional education that was inherent in all the cultural settings of communities. It first got some resistance, but with time, most communities embraced it fully, shunning away many cultural practices and settings. This then provided avenues to learn many facets of knowledge. How, then, can the current formal education be enriched by indigenous knowledge (IK)? This study sought to investigate the Ateso cultural practices that can enrich formal education, the challenges faced and possible solutions to help incorporate IK into formal education. The study used structured interviews with fifteen head teachers and fifteen deans of studies from public and private secondary schools who were purposively sampled. Five village elders from the community were also informally interviewed. An ethnographic interpretive design was used, where, for some time, the researcher lived among the Ateso community and took part in cultural events. Data was then analysed thematically using statistical software. Failure by the current curriculum to address how cultural practices can be embraced in pedagogy, lack of creativity among education stakeholders, and Westernisation are among the challenges noted for failure to incorporate IK in formal education. Its application in pedagogy can help the learners appreciate other cultures and as well acquire indigenous knowledge which they can use for their daily survival. The development of an education policy on IK, appreciation of culture, and readiness to share knowledge are vital to making this a success.

Keywords: *Indigenous African education, cultural festivals, indigenous knowledge, community pedagogy*

1 Introduction

Indigenous knowledge systems are an essential resource that contributes to the increased efficiency, effectiveness, and sustainability of communities, especially in developing countries (Ayaa & Waswa, 2016; Ng'asike, 2019). They form the basis for community-level decision-making in food security, health, education and natural resource management in society. However, despite their critical role, indigenous knowledge systems need to be recognised more among rural communities in different parts of the world, including Kenya (Ng'asike, 2019). Endangered species recovery, habitat restoration, language conservation and maintenance, and the maintenance of traditional livelihoods can be a success if the traditional knowledge systems are adopted (Wilder et al., 2016). The authors encourage scientists to establish collaborations with indigenous communities to understand better the wealth of knowledge that they hold. The adoption of indigenous knowledge systems in formal education brings about a better understanding of the knowledge facets, hence better retention and appreciation of education (Cindi, 2021).

According to Ng'asike (2019), IK systems are still and will continue to be important in the modern world despite the Westernisation of education. Gartaula et al. (2020) note that IK helps

the youths to understand themselves, their environment and their heritage. Henri et al. (2022) observe that many persistent problems dealing with pollution, environmental degradation and food security in many countries have been solved through scientists incorporating IK. This makes the youth think of the careers they may take, eventually leading to employment (Hyatt, 2019).

Westernisation, strict legislation, lack of experts on cultural practices, destruction of cultural venues like forests or caves, and branding of some cultures have been noted as the factors that have made most people abandon their cultures (UNICEF, 2023). Kakonge (2017) observes that Africa is a vast continent with diverse cultures. This, he notes, provides a rich cultural diversity that can promote economic development if taken positively.

2 Statement of the Problem

The adoption of indigenous knowledge systems in formal education can go far in complementing formal education (Ng'asike, 2019). Unfortunately, indigenous knowledge and formal education seem to be far apart, especially in Africa, where Westernisation is deep-rooted (Horsthemke, 2021). The coming of missionaries and colonialists blew the concept of indigenous knowledge in disarray. The avenues where the communities used to meet to discuss socio-political issues were seen as unholy. The colonial governments discouraged all that used to be done in these “unholy scenes”, and as a result, the values that used to be inculcated started getting eroded at the expense of the Western culture. According to Ward (2020), by the 1950s, the Anglican Church in Teso produced an Ateso Bible and Prayer Book, suggesting that the community had already moved out of their way of worshipping before independence. Colonialism introduced a clash of cultures and radical changes in the value systems in Africa through Western education, Christianity, urbanisation, and a monetised economy (Kanu & Igboechesi, 2023). Kakonge (2017) and Ng'asike (2019) note that the knowledge sharing that was used to promote entrepreneurship, development, cultural affiliation, and belongingness was killed by Westernisation through the introduction of formal education and governance. As a result, the modern teacher needs help to fully appreciate and use IK as a complement to formal education (Byram, 2020).

This study investigated the extent to which indigenous knowledge is used to boost formal education in secondary schools, the challenges that the schools face, and possible recommendations that would improve its application as an avenue for learning and preservation of the community culture.

The objectives of the study were to investigate the application of indigenous knowledge by teachers in secondary schools, to establish the challenges that the teachers face in the application of indigenous knowledge in secondary schools, and to recommend how indigenous knowledge may be utilised in secondary schools as avenues for learning and maintenance of the Ateso culture.

3 Literature Review

The literature was reviewed under the key themes of the study as outlined hereunder.

3.1 Introduction of the Ateso Community

The precolonial Ateso were organised into territorial units called *itemwan*, which were the most significant political units. The age system was highly different from one part of the Ateso territory to another, but the rituals associated with retirement from the status of elder were

the same. The retired men could no longer marry and were believed to have privileged access to the divinity (Uganda Tourism Centre, 2020). These were considered as the knowledge domains in the community.

According to Vincent (2018), the Ateso believe in a divinity. Under missionary influence, many cultural aspects come to be identified with the devil. Ipara, the spirits of the dead, figured prominently in their lives. The Ipara would bring with them exotic spirits from other cultures who would harm or make ill the people they possessed (Ongodia, 2019). Ndeda (2019) observes that apart from the queer rituals, the Ateso are generally kind and warm people who are very hospitable to guests.

3.2 Definition of indigenous knowledge

Indigenous knowledge refers to the understanding, skills, and philosophies developed by societies with long histories of interaction with their natural surroundings. It is a complex set of knowledge developed around specific conditions of populations and communities within a geographic locality. It is integral to a cultural complex that encompasses language, resources, social interactions, and spirituality.

These knowledge systems are developed through a process of acculturation and kinship relationships that social groups form and are handed down to the younger generation through oral traditions and cultural practices (UNESCO, 2016). Kanu and Igboechesi (2023) view IK as a dynamic archive of the total of knowledge, skills and attitudes belonging to and practised by a community over generations. Through IK, communities have continued to thrive in beliefs, medicine, disaster management, community development, art and craft, education, communication and entertainment, farming practices, as well as versions of meteorology, astronomy, pharmacology, science and the inner world (Zvobgo et al., 2022).

The Constitution of Kenya recognises IK. Kenya's Traditional Knowledge and Cultural Expressions Act 2016 enables communities to control the use of culturally significant and economically valuable knowledge and expressions (Otieno, 2018; Mogos, 2021). This is done by creating a new form of intellectual property right (IPR) held by the community itself. The Act meets a Parliament's constitutional obligation to pass legislation ensuring that communities receive royalties for the use of their cultures and cultural heritage (Article 11(3)(a)). Kenya as a country is at the forefront of the global south, protecting national resources and the interests of local communities (Nelson et al., 2021). This movement is most active at the World Intellectual Property Organization (WIPO) in Geneva, which is currently debating a treaty to protect traditional knowledge and traditional cultural expressions. WIPO has encouraged countries to take the initiative nationally, as Kenya and Zambia have recently done (Katiba, 2020).

3.3 Importance of IK

Indigenous knowledge ensures no loss of language. As linguistic loss accelerates and traditional natural resource-based livelihoods decline, there is a concomitant loss of traditional ecological knowledge (Singh et al., 2022). This means that IK has a great significance in schools to avert this. Indigenous leaders teach youngsters about bio-cultural diversity (Wilder et al., 2016). This ensures that essential catchment areas are protected so that there is continuity in the community after the leaders pass to the next world (Aime & Robinson, 2023).

The passage of different cultures from one generation to the other was done through IK (Cole, 2019). Culture helps the community understand where it has come from, how it may improve

lives, better understand each other and improve connections in this world (Yadav, 2023). IK ensures the linkage of the living and the ancestral world. In traditional African societies, the spirits of the ancestors played critical roles. Some may be manipulated by human beings and cause harm to others, such as sickness and death (Ozioma & Chinwe, 2019). Spirits can possess religious specialists like diviners and give them essential information on how to handle society's problems. Village elders are well-versed in traditional medicine. However, unless they take full responsibility for documenting the diversity in their territory, there is the danger of all this knowledge getting lost. With the accelerating losses of biodiversity, habitats, and native languages, the study of traditional ecological knowledge of species and landscapes maintained by native nations has become increasingly significant (Odunlade & Okiki, 2018; Cowie et al., 2022). Maintenance of discipline was the responsibility of the community. Makwinja (2017) observes that traditionally, communities set standards, values, and norms to be followed and respected.

Youths in most African communities were taught IK apprenticeship, songs and dances, initiation ceremonies in which they were taught the secrets of society and mysteries of life, folk stories, proverbs, and riddles, among other methods. Dan and Kapoi (2018) observe that the Ateso community used to take issues of IK and education very seriously and would ensure that the knowledge was passed on to the next generation.

3.4 Hindrance to the passage of the IK to learners in secondary schools in Kenya

Masayi and Nderitu (2019) and Oboi (2017) observe that the academic curriculum in Kenya is examinations-oriented and that the teacher and the learner need more time for creativity. To program IK into the curriculum that would fit into the content required by the learners, a high level of creativity and time is required. Oboi (2017), in a study about the Ateso community, observed that there is excessive focus on good grades in schools, which is detrimental to the entire education system. The author notes that learners' good performance should not be achieved at the expense of their language and culture.

Mukonyi (2020) notes that learners in secondary schools come from different socio-economic and cultural backgrounds. This would mean that the teacher would need help incorporating IK in pedagogy. Ethnic communities in Kenya have different cultural practices and occasionally may contradict one another. Though this brings nationalism and better co-existence among the learners, it automatically translates to a situation where the teachers would rather play it safe than bring out a concept in indigenous knowledge (Mavole et al., 2017).

In traditional societies, education was largely informal, with parents predominantly teaching their children perseverance, self-control, courage and endurance. Kerubo (2016) and Ogbu (2019) observe that such parents inculcated good manners, norms and values into their offspring, using their household as the "school." This household education covered practical skills and continued as long as the child lived with his/her parents. The elders in the society were expected to play parental roles in teaching, scolding, advising, rewarding and punishing children in the community.

The modern parent in Kenya has been observed to be busy most of the time, hustling to make ends meet and having less time for the children (Njagi, 2017). The teachers who are expected to complement in parenting in most cases never went through the same system; hence, they may need help to play the role effectively (Madegwa et al., 2019). The learner, as a result, is left at the mercy of the house help and mass media.

Ng'asike (2019) observes that the curriculum used in schools is national and, hence, has yet

to include IK. It would then call for creativity on the part of the teacher to know what to incorporate into teaching. Oboi (2017) observes that teachers teaching in Tesoland are so obsessed with the academic performance of the learners and that some despise anything that bends towards the Ateso culture and, as a result, may not include such in pedagogy. Ndegwa (2018) laments that the method of instruction in African schools still reflects the colonial orientation that is devoid of African values and environmental factors. The study on the relevance of IK to teaching and learning is hence needed.

Akala (2021) observes that school teachers are so obsessed with curriculum delivery for excellent performance in the national examinations. These teachers received training from different colleges and universities that have different traditions. Only those who teach in primary schools were trained with the same curriculum training (Waweru, 2018). The application of IK is left to the creativity of the teacher, who often ignores it (Ndegwa, 2018; Masayi & Nderitu, 2019). Most traditional shrines where IK used to be taught have been destroyed either knowingly or unknowingly. Githuku (2018) notes that any traditional teachings that happened in these shrines were taken with more seriousness than those done elsewhere. Shiracko et al. (2016) observe that much critical medicine still needs to be discovered in the shrines where traditional prayers used to be held, and, unfortunately, modern youths are not aware of the same. Some of the shrines in Africa have been destroyed through climate change (Temudo & Cabral, 2023).

4 Theoretical framework used in the study

This study adopted the absorptive capacity of knowledge brokers as its theoretical framework. The theory sheds new light on the dynamics of knowledge obtained from external sources. In this context, it stresses the role of teachers working in schools. The benefit derived from the framework allows easier access to external knowledge, and therefore, knowledge providers must develop good skills to enjoy all innovation opportunities that are available to them appropriately. The framework builds on theoretical developments on the concept of absorptive capacity by Ziam et al. (2009). This is illustrated in Figure 1 below:

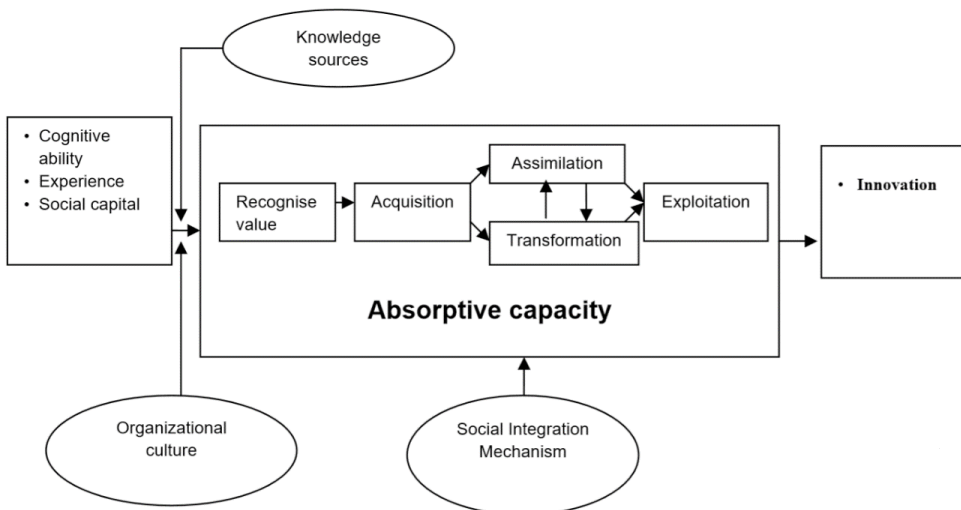


Figure 1: A Diagram of the absorptive capacity of knowledge brokers Theoretical Framework

Source: Ziam et al. (2009)

The framework involves teachers identifying relevant information and knowledge and acquiring it, assimilation, transformation, and exploitation. The teachers are to use the knowledge to transform the learners. This definitely requires innovation on the part of the teacher handling the learners.

5 Methodology

The research study used quantitative and qualitative paradigms. A survey approach was used to collect data from the secondary schools. The study population comprised school principals and the deans of studies from the fifteen sampled schools from Teso North and Teso South sub-counties. Five village elders also provided an in-depth understanding of the Teso culture. In total, thirty-five people were involved in the study.

The schools in the study were purposively and randomly sampled. The national and county schools were purposively sampled, while the rest were randomly sampled from both sub-counties. The study used both interview and observation methods of data collection. The study observed events as they occurred, especially the traditional events among the Ateso people. Data analysis was done using spreadsheet software.

6 Findings, Analysis and Interpretation

Objective 1: Application of IK in secondary schools by teachers

The majority of the teachers (66.66%) appreciate that there is an aspect of the Ateso culture that they can use in their daily teaching work. This suggests that they understand several aspects of the culture. One English teacher noted that she can use IK when teaching oral literature, especially narratives and folk songs. This would require the teacher to appreciate the culture first before using it.

The community has a culture day every 26th December, but out of the 30 teachers the study contacted, only 13 (43.33%) had taken part in the event. This is a day when the Ateso community showcases its culture and rich indigenous knowledge. The day marks the Ateso get-together, “Emormor”, always presided over by the King, where much knowledge is shared. The teachers interviewed noted that they need to see the significance of the Teso culture in day-to-day teaching and learning. They also observed that it comes after Christmas when most of them have travelled. The non-Ateso teachers noted that they do not see its significance to their way of life. The study found that the learners, especially those who live in Teso land, attended these events and reported that they were of value to them. They attended as individuals without any guidance from the teachers. If the school had organised the event, the learners would have learned a lot from it.

All the fifteen principals (100%) interviewed informed the study that the teachers have never made any request to them to have a village elder talk to the learners about their culture. However, they also noted that the Ministry of Education imposes severe consequences on them if they invite anyone from outside to come and talk to the learners. Often, teachers find themselves grappling alone to present an Ateso cultural piece. They either rely on e-resources or seek assistance from students who demonstrate a good understanding of the culture. At Bishop Sulumeti Girls School, there is an annual cultural day event where various communities represented within this extra-county school have the opportunity to showcase their culture. This includes demonstrations of traditional medicine, traditional dances, sharing of folktales, and displaying traditional attire.

Eight of the principals interviewed (53.33%) were from outside the community and had not visited a museum that is rich in Ateso culture, nor had they taken part in the Cultural Day. This could be the reason why IK is not appreciated in schools. The principals who had taken part in the cultural day observed that it would be very beneficial to the learners. On average, most teachers possess a comprehensive understanding of what is happening in Tesoland. Their strong connection with the environment enables them to acquire valuable knowledge that can be applied during teaching and learning across various subjects. This is shown in Figure 2.

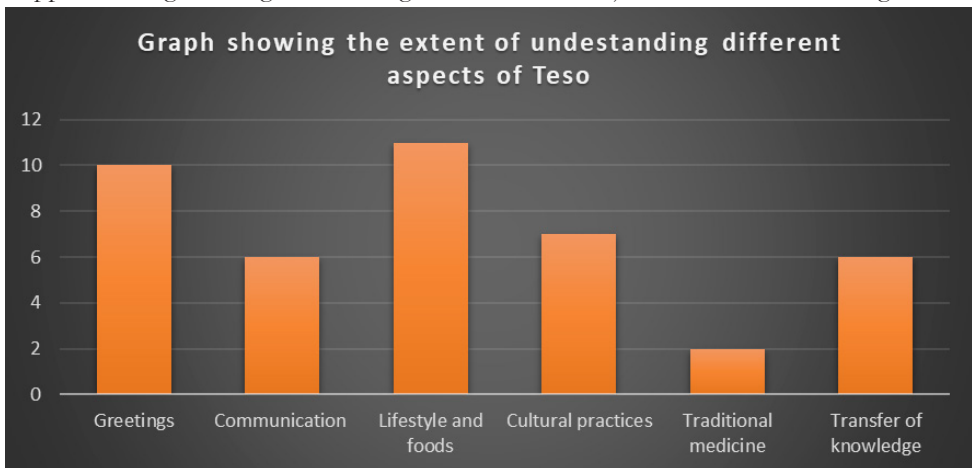


Figure 2: The extent to which teachers understand different aspects of Ateso Culture

This is an indicator that the teachers have a medium that they can use to tap the relevant IK that may benefit the learners. However, the unavailability of time, the demanding curriculum, and the fact that a majority of the subject teachers and principals come from outside the community may hinder its application.

Objective 2: Challenges that the application of IK faces in secondary schools

The study noted that the curriculum's demands are so extensive that there needs to be more room to consider incorporating cultural aspects to enhance teaching. The teachers noted constant pressure to complete the syllabus and then embark on revision. The majority of the schools (80.00%) were noted to set the target mean score for each subject at the start of the year, hence eliminating the need for the teachers to learn about their ecosystem through IK.

About 60% of the teachers were noted to come from outside the community; hence, they may need to see the significance of IK in pedagogy. Others noted that there needed to be more domain experts. Six principals (40.00%) lamented that getting a domain expert who is conversant with formal education and IK is complicated. This should be someone who will articulate issues of culture and link them to the curriculum.

Some teachers noted that the learners who speak pure Ateso language and who may help them understand it, especially those from outside the community, seem not to appreciate it. Some teachers lamented that learners prefer a trip outside Busia County to anything local, like the Kakakel Museum, which is rich with IK.

It was also observed that issues of IK should be assessed. Teachers tend to concentrate on what is assessed by the national examiner. As a result, they do not see the need to indulge themselves in issues that they feel are too local.

The graphical representation of the reasons given for not applying IK is shown in **Figure 3**.



Figure 3: Reasons given for not using IK

Objective 3: Recommendation on how IK may be collected and utilised in secondary schools.

The respondents observed that the school should have a cultural day where the different communities represented in the school showcase their culture to make the different communities appreciate one another. They also observed that the schools need to work with the community leaders to identify IK domain experts who would be invited to talk to the learners on cultural issues.

The good cultural practices of the Ateso community, such as storytelling, dances, traditional food and drink making, herb preparation, and animal husbandry, should be documented so that they are available in different formats and readily available for purchase in case a school needs them.

Each school has a club that promotes culture through cultural talks, music, drama, dressing, and herbs. The study found that *Aloe vera*, *Biden pilosa*, *Oxallis Spp*, and *Tagetas minuta*, which are found in most parts of Tesoland, have medicinal value. Such knowledge may not be available to the learners. However, by appreciating IK, the biology, agriculture, and geography teachers can pass it on to the students for the sake of future generations.

The respondents noted that the approved textbooks to be used by teachers as course books should have practicals that would allow the learners to do some assignments based on IK. These textbooks should also have examples of IK applications, such as pest and weed control, fractional distillation as done in *Changaa* brewing, and traditional medicine and herbs.

7 Discussion on the Findings

On the application of indigenous knowledge by teachers in secondary schools, the study found that most of the learners and teachers do not value only a few traditional activities done by the Ateso community. Learners and teachers must see the value of indigenous knowledge even if they are not part of the community. This feeling is supported by Ronoh (2018) and Shava (2016) but contradicted by Demssie et al. (2020) in their research on the same, who argue that many learners see value in IK, especially those in rural areas.

The challenges teachers face in the application of IK in secondary schools are many, but they can be overcome. Failure to assess the indigenous knowledge by the national examiner, which is the Kenya National Examination Council, and the lack of a policy on IK by the Ministry of Education escalate the challenges. This is as well seen by Madlela (2023) in his research on the same, who argues that the schools tend to concentrate on what is assessed and have little business with IK despite its importance in making the learners adopt survival skills in society. On the other side, Tanyanyiwa (2019) argues that many teachers still teach some IK even if it is not examined.

One of the ways in which IK can be made to become relevant and have proper roots in the education field is by having it embedded in a policy. The school administrations, teachers, learners and all education stakeholders would only appreciate IK if it were entrenched in a government policy. The approach of IK in schools should be made as practical as possible so that the learners and teachers can appreciate it even if they do not come from the community where it is being implemented. This argument is supported by Tanyanyiwa (2019) and Madlela (2023) in their studies.

8 Conclusion

Indigenous knowledge is affluent in content that can be used in curriculum delivery, but teachers and learners hardly appreciate it. This is brought about by ignorance, lack of awareness of its importance, traditional culture phobia and the pressing demands of the curriculum. However, it remains one of the main avenues for making the young generation appreciate their ecosystem and hence make better use of it for their future and the sustainable development of a country. It makes them well suited for society's survival, which is the key to the four pillars of education according to UNESCO, that is, learning to know, learning to do, learning to live together and learning to be. The four pillars are key to sustainable development.

9 Recommendations

- The institution's training teachers should incorporate the IK application in their curriculum.
- The teachers employed in a particular area need to do an assessment of the culture of the dominant community and identify IK that applies to pedagogy.
- Cultural clubs to promote IK need to be established in schools as avenues for showcasing cultures and their significance in formal education and survival in the ecosystem.

References

- Aime, E., & Robinson, D. (2023). "Indigenous biocultural rights and the Blue Mountains: Local and international policy challenges", *Geographical Research*.
- Akala, B. M. M. (2021). "Revisiting education reform in Kenya: A case of Competency Based Curriculum (CBC)", *Social Sciences & Humanities Open*, 3(1), 100107.
- Ayala, D. D., & Waswa, F. (2016). "Role of indigenous knowledge systems in the conservation of the bio-physical environment among the Teso community in Busia County-Kenya", *African Journal of Environmental Science and Technology*, 10(12), 467-475.

- Byram, M. (2020). *Teaching and assessing intercultural communicative competence: Revisited*. Multilingual Matters.
- Cindi, L. (2021). *Incorporating African Indigenous Knowledge Systems into the Basic Education Curriculum: Experiences from two schools in the Gauteng and KwaZulu-Natal Provinces, South Africa* (Doctoral dissertation, University of the Free State).
- Cole, N. L. (2019). *So What Is Culture, Exactly?*, ThoughtCo. <https://www.thoughtco.com/culture-definition-4135409>
- Cowie, R. H., Bouchet, P., & Fontaine, B. (2022). "The Sixth Mass Extinction: Fact, fiction or speculation?" *Biological Reviews*.
- Dan, A. D., & Kapoi, K. J. (2018). "Effects of changes in the use of indigenous knowledge systems on land cover in Teso Busia County, Kenya", *African Journal of Environmental Science and Technology*, 12(10), 384-396.
- Demssie, Y. N., Biemans, H. J., Wesselink, R., & Mulder, M. (2020). Combining indigenous knowledge and modern education to foster sustainability competencies: Towards a set of learning design principles. *Sustainability*, 12(17), 6823.
- Gartaula, H., Patel, K., Shukla, S., & Devkota, R. (2020). "Indigenous knowledge of traditional foods and food literacy among youth: Insights from rural Nepal", *Journal of Rural Studies*, 73, 77-86.
- Githuku, S. (2018). "African Spirituality and the Environment: Case of the Agikũyũ", *African Multidisciplinary Journal of Research*, 3(1).
- Henri, D. A., Martinez-Levasseur, L. M., Provencher, J. F., Debets, C. D., Appaqaq, M., & Houde, M. (2022). "Engaging Inuit youth in environmental research: Braiding Western science and Indigenous knowledge through school workshops", *The Journal of Environmental Education*, 53(5), 261-279.
- Horsthemke, K. (2021). *Indigenous knowledge: Philosophical and educational considerations*. Lexington Books.
- Hyatt, A. E. (2019). *Working together: Indigenous knowledges, urban youth, and mental health for career development*. University of Toronto (Canada).
- Kakonge, J. O., (2017). *The Role of Culture in Africa's Development*. <https://www.pambazuka.org/economics/role-culture-africa%E2%80%99s-development>
- Kanu, I. A., & Igboechesi, S. E. (2023). "African Society, Marriage and the Global Community", *Nigerian Journal Of Arts And Humanities (Njab)*, 3(2).
- Katiba (2020) *Traditional Knowledge and Culture Expressions Act 2016*. <https://www.katibainstitute.org/traditional-knowledge-and-culture-expressions-act-2016/>
- Kerubo, I. P. (2016). *African Indigenous Education as Practiced by the Maasai of Kenya* (Doctoral dissertation, University of Nairobi).
- Madegwa, B. M., Piliyesi, S. D. E., & Katundano, S. D. T. (2019). "Parental socio-economic background and students' academic performance in public secondary schools in Ikolomani sub-county, Kakamega county, Kenya", *Journal of Education and Practice*, 3(1), 15-35.
- Madlela, B. (2023). Prospect and challenges of integrating indigenous knowledge systems into the Natural Science curriculum in schools. *EUREKA: Social and Humanities*, (3), pp. 3–19.
- Makwinja, V. M. (2017). "It Takes the Whole Village to Bring up a Child: Discipline in Botswana Schools", *Global Active Learning Summit*, 15, 41-50.
- Masayi, P., & Nderitu, J. N. (2019). "An exploration of the effects of high-stakes examinations on the teaching and learning of computer studies in secondary schools in Kenya", *AEAA Journal*.
- Mavole, J. N., Okuku, M. T., & Ringa, M. G. (2017), "Learning Strategies and Students' Academic

- Performance in Secondary Schools in Makadara Sub County, Nairobi City County, Kenya”, *Journal of Research Innovation and Implications in Education (JRIIE)*, 1(3), 55-81.
- Mogos, A. (2021). “Revitalising Intellectual Property Right Protection for Traditional Knowledge and Cultural Expression in Ethiopia: A Lesson from Kenya”, *Oromia Law Journal*, 10(1), 120–159.
- Mukonyi, P. W. (2020). *Socio-Economic Conflicts Affecting Students’ Participation in Secondary School Education in Kakamega County, Kenya* (Doctoral dissertation, MMUST).
- Ndeda, M. A. (2019). “Population movement, settlement and the construction of society to the east of Lake Victoria in precolonial times: the western Kenyan case”, *Les Cahiers d’Afrique de l’Est/The East African Review*, (52), 83–108.
- Ndegwa, F. N. (2018). “Students’ Learning Challenges in Physics in Public Secondary Schools in Laikipia County, Kenya”, Retrieved from <https://ir-library.ku.ac.ke/handle/123456789/18896>
- Nelson, F., Muyamwa Mupeta, P., Muyengwa, S., Sulle, E., & Kaelo, D. (2021). “Progress or regression? Institutional evolutions of community-based conservation in eastern and southern Africa”, *Conservation Science and Practice*, 3(1), e302.
- Ng’asike, J. T. (2019). “Indigenous knowledge practices for sustainable lifelong education in pastoralist communities of Kenya”, *International review of education*, 65(1), 19-46.
- Njagi, P. K. (2017). Single mothers and parenting in Kenya: the case of Zimmerman. <http://erepository.uonbi.ac.ke/bitstream/handle/11295/101970/>
- Oboi, P. (2017). “Prohibition of mother tongue use among O’level students in Teso: Practices and perceptions of students, teachers and parents”.
- Odunlade, R. O., & Okiki, O. C. (2018). “Exploring the role of information managers in knowledge transfer and preservation among the ‘Elewe Omos’ (Indigenous herbal medicine practitioners) of the Yorubas in Nigeria”, *Information Impact: Journal of Information and Knowledge Management*, 9(4), 142-159.
- Ogbu, J. U. (2019). Socialisation: A cultural ecological approach. In *The social life of children in a changing society* (pp. 253–267). Psychology Press.
- Ongodia, S. P. (2019). “Literary Pedagogies and Teaching of Literatures Today”, *Hybrid Journal of Literary and Cultural Studies*, 1(1), 45-60.
- Otieno, M. A. A. (2018). “Consent, Decision Making and Dispute Resolution of Traditional Knowledge and Cultural Expressions under “The Protection of Traditional Knowledge and Cultural Expressions Act” in Kenya”.
- Ozioma, E. O. J., & Chinwe, O. A. N. (2019), “Herbal medicines in African traditional medicine”, *Herbal medicine*, 10, 191-214.
- Ronoh, J. C. (2018). *Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position* (Doctoral dissertation, Nelson Mandela University).
- Shava, S. (2016). The application/role of indigenous knowledge in transforming the formal education curriculum: Cases from Southern Africa. *Africanising the curriculum: Indigenous perspectives and theories*, pp. 121–139.
- Shiracko, N., Owuor, B. O., Gakuubi, M. M., & Wanzala, W. (2016). “A survey of ethnobotany of the AbaWanga people in Kakamega county, the western province of Kenya”, Retrieved from <https://www.researchgate.net/publication/324090982>
- Singh, A., Singh, R. K., Kumar, N., Kumar, S., Sheoran, P., Singh, D., ... & Sharma, P. C. (2022), “Adapting to Social-Ecological Risks to the Conservation of a Muskmelon Landrace in India”, *Sustainability*, 14(16), 9880.

- Tanyanyiwa, V. I. (2019). Indigenous knowledge systems and the teaching of climate change in Zimbabwean Secondary Schools. *SAGE Open*, 9(4), 2158244019885149.
- Temudo, M. P., & Cabral, A. I. (2023). “Climate change as the last trigger in a long-lasting conflict: the production of vulnerability in northern Guinea-Bissau, West Africa”, *The Journal of Peasant Studies*, 50(1), 315–338.
- Uganda Tourism Centre (2020). *Iteso People and their Culture*. <https://ugandatourismcenter.com/place/iteso-people-and-their-culture/>
- UNESCO (2016). *Learning to Live Together*. <http://www.unesco.org>
- UNICEF (2023). *Harmful practices*. <https://www.unicef.org/protection/harmful-practices>
- Vincent, J. (2018). “Colonial chiefs and the making of class: a case study from Teso, eastern Uganda”, In *The Colonial Epoch in Africa* (pp. 284–304), Routledge.
- Ward, K (2020). *A History of Christianity in Uganda*. <https://dacb.org/histories/uganda-history-Christianity/>
- Waweru, J. W. (2018). *Influence of teacher preparedness on implementation of the competency-based curriculum in public primary schools in Nyandarua north sub-county, Kenya* (Doctoral dissertation, University of Nairobi).
- Wilder, B. T., O’Meara, C., Monti, L., & Nabhan, G. P. (2016). “The importance of indigenous knowledge in curbing the loss of language and biodiversity”, *BioScience*, 66(6), 499-509.
- Word Web Online (2020). *Divinity*. <https://www.wordwebonline.com/en/divinity>
- Yadav, S. (2023). *Culture in Sociology (Definition, Types and Features)*. <https://helpfulprofessor.com/culture-sociology/>
- Ziam, S., Landry, R., & Amara, N. (2009). “Knowledge brokers: a winning strategy for improving knowledge transfer and use in the field of health”, *International Review of Business Research Papers*, 5(4), 491–505.
- Zvobgo, L., Johnston, P., Williams, P. A., Trisos, C. H., Simpson, N. P., & Global Adaptation Mapping Initiative Team. (2022), “The role of indigenous knowledge and local knowledge in water sector adaptation to climate change in Africa: a structured assessment”, *Sustainability Science*, 17(5), 2077-2092.

14. The Role of Indigenous Knowledge on Curriculum Development in Kenya: The Competence-Based Curriculum

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Abstract

Indigenous Knowledge (IK) forms a basis for learning and easy connections to real-life experiences, leading to self-realisation, creativity and innovativeness, and societal transformation across many sectors as required by the new competency-based curricula (CBC). Despite having a constitution and policies that address the Kenyan education sector, the development, integration and implementation of IK in the curricula remain a significant concern. This study sought to analyse the role of IK in CBC education, determine the extent to which IK has been integrated into the CBC curriculum, examine the challenges of integrating IK into the CBC curriculum, explore ways in which indigenous knowledge can be integrated into CBC curriculum, and; to provide recommendations on the same. The study employed a descriptive research design. The study was designed as exploratory research. Data was collected through content analysis of published documents based on the objectives of the study. The findings indicate that IK plays a critical role in education and is part and parcel of national development. IK has been factored in as part of the CBC curriculum. However, challenges in IK inclusion in the CBC curriculum, such as the use of foreign languages in favour of local languages in curriculum delivery and exclusion of local communities in national discussions on education curriculum in Kenya, among others, exist. The findings provide an insight into the role of IK in education in Kenya and its benefit to society, especially its application in education. It may make a significant contribution to realising and utilising indigenous ways to transform and preserve the practice and content of African traditions through education.

Keywords: *Indigenous knowledge, competency-based curriculum, education, Kenya*

1 Introduction

Indigenous Knowledge (IK) is the knowledge that is unique to Africa and knowledge that existed before colonialism (Risirio, 2019). In the context of this study, the traditional African knowledge of “know-how” is unique and transmitted through society. This view on IK reflects that of Alidou and Brock-Utne (2011), that IK revolves around the exchanges of a rich source of community know-how on economic issues surrounding a people. IK can provide knowledge on community resources and survival, both of which lead to sustainability for developing communities (Sergon et al., 2022). As opined by Owusu-Ansah and Mji (2013), IK is “empirical knowledge” based on a worldview transmitted through a culture of relations in a community with wholeness and harmony having deeply embedded cultural values. It is knowledge encompassing beliefs, taboos and rules that form part of the customs and laws of a specific group of people (Magni, 2017).

Emeagwali (2015) observes that IK as a practice involves the application of strategies and use of tools and techniques together with explanations of culture and its values and coupled

with the intellectual resources and beliefs held by people in a given locality for some time with little impositions and interference from outer forces. Further, it is learning and teaching through the accumulation of traditional or local knowledge by Africans over a period in response to their various economic, ecological, language, physical, sociocultural, and political challenges (Emeagwali, 2015). Kibe (2021) supports this view that IK is traditional knowledge exclusive to a culture or society on the basis of decisions and practices in conservation, food preservation, health, education and agriculture within a given community.

2 Rationale of the study

Indigenous Knowledge (IK) includes the practices, beliefs, expressions, experiences, understandings and insights over centuries into issues revolving around indigenous groups of people interacting in a given territory. These interactions are unique to the community as much as they may share specific values with other groups by virtue of being embedded in a broader, common culture. In all contexts, IK is the basis of indigenous governance, ecological stewardship, social, ethical, linguistic, spiritual, medical, food, and economic systems, as observed by people with unique and distinct identities and a sense of placement in the world. Unfortunately, as reported by Kibe (2021), Indigenous Knowledge (IK) has been either abandoned, defamed or suppressed by many people due to ignorance or arrogance. As such, the role of indigenous knowledge in the socioeconomic development of the people becomes unclear. Kibe further observes that in order to recognise the role of indigenous knowledge, the Kenyan Government has incorporated IK in its quest for the realisation of Kenya's Vision 2030.

The role played by IK cannot be underestimated, as noted by Sergon et al. (2022) that besides IK reinforcing the individual's or a community's distinctiveness, the beliefs and practices that IK holds can be credited for holding cultural solid and social obligation among members of a community to promote well-being. However, in the wake of colonialism and subsequent capitalism, IK practices, together with derived values, have continuously crumbled, leading to massive inequalities, poverty and ecological destruction. The most common ways that indigenous knowledge affects the quality of life of local communities are both ecological and sociocultural, and the generation and application of IK in ecology has enabled local communities to have sustainable environments, maintain productive livelihoods, and manage natural disasters through conservation and sustainable natural resources by well-developed codes of ethics. Indigenous knowledge is vital for sustaining or retrieving social and cultural values and cohesion in the face of nonindigenous pressures (Chepchirchir et al., 2019).

Alidou and Brock-Utne (2011), for example, observe that between 1,200 and 2,000 languages, multilingualism and multi-culturalism are the norm in Africa, but the same local language is considered a sensitive issue in Africa due to its history and the current neo-colonial relationship with their colonial powers, multi-lateral agencies and organisations. Alidou and Brock-Utne posit that multilingualism in Africa is widely perceived as a threat to national unity and the economy, leading national governments in African countries to adopt and justify the use of an official foreign language as its national language among the citizens, particularly in the educational setting. Consequently, the opportunity to build a quality education system is based on the potential of the majority of the population instead of a minority that masters the official language. This choice has resulted in a communication and knowledge gap between a small elite and the majority of the population.

Owuor (2007) observes that the paradigm shift to promote education for sustainable development gravitates toward alternative approaches to school curricula in Sub-Saharan

Africa. Owuor argues that solutions to problems that currently plague the continent and with reference to the Kenyan context must proceed from understanding local capacities, such as the role of IK in promoting sustainable development, including education. The reclamation and regeneration of IK is thus part of a broader, pointedly anticolonial struggle for indigenous resurgence. This approach challenges the dominance of Western knowledge in Kenya's school system and makes education disembodied from context. The dominating discourse on indigenous knowledge in the Kenyan education context, for instance, arises from the recognition of the need to address deficiencies of knowledge of development that are formulated in Western contexts.

Schools should have the most significant influence on improving society through educational programs and reforms; education is the primary instrument that can be used to inculcate a culture of IK in all its forms and must be designed and implemented correctly. As observed by Lumonya (2020), Kenya's current Competency Curriculum (CBC) and most curricula in sub-Saharan Africa are aimed at promoting education for sustainable development as an alternative approach to school. Competency-Based Curriculum (CBC) refers to the systems of grading, academic reporting, and instruction that are grounded on learners' ability to demonstrate having acquired the skills and knowledge that they are assumed to have learned through the education continuum (KICD, 2018). To address issues of the erosion and deficiencies of application of Indigenous Knowledge (IK) due to the currently formulated curriculum from the Western perspective, this study focused on the role that Indigenous knowledge plays in the CBC curriculum and its application in Kenyan schools.

The objective of the study was to determine the role of IK on curriculum development in Kenya with a focus on the CBC curriculum. The specific objectives of the study were to analyse the potential role that IK plays in CBC education, determine the extent to which IK has been integrated into the CBC curriculum, examine the challenges of integrating IK into the CBC curriculum, explore ways in which indigenous knowledge can be integrated into CBC curriculum and; to provide recommendations on the same.

3 Methodology

The researcher conducted exploratory research to gain a better understanding of the research problem, identify potential relationships, and generate hypotheses for further investigation. The researchers conducted qualitative research through content analysis since it was flexible and allowed them to gather insights and explore various aspects of the phenomenon under study. The researcher reviewed existing literature, including academic articles in various databases, particularly Google Scholar, books, reports, and other relevant sources. This helped the researcher to understand what was already known about the topic and identify gaps and areas that required further exploration. The researcher applied the exploratory research by focusing on the iterative issues and identified patterns, themes, and relationships to inform the inquiry.

Conducting the descriptive research design involved a systematic observation and description of the phenomena without manipulating variables or establishing causal relationships. The researcher defined the research objectives and clearly articulated the purpose and aim of the research to identify a particular behaviour, characteristic, event, and phenomenon regarding the topic of study. The researcher then analysed the data by summarising responses and identifying patterns and trends to interpret the results based on the research questions and objectives. Then, conclusions were drawn based on the findings. The researcher maintained objectivity, adhered to ethical principles, and addressed potential biases and limitations in the study.

4 Findings

The findings of the study are presented in line with the objectives provided below.

4.1 Role of IK in CBC education

By integrating Indigenous Knowledge (IK) in a classroom setup, especially science-oriented subjects, we can maximise the sociocultural relevance of education (Triyanto & Handayani, 2020). Indigenous knowledge can play a pivotal role in improving the development in developing countries (Chepchirchir et al., 2019) since IK provides the foundation for solving the problems in the local communities through education. The knowledge gained through IK can be easily assimilated and made accessible or applied in day-to-day activities in society. Chepchirchir et al. (2019) supports this notion by indicating that IK is the knowledge that communities can resonate with and that it grows and is perpetuated orally in specific societies from one generation to another.

Kibe (2021) indicates that the social pillar of a country's project development can be based on revising education and curricula, of which IK is anchored and plays a critical role in improving education systems through the utilisation of indigenous resources to teach. Kibe notes that through education, indigenous technology, which is part of Kenya's national heritage, will be mapped and exposed for economic growth. Consequently, there has been a strong drive towards recognising and affirming the critical role of IK in educational curricula.

Kamara (2005) also observed that in Africa, local communities have utilised local knowledge to help them in environmental management and coping with different environmental changes, meaning that the local people's knowledge can be integrated into the aspects of sustainable development, citing the use of IK in disaster prevention, food security and health management. Chepchirchir et al. (2019) agree that IK plays a crucial role in the socioeconomic of local communities, stating that in Kenya, the biggest economic sector is in line with IK, especially tourism and agriculture. IK assists in the development and management of a community since it is the basis for decision-making in politics, agriculture, health and, above all, education (Kwanya, 2015). From the foregoing, it is evident that IK is crucial in the development of communities and that IK can support educational programmes, which in countries like Kenya is a place for knowledge sharing.

4.2 Extent to which IK has been integrated into the CBC curriculum

The education systems in Kenya have integrated and are utilising local resources to teach in schools (Kibe, 2021). Education, indigenous knowledge, and technology are very much part of Kenya's national heritage and should spur economic growth. Kibe expounds that IK has stimulated the development of legal frameworks, especially by educational institutions like the University of Nairobi, which has an Act that advocates for the promotion and development of national cultural heritage through academic programmes. Consequently, there has been a strong drive towards recognising and affirming the critical role of IK in educational curricula.

However, according to Lumonya (2020), Kenya's curriculum and pedagogy have continued to embrace a worldview of Western culture and do so in Western languages, mainly in English, a factor that appears to hinder students' learning experiences. Kibe (2021) agrees that as much as IK has been integrated into agriculture, education and tourism projects, the integration of IK in environmental conservation, health, cottage industry, reconciliation and values is still inadequate.

Resenga and Ngulube (2019) posit that IK has constantly been subjected to prejudice and that African countries' contributions to the body of knowledge in IK are conspicuously missing in

publications like textbooks used in formal education. This issue continues to remain unknown. The various authors' discussions above point out a situation that is in the balance regarding the use of IK in education. Despite the revised CBC curriculum being adopted reasonably recently in Kenya, it still remains ineffective in implementing IK in schools. This may be attributed to a number of challenges.

4.3 Challenges of integrating IK into the CBC curriculum

The challenge facing African states such as Kenya is the capacity to define their paradigm of development if they are to expand their locus of authority out of the web of dependency on developed nations created by many years of colonial and foreign influence on education and development policies. Further, the current dominating discourse on IK in the Kenyan education context, for instance, arises from the recognition of the need to address deficiencies of knowledge of development that are formulated in Western contexts. With the integration of local knowledge that is more appropriate to the needs of the indigenous communities, it is hoped that local problems can be addressed effectively.

Lumonya (2020) also agrees that the accumulated IK systems in Kenya have not been accorded the much-needed concern that would raise their value to make it a central key point to the implementation and sustainability of the CBC. Lumonya argues that by excluding and marginalising IK in Kenyan schools and replacing it with the Westernised school context and further supported by African tutors who were taught and continue to teach using the Western curriculum with a distorted view of IK, there is no doubt that Africans possess little or no IK of value that can be utilised in the process of educational transformation. With such a mindset, even the introduction of new systems such as CBC continues to be characterised by the dominance of the Western knowledge system and the unwillingness to represent and apply local knowledge within formal education and socioeconomic contexts. As Semali and Kincheloe (2002) assert, indigenous knowledge is usually associated with the wild and nature. However, Chepchirchir et al. (2019) explain that in matters of sustainable development, IK is used to refer to concepts like indigenous technical knowledge, traditional environmental knowledge, rural knowledge, local knowledge and farmers' or pastoralists' knowledge. Matowanyika and Mandondo (1994) and Langil (1999) described the concept of IK in the African context as encompassing:

- Local systems that have been in use for a long time and are based on local languages.
- Systems that balance with the local environment, for example, traditional milk fermentation.
- Knowledge is prejudiced by novelties developing from within the community, not from the national and international communities.
- Indigenous people are defined as those communities that inhabited the country by the time of colonisation or establishment of state boundaries. These communities retain their social, economic, cultural, and political institutions.

This wide variation in the definition and understanding of IK may be construed negatively, thus probably explaining why African countries like Kenya are shying away from IK in favour of Western culture, especially in education.

The use of vernacular languages in education in African countries has been struggling to find an effective strategy that allows them to move from an education system inherited from

the colonial period to a more transformative and culturally relevant education system that takes into consideration African values and languages, specific sociocultural and linguistic backgrounds as well as particular educational needs (Alidou & Brock-Utne, 2011; Ng'asike, 2019). LSO is in agreement detailing the challenges of IK integration in the curriculum in Kenya through a study on the Turkana pastoral community in Kenya's right to education. Ng'asike explains the role IK plays and challenges in its implementation by explaining that despite setting high hopes for education, very few pastoral nomad children in Kenya transition from primary education to secondary education, arguing that the national Kenyan compulsory formal curriculum fails to accommodate the needs of pastoralist communities by integrating IK. Literacy rates are meagre among the Turkana people, resulting in an acute shortage of local teachers who comprehend Western knowledge, hence accelerating the situation.

Risirio (2019) reports that in their study on the integration of IK in the teaching of weather and climate in secondary schools in Zimbabwe, scholars in the country have acknowledged that the current education system in Zimbabwe has done very little to incorporate learners' social-cultural experiences just like other African countries including Kenya. The study revealed numerous challenges in integrating IK in schools due to factors such as lack of written texts given the oral traditions, the training of teachers, insufficient IK experts for guidance, teachers' attitudes and beliefs, assessment challenges and urbanisation. However, Risirio is of the opinion that these challenges should not detract from the decolonising project of integrating IK into the Zimbabwean Geography curriculum. Instead, the challenges should open up avenues for further discussion on including IK in the curriculum, recommending that the Ministry of Education should seek to address the challenges reported on the integration of IK that lie within the ambit of teaching, learning and assessment. This concept can also be adopted in the Kenyan context.

Kibe (2021) argues that the challenges inhibiting the adequate integration of IK in these sectors include IK property rights, national policies, the role of ICTs, controversial aspects of IK, and the tacit nature of IK. The Government of Kenya should identify and integrate relevant IK in its Vision 2030 projects to enhance the realisation of its social and economic pillars.

4.4 Ways in which indigenous knowledge can be integrated into the CBC curriculum

Ng'asike (2019) in a study involving "funds of knowledge" concept provides a framework for teachers' recognition of children's everyday household resources of the kind that families use for their livelihood. Examples are utensils, artefacts, farm materials, foodstuffs and all forms of cultural resources surrounding pastoralist households. Teachers use these household funds of IK to open up lesson planning to include a wider learning environment beyond what is stipulated in the prescribed standard curriculum (Alidou & Brock-Utne, 2011). The view that reflects the current practice in most African countries advocates for the continued use of the official/foreign language as the primary and ultimate medium of instruction throughout the entire educational system; the colonial vision of Africa, which should not and can no longer be the vision for contemporary Africa. Alidou and Brock-Utne (2011) advocate for the use of mother tongues or familiar languages as primary media of instruction and for the gradual introduction of the official/foreign language throughout the education system. Evidence-based recommendations for language-in-education policies and language use in education are made to support policy-makers and other stakeholders.

Indigenous knowledge can be integrated into the formal education system to address some of the knowledge deficiencies for development that are currently formulated from the Western

perspective. This approach challenges the dominance of Western knowledge in Kenya's school system and makes education disembodied from context. Therefore, the focus of an endogenous approach to education in Kenya should involve the following goals. First, it should aim to enable Kenya to maintain a balance between economic, sociocultural, and environmental issues that are unique to the country's local context. Second, it should challenge the hegemony of Western knowledge that has dominated Kenyan classrooms for many centuries. Finally, it should recognise the authenticity and legitimacy of indigenous knowledge and pedagogies and genuinely incorporate them into the formal educational system.

Alidou and Brock-Utne (2011). African countries have been struggling to find an effective strategy that allows them to move from an education system inherited from the colonial period to a more transformative and culturally relevant education system that takes into consideration African values and languages, specific sociocultural and linguistic backgrounds, as well as particular educational needs. Such a relevant and effective education strategy would be characterised, first of all, by the use of an appropriate medium of instruction, adequate teaching techniques, culturally adequate curriculum content, and sufficient financial and material resources. Kwanya (2020) has the same notion and explains that IK is localised and, as such, should be specifically adapted to the needs and context of the local community.

Chepchirchir et al. (2019). Furthermore, the evidence shows that using mother tongues as a medium of instruction throughout schooling improves the teaching and learning of the official/foreign language as a subject and will ultimately make it a better medium of specialised learning wherever appropriate. Such a change in approach aims to bring profound social change in terms of development and societal progress.

Ng'asike (2019) explains that Nomadic communities like the Turkana people rarely attract national discussions on education curricula even as their children continue to perform poorly on national examinations. The author of this article demonstrates the importance of integrating Indigenous knowledge and mother-tongue instruction in the curriculum for pastoralist schools. Based on his own research in Turkana County, he identifies two main problems besides the shortage of teachers, namely the inappropriateness of the materials used for instruction, which do not reflect the pastoralist children's local Indigenous culture and everyday environment, and the failure to use Turkana mother tongue in early childhood education, which would support children's literacy development, and thus serve to improve literacy rates in the community as a whole. For example, stories should be collected from parents and elders and made into storybooks, thereby creating tailor-made, meaningful instructional materials.

5 Conclusion

Indigenous knowledge plays a critical role in education and should be factored in when developing an education curriculum. Despite the challenges in IK inclusion in the CBC curriculum, Kenya still recognises IK as part and parcel of national development. As such, the education systems in Kenya and particular curriculum developers should embrace IK and have it integrated more in all sectors of education. The government through the Ministry of Education should involve all stakeholders of IK while developing curriculums. This will ensure proper and relevant IK integration in the education system.

6 Recommendations

The author recommends that:

- The government, through the Ministry of Education, should engage the IK and education stakeholders to develop a strategy for implementing IK in education. This would increase IK uptake in instructional materials in the education sector.
- Indigenous knowledge should be recognised as the original knowledge of Kenyan communities. As such, it should be incorporated into curriculum development and national development policies together with other scientific knowledge.
- Technology should be implemented alongside IK and not phased out. It should be used as a tool to enhance the integration of IK in education, harness, store, and disseminate IK.

7 Implications of the study

The author of this article hopes that this article will stimulate critical discussions on the application of IK in Kenya's education curriculum, which will respect the participation of local communities in making decisions about education policy. The government of Kenya, particularly the Ministry of Education and Kenya Institute of Curriculum Development can use the findings of this study to leverage IK on socioeconomic development through suitable educational programs. This paper relies on existing literature, but it has provided new perspectives on the topic. Hence, it is original in terms of scope and application.

References

- Alidou, H., & Brock-Utne, B. (2011). Teaching practices—Teaching in a familiar language. *Optimising learning, education and publishing in Africa: The language factor*, pp. 159–185.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Emeagwali, G. (2015). Intersections between Africa's indigenous knowledge systems and history. In *African indigenous knowledge and the disciplines* (pp. 1-17). Brill.
- Kamara, J. (2005). Indigenous knowledge in natural disaster reduction in Africa. *Environment and Poverty Times*# 3.
- Kenya Institute of Curriculum Development (KICD). 2018. Basic Education Curriculum Framework, Nairobi, Kenya
- Kibe, L. (2021). The Role of Indigenous Knowledge in Attaining Kenya's Vision 2030: A Literature Review. *Regional Journal of Information and Knowledge Management*, 6 (2),110-124.
- Kwanya, T. (2015). Indigenous knowledge and socioeconomic development: Indigenous tourism in Kenya. In *Knowledge Management in Organisations: 10th International Conference, KMO 2015, Maribor, Slovenia, August 24-28, 2015, Proceedings 10* (pp. 342–352). Springer International Publishing.
- Kwanya, T. (2020). Stigmatisation of indigenous knowledge: The case of night-running in western Kenya. *Journal of Religion in Africa*, 48(4), 376–392.
- Langil, S. (1999). Introduction to indigenous knowledge. *The Overstory Book: Cultivating Connections with Trees, 2nd ed.*; Elevelitch, C., Ed, pp. 8–12.

- Lumonya, J. S. (2020). *A critique of competency based curriculum: Towards integration of indigenous knowledge systems in Kenya* (Doctoral dissertation, University of Nairobi).
- Magni, G. (2017). Indigenous knowledge and implications for the sustainable development agenda. *European Journal of Education, 52*(4), 437–447.
- Matowanyika, J., & Mandondo, A. (1994). In the shadows of Mount Muozzi: Indigenous knowledge systems, as ecological prudence, in the sustainable management of a local common property resource comprising terraced mountain slopes in Nyanga District, Zimbabwe.
- Ng'asike, J. T. (2019). Indigenous knowledge practices for sustainable lifelong education in pastoralist communities of Kenya. *International Review of Education, 65*(1), 19-46.
- Owuor, J. (2007). Integrating African indigenous knowledge in Kenya's formal education system: The potential for sustainable development. *Journal of Contemporary Issues in Education, 2*(2).
- Owusu-Ansah, F. E., & Mji, G. (2013). African indigenous knowledge and research. *African Journal of Disability, 2*(1), 1-5.
- Resenga, M. J., & Ngulube, P. (2019). Indigenous knowledge in Africa: A bibliometric analysis of publishing patterns. *Publishing Research Quarterly, 35*, 445-462.
- Risirio, J. (2019). The challenges of Intergrating Indigineous Knowledge in the teaching of weather and climate in Geography in Manicaland Province of Zimbabwe, *Journal of Geography Education in Africa (JoGEA), 2*:30-46. Doi: <https://doi.org/10.46622/jogea.v2i1.2483>.
- Semali, L. M., & Kincheloe, J. L. (2002). *What is indigenous knowledge?: Voices from the academy* (Vol. 1191). Routledge.
- Sergon, P. J., Akoth, S. O., & Dzinekou, J. Y. (2022). The role of Indigenous knowledge: practices and values in promoting socioeconomic well-being and equity among Endorois community of Kenya. *AlterNative: An International Journal of Indigenous Peoples, 18*(1), 37-45.
- Triyanto, & Handayani, R. A. D. (2020). Prospect of integrating indigenous knowledge in the teacher learning community. *Diaspora, Indigenous, and Minority Education, 14*(3), 133-145.

SECTION FOUR:
INDIGENOUS
LANGUAGES AND
COMMUNICATION

15. An Analysis of Scientific and Technical Terminologies in Indigenous Language Television: A Case Study of the Program "Penj Laktar"

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Abstract

The realisation of sustainable development goal 3: Health and well-being remains an elusive dream for most countries. One of the barriers to its achievement in Kenya is inadequate access to health services. Indigenous language media have been touted as the best vehicle for communicating development matters as they are the most commonly spoken and understood by the most marginalised communities. However, inadequate scientific and technical terminology can hinder effective communication. This paper seeks to show how scientific and technical terminologies are presented on the program "Penj Laktar" on Ramogi TV, an indigenous language television station in Kenya that broadcasts in the Dholuo language. It is a qualitative study with a case study approach. Data from 10 conveniently selected episodes were collected through observation, coded, analysed and presented descriptively. Results showed that the use of English was predominant in reference to diseases and medical conditions. However, the presenter and visiting doctors also employed strategies to explain medical terminologies in Dholuo. There was also evidence of terminological development and a commitment to language growth by the media house. These findings could help Media houses review their use of medical terminologies in the Dholuo language, thereby improving communication with the target communities and access to health information. The study provided a rare East African perspective of indigenous language media. It further showed that Indigenous language media can adapt and are adapting to science and technology. To further develop medical terminologies, media houses should collaborate with medical professionals.

Keywords: *Indigenous language media, health communication, scientific and technical terminologies*

1 Introduction

The United Nations has identified good health and well-being (SDG 3) as one of the 17 Sustainable Development Goals (SDGs) to be achieved by 2030. Good health and well-being are fundamental to any other type of development.

Despite significant gains made over the years, the world continues to grapple with a myriad of health challenges, and Kenya is no exception. These issues include the high cost of healthcare and inadequate health personnel, especially in rural areas (State Department for Planning, 2019). This means that the rural poor remain marginalised in terms of access to healthcare.

Language is a means of human communication necessary for all kinds of human activity, including development. The choice of language and how it is used are important factors in development. In the health sector, language and cultural differences between health professionals and community members have been cited as barriers to effective communication (Owolabi & Nurudeen, 2020). There are currently about 7000 languages in the world (Ethnologue, 2023). English and French are more dominant at international and even country

levels. On the other hand, there are over 4000 indigenous languages in the world (United Nations UN DESA policy brief No. 151, 2023). These indigenous languages are marginalised and hardly used in public spheres.

The United Nation's Sustainable Development Goals seek to promote inclusivity as encapsulated in their slogan "leaving no one behind". In Kenya, despite the existence of over forty indigenous languages (Ondondo, 2020), only Kiswahili and English enjoy the status of official languages. English is mainly spoken by the elite, educated, and urbanised. Although most Kenyans speak and understand Kiswahili to a certain extent, the majority have another language that they speak and understand better. The dominance of English and Kiswahili over other (indigenous) languages is contrary to the spirit of SDGs as it ensures that those who use these indigenous languages are left behind. These are often the most vulnerable, predominantly rural, with little or no education (Orao, 2012), and who happens to be the most in need of development. Language can, therefore, be a tool of exclusion or inclusion and can impact the realisation of SDGs.

Indigenous languages are necessary for communicating with local communities within the context of development projects (Ondondo, 2020). Unfortunately, the role of indigenous languages in social and economic development has been largely ignored or downplayed by the government (Orao, 2012). Such indigenous languages can be used to enhance community participation in development activities (Ondondo, 2020) through face-to-face interactions but also through the media.

Thus, the media have been proposed as one of the measures to curb Kenya's health challenges (State Department for Planning, 2019). Media can help bridge the country's health divide by producing programmes that could enhance access to health information, leading to better preventative health care. They could also increase awareness of diseases, thereby prompting viewers to seek further medical help.

Mainstream English-language media are urban-centric and elitist and, therefore, not the most convenient vehicle for reaching rural populations (Owolabi & Nurudeen, 2020) for development purposes. Indigenous language media are, therefore, the most suitable vehicle for communicating development messages (Ondondo, 2020). The media have the advantage of reaching huge segments of the population in a short time. Combined with indigenous languages, they have the potential to catalyse the realisation of SDGs.

Despite this potential, indigenous media studies have been largely ignored by scholars (Tshabangu & Salawu, 2022). Existing studies on indigenous media in Africa have mainly concentrated on the print media, with the electronic media, especially television, underrepresented. Such studies have also been heavily tilted towards South Africa and Nigeria, with very little from the rest of Africa.

In Kenya, TV viewership is on an upward trajectory, having risen from 58% in 2021 to 80% in 2022 (Media Council of Kenya, 2022). Ramogi TV, which broadcasts in the Dholuo language, was the second most-watched vernacular TV station in 2023 (Media Council of Kenya, 2022) and the eighth most popular overall. From the above discussion, it is clear that despite the downward trend of indigenous media in the rest of Africa (Tshabangu & Salawu, 2022), indigenous language media in Kenya are thriving.

More than mere existence, indigenous languages must be relevant to the realities of a rapidly changing technological and scientific context typical of today's world. One of the weaknesses of indigenous languages has been their inadequacy in communicating scientific and technical

jargon (Adeyeye et al., 2021; Owolabi & Nurudeen, 2020). Health information, in particular, is likely to contain a significant amount of scientific and technical terminologies that, if not properly handled, may hinder effective communication.

This study seeks to show how scientific and technical terminologies are presented on Ramogi TV, an indigenous language medium broadcasting in the Dholuo language. It adopts a qualitative design with a case study approach focusing on the programme “*Penj Laktar*”, which means “Ask the doctor”. Data will be presented descriptively. The study is expected to show how speakers navigate through the said terminologies. Such information may provide general insights into the now-established phenomenon of indigenous language media and, more specifically, into their ability to handle scientific and technical terminologies. The study is further expected to provide a Kenyan and East African dimension to the problem of indigenous language media while providing a launching pad for future research on the topic.

The objective of the study is to show how technical and scientific terminologies are presented on Ramogi TV’s programme “*Penj Laktar*”. The research sought answers to these three questions: How does the presenter present technical and scientific terminologies? How do doctors present scientific and technical terminologies? How do the viewers present technical and scientific terminologies?

2 Literature review

For the sake of this paper, “technical and scientific terminologies” refer to vocabulary and expressions that pertain to a scientific or technical field, in this case, medical, and may not be frequently used in everyday language. These include names of diseases, parts of the body, medical procedures, technology, professionals and facilities.

Indigenous language media have been defined as “...print and electronic media that uses local languages other than the so-called colonial languages of French, English and Portuguese to publish or broadcast news and information (Tshabangu & Salawu, 2022)”. Indigenous language media are also tied to an ethnic community, a geographical location and shared interests (Orao, 2012, as cited in Tshabangu & Salawu, 2022). Indigenous language media should, however, not be confused with indigenous media. The latter are owned and controlled by local ethnic communities.

This study is anchored on the development media theory propounded by Dennis McQuail (1994 as cited in Cengiz, 2018). It posits that the media should advance national government policy alongside its other roles of information and entertainment (Cengiz, 2018). In other words, the media play the role of supporting the government to achieve its development goals. The theory is appropriate to this study as it shows that the media have a role to play in the realisation of national development in general and, in particular, SDG 3: Health and well-being.

2.1 Indigenous languages and indigenous language media

Indigenous languages are the vehicles through which indigenous knowledge is carried, transmitted, and implemented (Ondondo, 2020), a rallying point for communities, and a means of creating cohesion (Orao, 2012).

In Kenya, Indigenous languages were used by politicians to sell their development agenda and to mobilise the populace to participate in development projects in devolved governments. They were also used to exchange ideas in counties and even beyond, ideas that may eventually

translate into development, social interaction and cultural preservation, ethnic integration and agriculture-related technology transfer (Kandagor et al., 2017).

Studies on indigenous language media in Africa show that Indigenous language newspapers, though struggling, were more developed than other media (Tshabangu & Salawu, 2022). Indigenous language media were found to confer status to the erstwhile ignored or lowly regarded language and community (Orao, 2012). A positive correlation has been found between the content of indigenous radio stations and public participation in matters of governance (Mwangi et al., 2017). On the other hand, indigenous language media were found to be potential tools of ethnic division (Cohen & McIntyre, 2019), especially during seasons of heightened political activity.

2.2 Indigenous language media and development

As far as development is concerned, indigenous language media have played a role in knowledge and information dissemination, providing the language community with access to social and economic innovations (Orao, 2012). Studies showed that exposure to television increased knowledge of maternal health (Atakiti & Ojomo, 2015). In some cases, such knowledge translated into tangible action among the targeted community. In a study conducted by (Adeyeye et al., 2021), a positive correlation was noted between knowledge and acceptance of indigenous agricultural programmes on the one hand and agricultural productivity on the other hand.

2.3 Scientific and technical terminologies and indigenous language media

Linguistically, indigenous language media exert an influence on the target community languages, thereby acting as trendsetters on whom the local communities would model their language (Orao, 2012). In other words, they shape the language as spoken by the communities they serve.

There appears to be some contention on the ability of indigenous languages to handle technical and scientific jargon. Adeyeye et al. (2020) posit that the vocabulary to express scientific and technological words and terminologies in indigenous language media is inadequate. Owolabi and Nurudeen (2020) support this view by attributing the failure of health information to reach the grassroots to the use of language that the recipients do not easily understand. Orao (2012), on the other hand, states that Indigenous language media have contributed to the development of indigenous languages by adapting to a highly mobile technological environment by developing vocabulary, concepts and terminology that have become widely acceptable and fit for use in public spheres (Orao, 2012). Nonetheless, the new terminologies were not standardised and could end up engendering more confusion (Orao, 2012). Indigenous languages are probably making some strides in adapting to technological and scientific terminologies. However, there is a need for concrete studies to ascertain the status and nature of such development. Data generated by such studies could help media houses review the targeted program and make it more effective and audience-friendly. It may inspire them to standardise their medical terminologies and expressions, thereby helping to develop the language.

Research on indigenous media in Africa has been heavily tilted in favour of South Africa and Nigeria, with very little on East Africa. More research on other African countries, on TV and film, and the representation of issues (health, sports, politics) in indigenous language media has been recommended (Tshabangu & Salawu, 2022).

This paper seeks to show how technical and scientific terminologies are presented in the programme “Penj Laktar” on Kenya’s Ramogi TV. It will describe how different speakers present scientific and technical terminologies. The findings will be analysed, and recommendations will be made to interested parties.

In terms of methodology, the case study approach has been recommended (Tshabangu & Salawu, 2022). Although it has been used before to study indigenous language media, the focus has been on media houses and publications. This study used the case study approach, which focused on a specific television program.

3 Methodology

This study adopted a qualitative design with a case study approach. The case study approach is applied where the case is unique. This approach has been selected due to the unique nature of the program. It is unique because its content is primarily scientific. It provides a rare glimpse into how professionals communicate scientific information with non-scientific audiences. It is expected that the data generated by this study will provide a better understanding of the problem of scientific and technical jargon in indigenous language media.

Data were collected using the observation method. A total of 10 episodes were conveniently selected. Data collection continued until the point of saturation when the researchers could not find any newer information. Notes were taken of scientific and technological words and expressions by various interlocutors. The notes were analysed for patterns and then classified. The categories were further disaggregated according to the different speakers. They were further analysed, and the results were documented in the form of descriptive data. This being a case study, the findings are not generalisable to the general public. To ensure anonymity, participants were referred to using numbers.

4 Results and analysis

The following categories of terminology were identified: parts of the body, names of diseases, medical conditions or problems, medical procedures and processes, and others.

4.1 Terminologies used by the presenter

Parts of the body

English and Dholuo were used. Notable was the use of English for terminologies that already exist in Dholuo, such as kidney.

Diseases and medical conditions or problems

English terminologies were used for Hypotension, which is low blood pressure, severe low blood pressure, anaemia, back pain, meningitis, pneumonia, cholera, arthritis, and Covid 19.

It is worth noting that the presenter was able to refer to various diseases and conditions in Dholuo: “*Poto mar remo e obo*” for pulmonary embolism, “*ng’ol mar obwong’o*” for cerebral palsy, “*nyimbich motudore*” for intestinal obstruction and “*del mochuakore*” for fever,

Medical processes and procedures

English terminologies used include dialysis, bacteria, pimple, infections

Kiswahili terminology used: “*chanjo*” for vaccine.

Dholuo terminologies are used: “*Ranyisi*” for symptoms, “*Od yath*” for clinic or hospital, and “*kute kata virusi*” for bacteria.

A conscious effort was made to use Dholuo words and expressions. In several instances, the presenter offered a word or expression when the doctor used an English word or expression or seemed to be struggling to find the right word in Dholuo.

4.2 Terminologies used by doctors

Parts of the body

External organs were mainly expressed in Dholuo, while internal organs tended to be expressed in English. English terminologies used included ligaments, ovaries, and fallopian tubes. However, the heart and brain, though internal were expressed in Dholuo as “*adundo*” and “*obwongo*” respectively.

Notable was the ability to use terminologies for internal organs that are not commonly used in everyday language. Examples include the use of “*thonde mag remo*” to refer to blood vessels.

Diseases and medical conditions or problems

Only one disease, cholera, was mentioned by its Dholuo name, “*Nyaldiema*”. This is despite the fact that the Dholuo names of some diseases were openly displayed on the screen. This shows that the doctors were either not aware of the name of the disease in Dholuo, or they simply preferred to use the English name. As for cholera, it is a disease that the community has been familiar with for a long time, to the extent of giving it a Dholuo name. The other diseases featured in the program could also be fairly new or rare, and the vocabulary is not yet standardised or entrenched.

Some of the diseases and conditions expressed in English include pain, lower back pain, somatic pain, psychological, spasms, pressure, Hypotension, low blood pressure, high blood pressure, multi-organ failure, blurred vision, syphilis, allergy, reaction, lack of concentration, dental caries, TB, Polio, malaria, HPV, intestinal obstruction, food poisoning, stomach flow. Some of these, such as back pain, could easily have been expressed in Dholuo, while others, such as HPV, syphilis, cavernous sinus thrombosis, sickle cell, and goitre, may be more difficult to express in Dholuo.

Medical processes and procedures

Most, if not all, of the terms in this category were expressed in English. Examples include caesarean section, heat therapy, diagnosis, research, X-ray, CT scan, MRI, and physiotherapy. One doctor referred to an X-ray as “*picha*,” while another also used the same word to refer to an MRI, showing that the terms were not standardised in Dholuo.

The only medical processes and procedures expressed in Dholuo were “*Chanjo*” for vaccine and “*timo nonro*” for diagnosis. Despite the existence of the second word in Dholuo, Doctor 2 still preferred to use the English terminology “diagnosis”.

Other terminologies

Some terminologies used include those designating medical practitioners. For example, “*dakteche mag nyithindo*” was used for paediatricians and “*dakteche mag nyirogno*” for urologists. Interestingly, Doctor 2 referred to doctors as “*ajuoke*”. In Dholuo, this term is used for both herbalists and witch doctors. Other professionals, such as haematologists, ENT specialists and nutritionists, were expressed in English.

Health facilities were also expressed in English as public hospitals, private hospitals, ICUs and HDUs.

4.3 Terminologies used by viewers

Diseases, medical conditions or problems

Callers named diseases (notably meningitis and arthritis) in English.

It is interesting to note that viewer 9, a 38-year-old lady, asked her question in Kiswahili, using the Swahili word “*chanjo*” for vaccine, while viewer 7 spoke in less-than-fluent, incorrect Dholuo. These two examples show that not all who watched the programme could express themselves comfortably in Dholuo.

Other Observations

Though this study did not target demographic data, it is interesting to note that the programme attracted some elderly as well as young viewers and a well-educated person who was also a medical professional.

5 Discussions

Doctors tended to resort to English when using medical terminologies, especially those referring to diseases and medical conditions. This observation tends to agree with (2020) on the inadequacy of indigenous languages in handling technical and scientific jargon. It is not clear whether the audience fully understood the terminologies used, as some were quite complex, lending credence to the findings of Owolabi and Nurudeen (2020) that the intended audience may not easily understand such terminologies. On the other hand, viewer participation in the programme may be an indication of message reception.

To their credit, the doctors occasionally attempted to facilitate understanding by explaining the terminologies in Dholuo before giving the English word or vice versa. Some progress towards developing terminologies was noted, as evidenced by the use of new Dholuo words in reference to internal organs, terminologies that may not have existed before. The presenters and doctors were able to coin Dholuo terminologies for blood vessels, arteries, and aorta. This means that indigenous language media are contributing to language development, as affirmed by Orai (2012).

A conscious effort by the presenter to use Dholuo terminologies was noted, pointing to the possibility that the media house had made a deliberate decision to promote the Dholuo language, further affirming the role of media as linguistic trendsetters (Orai, 2012).

As an auxiliary finding, the study showed a varied viewership in terms of age, socio-economic status and linguistic competence, showing that the viewer profile of indigenous media may not be as previously thought.

6 Conclusion

This study sought to show how scientific and technical terminologies were presented on “Penj Laktar” on Ramogi TV, an indigenous television Station in Kenya. Results showed that scientific and technical terminologies in Dholuo were not fully developed, especially those referring to diseases and medical conditions. Although doctors on the programme tended to use a lot of English terminologies, they employed various communication strategies in an attempt to facilitate understanding.

The presenter made a conscious effort to use Dholuo, while viewer participants used Dholuo, broken Dholuo, and Kiswahili to express medical terminologies.

7 Recommendations

The media house seems to have embraced its role as a linguistic trendsetter. To fully play this role, it needs to work with medical doctors to develop terminologies for use in the program. The same terminologies also need to be standardised, as suggested by Orai (2012).

This study revealed the possibility of a different viewership from what was previously thought. Therefore, further studies are recommended to establish the program's viewership. Such information can be useful in tailoring the program to the viewers' needs.

References

- Adeyeye, B., Amodu, L., Odiboh, O., Oyesemi, K., Adesina, E., & Yartey, D. (2021). Agricultural radio programs in indigenous languages and agricultural productivity in north-central Nigeria. *Sustainability*, 13(7), 1–13. <https://doi.org/10.3390/su13073929>
- Adeyeye, B., Amodu, L., Oscar, O., Omojola, O., Adesina, E., & Ben-Enukora, C. (2020). A SWOT analysis of indigenous language use in agricultural radio programming in Nigeria. In *Emerging trends in indigenous language media, communication, gender and health* (pp. 188–209). https://www.semanticscholar.org/paper/A-SWOT-Analysis-of-Indigenous-Language-Use-in-Radio-Adeyeye-Amodu/c05117f6ab1be9c0667b07359b11cf4d66c13b80?utm_source=direct_link
- Atakiti, O., & Ojomo, W. (2015). Influence of television health programmes on maternal health. *International Journal of Humanities and Social Sciences*, 8(1), 170–180.
- Cengiz, G. (2018). 'Developing media theory' as a mixed communication theory: A Russian media case. In *International trends and issues in communication and media conference* (pp. 474–476). International distance education. <https://www.academia.edu/40042155/>
- Cohen, M., & McIntyre, K. (2019). Local-language radio stations in Kenya: Helpful or harmful? *African Journalism Studies*, 40(3), 73–88.
- Ethnologue. (2023). *How many languages are there in the world?* Ethnologue. <https://www.ethnologue.com/insights/how-many-languages/>
- Kandagor, M., Wendo, N., & Sawe, S. (2017). The role of indigenous languages in the development of county governments in Kenya. *Kioo Cha Lugha*, 15(1), 65–74.
- Media Council of Kenya. (2022). *State of Kenya's media 2022*. <https://mediacouncil.or.ke/sites/default/files/downloads/State%20of%20Kenya%27s%20Media%202022%20Report.pdf>
- Mwangi, D., Biwott, C., & Gichuhi, D. (2017). Content of vernacular radio programs and public participation in devolved governance in Nyeri county, Kenya. *Journal of Development and Communication Studies*, 5(2), 70–81.
- National treasury and planning. State Department for Planning. (2019). *SDG status report*. <http://sdgs.planning.go.ke/wp-content/uploads/2021/02/SDGs-Status-Report-2019.pdf>
- Ondondo, E. (2020). The role of indigenous languages in sustainable development in Kenya. *International Journal of Applied Linguistics and Translation*, 6(2). https://www.researchgate.net/publication/342891921_The_Role_of_Indigenous_Languages_in_Sustainable_Development_in_Kenya
- Orai, J. (2012). The Kenyan indigenous languages and the mass media: Challenges and opportunities. *Stellenbosch Papers in Linguistics and Linguistics Plus*, pp. 38, 77–86.

- Owolabi, T., & Nurudeen, N. (2020). Indigenous language media and communication for health purposes in the digital age. In *Emerging trends in indigenous language media, communication, gender and health* (pp. 123–145). IGI Global.
- Tshabangu, T., & Salawu, A. (2022). Indigenous language media research in Africa: Gains, losses, towards a new research agenda. *African Journalism Studies*, 43(1), 1–16.
- United Nations UN DESA policy brief No. 151. (2023). *UN DESA policy brief No. 151: Why indigenous languages matter. The international decade of indigenous languages 2022-2032*. un.org/development/desa/dpad/publication/un-desa-policy-brief-no-151-why-indigenous-languages-matter-the-international-decade-on-indigenous-languages-2022-2032

16. Collaborating with native Lubukusu language speakers in CBC Education in Kenya for maintenance and preservation of Indigenous Languages

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Abstract

The purpose of the study was to identify strategies for indigenous language preservation and to investigate how the use of Lubukusu native language resource persons in CBC education can be integrated into the formal curriculum development process for indigenous languages. The study adopted a qualitative descriptive research design because it intended to describe the phenomenon of the use of resource persons alongside classroom teachers. The respondents were pre-primary and lower primary teachers and key informants comprising Native Language Resource Persons. A purposive sampling technique was used to sample respondents based on two criteria: early education teachers stationed in the South Kulisiru Ward of Bungoma County and Lubukusu language resource persons based on prior classroom experience with these teachers in lesson delivery. Two research instruments were telephone interviews with key informants and open-ended questionnaires with the teachers, respectively. The authors concluded that awareness of the role of indigenous languages in education, the campaign against negative perceptions amongst parents, and an explicit policy framework would eventually provide the necessary curriculum infrastructure for the preservation of indigenous languages.

Keywords: *Competency-based curriculum, native Lubukusu language resource persons*

1 Background information

The Competency-based Curriculum (CBC) system of education, rolled out in Kenya in January 2018, seeks to equip learners with skills and competencies through practical and real-life experiences and collaborative learning. This curriculum not only re-emphasises the use of indigenous languages as Language of Instruction (LOI) at pre-primary and lower primary education, just like previous systems, but also proposes indigenous language as one of the subjects to be taught alongside English, Kiswahili, Arabic, French, German and Mandarin, (RoK, 2017; 2023). By inference, therefore, unlike in the previous systems of education in Kenya, the 2-7-6-3 and the 8-4-4, the 2-6-3-3-3 CBC education implementation is collaborative. Apart from teachers, there are also other players: parents, guardians, resource persons and immediate community members who are called upon to help contextualise knowledge and skills learning. Collaborative learning applies to all proposed learning areas, namely language activities, psychomotor and creative activities, environmental, religious education for pre-primary, literacy and indigenous languages, English, Kiswahili, mathematical activities, environmental activities, hygiene, religious education and movement and creative activities in lower primary (Mandillah, 2019). Several authors, including Kaviti (2018), Shizha (2013), and Ondari and Michieka (2014), do acknowledge CBC's undisputed purpose to ignite a change in social, intellectual and psychological attitudes in the Kenyan populace. This goal is to be

achieved through carrying out specific activities and interacting with resource persons to foster speaking of mother tongue and LOI inside and outside the classroom. The benefits that accrue from this practice include the conservation of ethnic language, maintenance of one's identity and learning from folklore stories that could be unique to their culture (Waithaka, 2017).

Kenya is a multilingual state and boasts of the co-existence of over forty ethnic tribes, each distinguished by Mother Tongue spoken within a specific cultural context, an assertion confirmed by KNBS (2019) and Mose (2017). Kenyan Mother Tongues, also known as indigenous languages, are generally grouped into three linguistic families: Bantus, Cushites and Nilotes. The author observes that language identity in Kenya is region-based, generally oral, and preserved by its native and non-native speakers. These languages, however, need more intergenerational transmission, as evidenced by diminishing fluency and literacy, which is likely to result in potential abandonment in favour of dominant English and Kiswahili (Waithaka, 2017). This scenario is a result of a number of factors, first due to globalisation and modernisation, which continue to enhance the spread of the English language, particularly among the Kenyan elites. Secondly, the extensive influence of mass media, radio and Television, social media, and the use of cell phones as learning tools, not to mention personal use and/or addiction. Socialisation agents such as the church, which is equally a behavior-modeling agent, have elevated English to unprecedented status. Besides English, there is Kiswahili, which is not only a national language but also an inter-ethnic lingua franca spoken across the country, not to mention the fact that it is also the second language of instruction.

Furthermore, for the youthful Kenyans, Sheng' is an identity language maintained both by texting via social media platforms and through oral interactions. These factors threaten the very survival of indigenous languages, not to mention the pressure from foreign languages. According to Mose and Kaschula (2019), successive Education Commissions and Task Forces since 1976 have stressed mother tongue instruction in pre-primary and lower primary schools but still need more stakeholders' support. Although Kaviti (2018), Chepkuto and Saina (2015), and Piper et al. (2016) do support Mother Tongue Instruction in CBC education, they are equally apprehensive that history could repeat itself due to a lack of adequate literature. Other impediments include lack of terminology, lack of standard orthography and particularly teachers' assignment policy, which stipulates that teachers can be deployed to work in any region in the country irrespective of Mother Tongue capability,

However, the CBC curriculum designs for pre-primary and lower primary propose a collaborative approach for teaching knowledge content as well as Mother Tongues (KICD, 2017). This curriculum design instructs the teacher to consider the use of 'resource persons' in various teaching areas to complement the teachers in lesson delivery in class and/or outside of the classroom. For lesson delivery of 'Literacy and Indigenous language activities', the resource person to be considered by our inference is not only a proficient speaker of the target language of the catchment area but also a relevant knowledge holder in terms of cultural heritage and traditions. Authority and responsibility for the choice of the resource person are delegated to the individual teacher. Here below is a citation from the pre-primary curriculum design:

"Organise a storytelling session with a resource person and encourage learners to participate in the story narrated. Selected learners could also wear appropriate attire/costumes for the story being narrated" (RoK, 2017, p. 7).

According to the above directive, the teacher and the resource person control, in part, the pedagogical contract to deliver content to learners as per the particular learning activity

proposed. Desmoulins et al. (2019) acknowledge this approach as sub-immersion language learning through the use of native speakers' modelling of language discourse, including accompanying gestural and non-verbal communication unique to the language. This collaborative engagement is planned for and deliberate rather than an impromptu ice-breaking session. For the study, we adopted the use of the expression 'Native Lubukusu Language Resource Person' to replace the general term resource person. The curriculum design proposes the use of people familiar to the children, selected from the immediate linguistic community, targeting parents, guardians, teachers, the elderly, pastors and priests. In this study, the terms mother tongue and indigenous language have been used interchangeably.

2 Problem statement and justification

Collaborative engagement of Native Lubukusu Language Resource Persons in the Competency-Based Curriculum (CBC) education is a reality in South Kulisiru Ward of Bungoma County, where Lubukusu Mother Tongue Instruction for pre-primary and lower primary classes has been implemented. While its focus is competencies acquisition, it is also intended to revitalise indigenous languages whose implementation as LOI in early education has been elusive since independence because dominant English and Kiswahili languages threaten its maintenance. Secondly, the collaborative teacher-Native Lubukusu Language Resource Persons productions are primarily oral presentations and participative skill demonstrations. However, this collaboration is informed by individual teachers' discretion, rendering the practice haphazard and lacking in guidelines for replication and mass diffusion of indigenous knowledge born thereof. The objectives of this study were to identify strategies for Mother Tongue preservation and, secondly, to investigate modalities of integrating Native Lubukusu Language Resource Persons in the formal CBC curriculum development process for posterity of indigenous languages.

The findings of this study are helpful to the Kenyan government that commits through the Kenyan Constitution 2010 to promote and protect the diverse Kenyan indigenous languages as part of the national heritage and a fundamental human right (RoK, 2010 article 7(3); Njoroge & Gathigia, 2017). In the study, the revitalisation and preservation of indigenous languages is adopted to mean Mother Tongue's protection. Secondly, cultural tourism is an economic asset and a foreign exchange earner to the nation. It is, therefore, in the interest of the government to protect and preserve Mother tongues for posterity just as it is a right of the citizenry to express themselves in their mother tongues. Thirdly, universities whose principal mandate is academia and research will benefit from this study as a reference document for further research in curriculum development as well as for linguistic analysis in matters of Mother Tongue education. Finally, the findings will contribute to community awareness regarding the loss of indigenous languages and the need to take corrective action.

3 Theoretical framework

The study was guided by Albert Bandura's Social Cognitive Learning Theory of language acquisition, which posits that children and adults can learn new information and skills by watching and imitating models (Nabavi, 2012). According to Bandura, the proponent of this theory, individuals learn both behaviour and cognitive strategies by observing others. Secondly, learning is an internal process, and finally, learning can also take place by observation without necessarily imitating the model. By observing a stimulus or a model, the observer codes ideas that serve to guide the next course of action in the learning process. During observation, the observer pays attention and focuses on the model's behaviour, which helps in the cognitive

processing of the target behaviour. The observer will rely on this information to reproduce the behaviour when called upon. Motivation to reproduce the desired behaviour can be either intrinsic by personal interest or extrinsically influenced by positive and/or negative reinforcement (Ilmiani et al., 2021). This theory applies to our study in the sense that CBC education is generally collaborative in regard to the considered use of various stakeholders. The use of Native Lubukusu Language Resource Persons to tell stories in a language class or listen to podcasts in class serves not only as stimuli but also as models for Mother Tongue discourse. Lexical borrowing and adaptation from CBC curriculum terminologies such as “strand and sub strand” used instead of ‘topic and sub-topic’ as well as novel assessment rubrics; ‘exceeding expectation’, ‘approaching expectation’, ‘meets expectation’ ‘below expectation’ will help enrich and further develop Mother Tongue instruction thus contribute to preservation efforts.

4 Literature review

A literature review was done in line with the two study objectives: to identify strategies for indigenous languages’ preservation and secondly to identify modalities for the integration of Native Lubukusu language Resource Persons into the curriculum development process. Incidents of diminishing language use for whatever reason pose a risk of language endangerment with a resultant lack of intergenerational inheritance. Chen and Huang (2019), in reference to multilingual Taiwan, observe that Hakka, a heritage language of a minority group in the country, was at risk of survival and eminent loss. In a bid to preserve this language, the government launched a campaign called Family Language Policy (FLP) to harmonise Hakka language preservation efforts, mainly targeting the family. Its approach was to create awareness of the need to preserve the endangered heritage language and, secondly, action tribal members and their families to deliberately enforce speaking heritage language in their homes by providing real-life contexts for their children to learn from. For instance, families were obligated to organise social functions and invite speakers of the heritage language. During such functions, deliberate effort is to be made to speak, watch and /or listen to heritage language through face-to-face conversations or via media such as Television or radio under family supervision. The policy also proposed the inception of the Hakka language dictionary as a reference document for Hakka language orthography as well as adherence to child-oriented bilingual conversation strategies in the family.

Similarly, in South Africa, according to Ngulube (2012), two marginalised indigenous languages, Khoe and San, were at risk of loss and extinction. To revitalise them, the government embarked on a campaign for multiculturalism where all indigenous languages receive the opportunity to be showcased on an equal platform. Secondly, speakers of the marginalised language were encouraged to seek literacy and write in their language. Ngulube observes that publishers are capable of extracting pertinent information from a variety of write-ups of any kind, such as biographies, diaries, poems, and memoirs, and they are able to repackage them in an acceptable format for publishing and onward transmission.

In Canada, according to Desmoulins et al. (2019), Algonquin indigenous languages were facing declining use due to the dominance of English and French in media and technology. However, the revitalisation of Ojibway, Oji-Cree and Cree, to mention a few of these languages, was targeted via instruction within schools because there was a demand from the public to learn indigenous languages as a second language. This was because the government recognised indigenous languages as legitimate subject content to be taught and learned in schools, a move that helped shape younger peoples’ mindset towards these languages. Since then, indigenous

language instruction has taken on various approaches. First, through 'language Nests', a strategy where young children are instructed through interaction with proficient speakers on a regular basis. This immersion strategy was rated most efficient because of its native language speakers' modelling component. The second approach is through 'book learning', where the indigenous language instructor uses decontextualised flash cards to stimulate vocabulary learning and facilitate both speech and writing. Finally, the authors describe an approach called 'memorised performance', which is achieved through self-instruction. However, the learner has the opportunity to demonstrate learning at organised events during which the audience's feedback publicly confirms learning. The authors, however, caution that this approach limits the candidates' potential to mere memorised performance.

In the United States of America, according to Leonard (2021), Myaamia, also an Algonquin language spoken in Kansas and Oklahoma states, went out of use and was declared extinct in the 1960s. Its reclamation took the community's collaboration with various actors. These included Miami tribal members, non-indigenous researchers in linguistic analysis comparing this language with other Algonquin languages, educators, and information and archival managers. These efforts culminated in the production of a dictionary of the Myaamia language to help standardise lexicon and orthography, the development of a curriculum for teaching the language, and finally, embarking on a community empowerment campaign to support the reclamation efforts.

The literature shows that the decline in the presence of indigenous languages is a global phenomenon, thus necessitating strategies for their preservation and maintenance. These efforts are majorly collaborative, with the two principal actors being the government and the tribal members of the source language. However, these strategies need to address technological innovations and indigenous language evolution. Incorporating Native Lubukusu Language Speakers into formal CBC curriculum development will fill this gap because a teaching-learning Curriculum is futuristic and transformational in response to societal trends and developments.

5 Study methodology

This study adopted a qualitative research methodology and a descriptive research design, which, according to Kothari and Garg (2004), is ideal for a description of an existing phenomenon. The study sought to describe the collaborative use of Native Lubukusu Language Resource Persons in Curriculum Competency Based Curriculum as a strategy for Mother Tongue preservation and maintenance. The study was conducted to identify strategies for indigenous language maintenance and preservation and, secondly, to assess collaborative modalities of formally integrating resource persons into the CBC curriculum development process. The respondents were early education teachers and critical informants, head teachers, and resource persons. A purposive sampling technique was used to sample two head teachers based on the criterion that their school has implemented Mother Tongue Instruction. Secondly, the head teachers used snowballing to identify other schools that have implemented Mother Tongue Instruction and early education educators in their Schools within South Kulisiru Ward. Finally, Native Lubukusu, Language Resource Persons, comprised people who have collaborated with these teachers in lesson delivery at least twice. Data was collected via telephone interviews with head teachers and resource persons, while an open-ended questionnaire was used to collect data from teachers. The question items focused on strategies for promoting mother tongue use and, secondly, how to incorporate resource persons in the formal curriculum process. The data collected was analysed and commented on in line with the two research objectives.

6 Presentation of findings

A total number of 45 teachers and 6 Native Lubukusu Language Resource Persons participated in the study. Of these, 24 were pre-primary teachers, of which 21 were native speakers of Lubukusu, while three declined to disclose their native language identity. Twenty of them were female, and four were male. The average age of pre-primary teachers was 30-39 years, and all of them were trained as follows: 15 had certificates, 8 had diplomas, and 1 was a degree holder, respectively. Secondly, 21 were lower primary teachers; 6 of them were male, and 14 were female. Three declined to disclose their training; 9 were certificates, 8 were Diplomas, and 2 were Degree holders, respectively. The average age of lower primary teachers was 40-49 years old.

The results confirmed that 64.5% of teachers collaborate with resource persons in lesson delivery as suggested in curriculum designs, while the remaining 35.5% expressed interest. The results were as follows:

Table 1: Collaboration between teachers and resource persons

	Pre-Primary	Primary	Total	%
Have collaborated	17	12	29	64.5
Intents to collaborate	7	9	16	35.5
Never collaborated and did not intent	0	0	0	0
Total	2	22	45	100

The result shows 100% commitment to collaboration with resource persons, delayed implementation notwithstanding. The reason given for this enthusiasm is that it is a source of motivation to learners because it breaks the rigid teacher-centred conventional classroom practices and gives an opportunity for active learner involvement in learning. Regarding Lubukusu Language preservation and maintenance, the results reveal two strategies: the creation of awareness with stakeholders on the benefits of knowledge of the indigenous language as well on the role of a child's immediate family and community in maintenance. Regarding the integration of native Lubukusu language resource persons into curriculum development, the results reveal that this is feasible only through an explicit policy framework with affiliate institutions of the Ministry of Education.

7 Discussion of findings

The findings presented above and discussed hereunder according to the objectives of the research study:

7.1 Benefits of Mother Tongue

Findings revealed that classrooms in South Kulisiru Ward can be described as consisting of 90% homogenous speakers of the Lubukusu language, a principal contributor to the successful implementation of Mother Tongue Instruction. In general, results revealed heightened motivation amongst pupils due to the use of children's first language in initial instruction. This confirms the assertion of (Mose & Kaschula, 2019), who observe that new knowledge is best taught in the language the child already understands and through which he has already framed the image of the world. This crucial aspect of learning cannot be replaced by the use of simple English words, even when accompanied by illustrations and gestures, mainly when introducing new knowledge. The authors further observe that the pupil's linguistic maturity in the native language contributes to the success of learning a second language, a truth that

cognitive constructivism theorists support. Knowledge of an indigenous language, therefore, is not only an identity and a cultural heritage right but also an essential tool in academic progress and a personal identity that shapes personality for life survival.

7.2 Awareness campaign against negative perception of indigenous languages

When questioned on modalities of enhancing Mother Instruction, findings revealed negative perceptions of parents towards its use in school and particularly in instruction. The following response explicitly captures one teacher's opinion.

“Sensitise parents to change their attitude about mother tongue and encourage them to speak with their children at home in their mother tongue to foster their identity”. Respondent 1

Negative perception towards language manifests through absolute avoidance of language and/ or deliberate controls of which language a child ought to express himself, a phenomenon referred to as motivated behaviour (Mose & Kaschula, 2019). According to Chen and Huang (2019), the negative perception of parents towards language denies the child the rich home context to acquire language, which they interpret to mean ignore it. Kenya's multilingual context is similar to multilingual Taiwan, where the very actors holding negative perceptions are used to lobby and campaign for the contrary effect. The Family Language Policy (FLP) in Taiwan, for instance, increased parents' awareness of language preservation. Parents have a significant influence on their children and can consciously promote language use at home and in social gatherings that they attend with their children if they are sensitised to its value. This will help overcome their negative attitude towards their mother tongue as well as reduce pressure born out of the dominant use of English and Kiswahili languages. Mose and Kaschula (2019) describe Kenyans' perception of indigenous language as hypocritical. For instance, Kenyans love to sing traditional songs in churches and ceremonies, dirges at funerals, converse in their mother tongue and listen to radio stations but despise the same indigenous languages for school instruction. This indecision of the true meaning and value of indigenous languages is a challenge that tribal members should urgently address.

7.3 Policy framework

Education in Kenya is systematic and policy-controlled in terms of teacher training, teacher deployment, and permissible pedagogical support. While the LOI policy in CBC proposes Mother tongue instruction, inherent challenges still need to be solved. When questioned if Native Lubukusu Language Resource Persons can be integrated into the curriculum development process, teachers' response was a resounding 'yes' but quickly followed this response by suggesting that relevant policy review by the Ministry of Education (MOE) as well as review of the mandate of affiliate institutions was necessary. We captured one teacher's response as follows:

“KICD, which is responsible for curriculum development, should allow the Teachers Service Commission (TSC) and the county governments to deploy mother tongue teachers in regions where they can teach in their native mother tongues”. Respondent 2

While affiliate institutions of MOE are autonomous in mandate, successful implementation of education policies requires prompt systematic complementarity. Kaviti (2018), Chepkuto and Saina (2015), and Piper et al. (2016) observe that Mother tongue Instruction has suffered drawbacks due to a lack of timely harmonisation between teachers' assignment policy and curriculum guidelines. Novel introductions of resource persons as pedagogical aids to the teachers require explicit policy guidelines. Another teacher suggested that the best strategy to harness adequate knowledge from resource persons is to designate these people as Mother

Tongue educators and/or consultants for content development in collaboration with teachers and KICD. We captured the responses as follows:

“Make it a career so that there is sufficient research in the roles assigned and with proper. We are planning to document it for a radio session”, “Respondent 3

Also;

“Train them in research so that the Ministry of Education can employ them on a need basis”. Respondent 4

While the curriculum development process in Kenya is the responsibility of KICD, research with non-educators for content creation and documentation is equally feasible. According to Leonard (2021), collaborative research efforts with educators, non-educators, and information and archival managers culminated in the production of a dictionary of the Myaamia language to help standardise lexicon and orthography and develop a curriculum for the teaching Myaamia language. Such efforts can be replicated in Kenya as well.

8 Conclusion

The authors concluded that raising awareness of the role of indigenous languages in education, conducting awareness campaigns against negative perceptions of indigenous languages among parents, and developing an explicit policy framework for the integration of resource persons in the curriculum development process would eventually provide the necessary infrastructure for the preservation of indigenous languages.

9 Recommendations

- Formation of indigenous language resource persons research committees to work in collaboration with Universities, KICD, information and archival managers and publishing houses in order to develop adequate literature for Mother tongue instruction.
- Sensitise people on ‘Mother Tongue Day’. This can be celebrated nationally and regionally alongside Utamaduni Day, where families and communities are called upon to speak their mother tongue exclusively.
- Collect and create resources for Lubukusu textbooks, dictionary and/or glossary, and animated digital materials for the CBC curriculum.
- Sensitise tribal leaders at the local levels to expand current annual cultural festivals to include storytelling, poems and or spoken word, ceremonies and exhibitions to showcase indigenous languages as a heritage identity.
- Native Lubukusu Language Resource Persons to form an association that will champion and protect their interests. In collaboration with others, they can organise language classes for interested persons tailored for specific purposes such as cultural cuisine or fashion trends.

References

- Chen, Y. L., & Huang, C. H. (2019). Influence of a heritage language preservation family program on parents’ awareness and action. *International Journal of Education and Research*, pp. 7, 12.
- Chepkuto, P. K., & Saina, S. K. (2015). The role of the mother tongue as a medium of instruction in Kenya.

- Desmoulins, L., Oskineegish, M., & Jaggard, K. (2019). Imagining university/community collaborations as third spaces to support Indigenous language revitalisation. *Language and Literacy*, 21(4), 45–67.
- IImiani, A. M. M., Wahdah, N., & Mubarak, M. R. (2021). The Application of Albert Bandura's Social Cognitive Theory: A Process in Learning Speaking Skill. *Talim al-'Arabiyah: jurnal pendidikan Bahasa Arab & Kebahasaaraban* 5(2) 180-192
- Kaviti, L. (2018). The New Curriculum of Education in Kenya: A Linguistic and Education Paradigm Shift. University of Nairobi.
- KNBS. (2019). Kenya Population and Housing Census Volume I: Population By County and Sub-County. *Vol. 1, 2019*.
- Kothari, C. R., & Garg, G. (2004). Research Methodology, Methods and Techniques New Age. *New Delhi*.
- Leonard, W. Y. (2021). Centering Indigenous ways of knowing in collaborative language work. *Sustaining Indigenous languages: Connecting communities, teachers, and scholars*, pp. 21–33.
- Mandillah, L. (2019). Kenyan curriculum reforms and mother tongue education: Issues, challenges and implementation strategies. *Education as Change*, 23(1), 1-18.
- Mose, P. N. (2017). Language-in-education policy in Kenya: Intention, interpretation, implementation. *Nordic Journal of African Studies*, 26(3), 16–16.
- Mose, P. N., & Kaschula, R. H. (2019). Developing mother tongues as academic languages in primary schools in Kenya: exploring extent and indispensability. *Journal of Language, Identity & Education*, 18(5), 329-342.
- Nabavi, R. T. (2012). Bandura's Social Learning Theory & Social Cognitive Learning Theory. *Theory of Developmental Psychology*, 1(1), 1-24.
- Ngulube, P. (2012). Revitalising and preserving endangered indigenous languages in South Africa through writing and publishing. *South African journal of libraries and information science*, 78(1), 11–24.
- Njoroge, M. C., & Gathigia, M. G. (2017). The treatment of Indigenous Languages in Kenya's Pre-and Post-independent Education Commissions and the Constitution of 2010. *Advances in Language and Literary Studies*, 8(6), 76-82.
- Ondari, H. K., & Michieka, M. M. (2014). Kenyan indigenous languages in education: A world of potential benefits. *Journal of Language, Technology & Entrepreneurship in Africa*, 5(1), 1-17.
- Piper, B., Zuilkowski, S. S., & Ong'ele, S. (2016). Implementing mother tongue instruction in the real world: Results from a medium-scale randomised controlled trial in Kenya. *Comparative Education Review*, 60(4), 776-807.
- Republic of Kenya (2010). The Constitution of Kenya 2010. The National Council for Law Reporting
- Republic of Kenya, (2017). Basic Education Curriculum Framework for Pre-Primary. Kenya Institute of Curriculum Development.
- Republic of Kenya, (2017). Pre-primary One Curriculum Designs, Kenya Institute of Curriculum Development (KICD), p.7.
- Shizha, E. (2013). Reclaiming our indigenous voices: The problem with postcolonial Sub-Saharan African school curriculum.
- Waithaka, E. N. (2017). Choice of the Medium of Instruction in Kenyan Preschools: Averting Xenocentrism. *Journal of Education and Practice*, 8(9), 210–216.

17. Multimodal constructions: WhatsApp memes and indigenous language use

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Abstract

The popularity of memes has extended to indigenous language use in social media networks to entertain and solicit responses from viewers. In this chapter, a corpus of 100 memes with indigenous languages was analysed in its multimodal quality to examine and explicate popular themes and to investigate how memes act as language-learning tools for young people. This paper argues that memes are an effective way of promoting indigenous language learning and use within the current generation of young people who are often glued to their phones. The research was based on the theory of multimodality. Focus group discussions and face-to-face interviews were conducted to collect data from respondents selected by a combination of purposive and snowballing techniques. The sample population included students from the Technical University of Kenya. The author concluded that the main focus of WhatsApp memes containing indigenous language was satire with social and cultural norms as their main theme. The findings are indicative of the popularity of memes with text-image combinations. These text-image memes had a positive reception from learners of indigenous languages as they provided context and incited curiosity among viewers.

Keywords: *Communication, semiotic resources, social media, WhatsApp, Facebook, language territories*

1 Introduction

Indigenous people have a common culture, history, and institutions anchored in their native communities. The word indigenous is therefore grounded in community, history, people and their language. Indigenous language can be broadly defined as any language that is native to a particular area and is spoken by the native inhabitants (Corntassel, 2003; Walsh, 2005). Dholuo, Kikuyu, and Kalenjin languages are featured in the current study and, therefore, qualify as indigenous languages.

According to the United Nations Permanent Forum on Indigenous Issues (n.d.), there are 6700 languages in the world, 96% of which are spoken by 3% of the world's population. 6% of the world's population speaks 4000 indigenous languages. According to the report, an estimated 95% of the world's languages, the majority of which are indigenous, will be extinct or seriously endangered by the end of the century. The loss of indigenous languages is indicative of the loss of complex systems of knowledge, cultures, identities of indigenous people and their world views. Colonisation and colonial practices against indigenous people and their cultures, globalisation and the rise of a small number of culturally dominant languages are some of the significant contributors to the loss of indigenous languages. In the modern world, parents are no longer transmitting indigenous languages to their children; thus, the rich cultures and knowledge encoded in the languages do not transcend generations (Garcia-Alix, 2008; Crystal, 2000).

The use of dominant colonial languages has had a diverse influence on indigenous languages,

leading to their transformation. Increasingly, indigenous languages are referred to as ‘dialects’ and therefore rendered less prestigious and inferior to national (primarily colonial) languages, resulting in their loss. The dominant languages have become the choice of communication for parents with their children as they strive to create optimal conditions for their social and academic success (Dwivedi, 2014; Degawan, 2019).

According to Eberhard et al. (2020), Kenya is considered a multilingual state with an estimated 67 living languages, 60 of which are indigenous and seven non-indigenous. 13 of the 67 are considered institutional languages, while 33 are developing and 15 are considered vigorous. There are five dying languages out of the 67, and 1 is categorised as ‘in trouble’. A USAID report on the language of instruction country profile in Kenya by Dexis Consulting Group (2021) indicates that Kenyan schools do not use indigenous languages as a medium of instruction in the early grades due to reasons associated with logistics and politics despite strong support within official government policy. Some of the reasons given include a lack of instructional materials, community resistance, and the belief that English gives students an advantage if learned early.

Articles 13, 14 and 16 of the United Nations Declaration on the Rights of Indigenous People state that indigenous peoples (2007) have the right to ‘revitalise, use, develop’ and pass down their languages, oral customs, writing systems and literary works to succeeding generations. Additionally, the document emphasises the right of indigenous people to establish educational systems and media platforms in their languages as well as access to education delivered in their native language.

Kanyiga (2014) indicates that the Kenyan government, through articles 27(4) and 27(5) of its constitution, protects indigenous people against discrimination on the grounds of ethnicity and culture. The National Cohesion and Integration Act (2008) also outlaws the discrimination of individuals on the basis of ethnicity, race, colour and religion through the use of hate speech. These are a few examples of the efforts made by the Kenyan government to protect the rights of its indigenous people, their language and cultures. The constitution of The Government of Kenya (2010) promotes and protects the diversity of the people of Kenya through provisions for freedom of expression, choice of language and association.

Social media is one of the ways Kenyans explore and utilise their freedom of expression and diversity. The use of social media platforms has become very popular with Kenyans in recent years. The BBC Media Action (2018) conducted a nationally representative survey in 2015 on the media landscape in Kenya. The report indicates that nearly all Kenyans have access to some form of media. Of interest to our research is the data on the access to mobile phones and the internet. The report indicates that 97% of Kenyans have access to mobile phones, and 51% have access to the internet. 94% of Kenyans use mobile phones every week. The report further indicates that younger people (15-24 yrs.) have more access (66%) to the internet compared to older generations (65+yrs), who stand at 13%. The youth use their phones to access the internet, especially social media platforms that consume little data.

Existing literature Sallabank, 2010; Cassels, 2019; Chew, 2021; Munyadziwa & Mncwango, 2021 indicate that new media platforms like social media have become an avenue for use, promotion and digital peer-produced archives for indigenous languages. This became more evident during the COVID-19 pandemic when indigenous people had to practice social distancing; thus, communication via social media increased. These platforms allow users to broadcast their identities while aligning themselves with their indigenous cultural and linguistic

communities. Although more than social media networks may be required for the maintenance of indigenous languages, they play a part in their revitalisation because online spaces transcend geographical differences. They are not restricted to the traditional language territories. The casual nature of these platforms allows users to explore and experiment while adapting the indigenous language to their contexts. Multilingual contexts make code-switching/mixing a common phenomenon in the use of indigenous languages on social media platforms.

Social media platforms that are typically bidirectional, like Facebook and WhatsApp, involve connections with people who already know each other in the physical world. This makes culturally specific humour a core catalyst for building and maintaining indigenous connections virtually. Through social media platforms, new groups of similar indigenous backgrounds are formed in urban settings away from traditional territories. This contributes to the change in attitudes towards indigenous languages. Younger audiences are assiduous users of smartphones and social media. For them, social media has become a language resource, especially in regard to indigenous languages. (Outakoski et al., 2018; Vicari & Murru, 2020; McIvor et al., 2020)

Kenyan adolescents and youth spend much time on their phones and engaging in discussions using social media platforms like WhatsApp for communication. We have observed that memes are a trendy way of entertainment and also act as icebreakers in conversations. The present study set out to investigate how semiotic resources are used in memes containing indigenous languages for meaning-making in an effort to understand their effectiveness in indigenous language promotion.

2 Problem statement

The popularity of memes has extended to indigenous language use in social media networks to entertain and solicit responses from viewers. While there is an acknowledgement of the prevalence of social media use and the popularity of memes amongst the current generation of young people, there needs to be more understanding of their effectiveness in promoting indigenous language learning and use. This study set out to analyse a corpus of 100 memes with indigenous languages in their multimodal quality to examine and explicate popular themes and investigate how memes act as language-learning tools for young people. The aim of this study is, therefore, to understand how semiotic resources are used for meaning-making in indigenous language memes.

By the end of this chapter, the authors intend to provide answers to the following questions: What are the prevalent themes of indigenous language memes? What are the semiotic resources present in indigenous language memes? What are the standard modes of communication used in indigenous language memes? What cultural references are present in the modes used in indigenous language memes?

Language is a vehicle of culture through generations. With the advent of technology and the internet, memes have become a popular way of applying various modes of communication with cultural references. By analysing indigenous memes, this study will contribute to indigenous knowledge management and the acquisition of indigenous languages in the modern context in an effort to revive our rich linguistic culture. The world is in a state of rapid change in all aspects, be it social, economic, political, cultural, or technological. Indigenous languages need to take advantage of the new platforms from these changes to adapt and expand.

3 Theoretical framework

Multimodality by Kress (2010a) is a communication theory that assumes that representation and communication draw from a multiplicity of modes that form an ensemble of contributing factors to the meaning-making process. It is embedded in the analysis and description of meaning-making resources as used in different contexts of communication. Based on the domain of representation, these resources can be visual, spoken, gestural, three-dimensional, or written. The core concepts of this theory include mode (as used within social semiotics), semiotic resources (the connection between representational resources and how they are used), modal affordance (material and cultural aspects of modes) and inter-semiotic relations (contextualised configuration of modes).

For Kress (2010a), the use of semiotic resources that establish internal and external text cohesion results in coherent texts. To interpret a text, one has to break its internal elements down, resulting in a new text that is also coherent. The social environments of communities or groups in communities define the principles of coherence, which in turn define the text. To understand a text, one must understand the social environment under which it was conceived and produced. Generations are constructed through age, and they define group principles that appear as semiotic principles in texts.

We applied multimodality in the analysis of memes containing indigenous languages because of the cultural references existing in the memes. This theoretical tool was vital in understanding the organisation and application of meaning functions in indigenous language memes. We were able to analyse the representational, social, organisational, contextual and ideological aspects of linguistic and visual elements as used in memes containing indigenous languages.

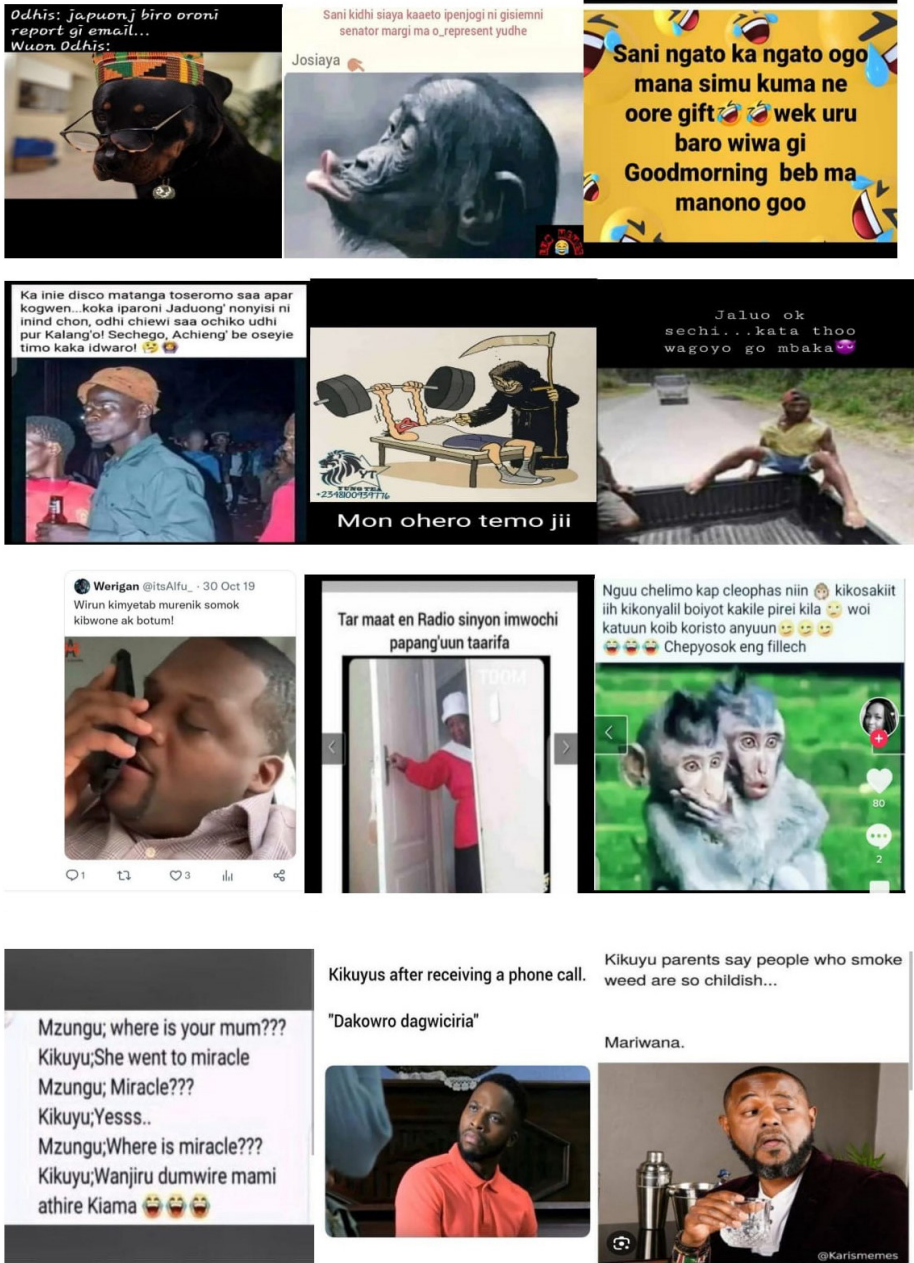
4 Methodology

The study was conducted through content analysis. A purposive sampling technique was used to pick five students from The Technical University of Kenya who frequently share memes containing indigenous language content on their WhatsApp accounts. The students provided a corpus of 100 memes in indigenous languages. The data was then analysed in its multimodal quality to examine and explicate popular themes and to investigate how memes act as language-learning tools for young people. Focus group discussions and face-to-face interviews were also conducted to collect data from respondents selected by a combination of purposive and snowballing techniques. The sample population included students from the Technical University of Kenya.

5 Findings and discussions

Out of the 100 memes collected, 7 had linguistic elements in Kiswahili and none in indigenous languages and, therefore, were not considered. Out of the remaining 93 memes, 68 had Dholuo, 18 had Kalenjin, and 7 had Kikuyu indigenous languages in terms of linguistic modes represented. The findings of the study are presented and discussed hereunder.

5.1 Selected images from the study sample



5.2 Popular themes on Indigenous language memes

From the analysed sample, the social relationships between men and women were the most popular theme appearing on 52% of the memes analysed. The most common topic of discussion was communication and interactions between couples in relationships. 50% of the memes analysed made reference to cultural norms and traditions. Money and status in society, although not as popular as the two themes above, appeared in 36% of the memes analysed.

Fashion 19%, food 18%, sex 16%, parents/kids relationships 14%, religion 14%, health 14%, politics 12% and death 11% are examples of other themes from the sample collected and analysed. These results are indicative of topics that young people at the university are discussing through the use of memes. Interactions between the two genders at the university and issues of culture and tradition attract much attention from the creators of indigenous language memes. The results also indicate the existence of a wide range of vocabulary and analogy in the two most popular themes.

Table 1: Themes of indigenous language memes

Themes	Dholuo (68)	Kalenjin (18)	Kikuyu (7)	Total (93)	% (100)
Men/Women relationships	41 (60%)	05 (27%)	02 (29%)	48	52
Parents/Kids relationships	05 (7%)	04 (22%)	04 (57%)	13	14
Money/Status	26 (38%)	03 (17%)	04 (57%)	33	36
Culture and traditions	27 (40%)	15 (83%)	04 (57%)	46	50
Fashion	16 (24%)	02 (11%)	-	18	19
Sex	14 (21%)	-	01 (14%)	15	16
Religion	12 (18%)	-	01 (14%)	13	14
Politics	09 (13%)	02 (11%)	-	11	12
Food	10 (15%)	06 (33%)	01 (14%)	17	18
Death	08 (12%)	02 (11%)	-	10	11
Health	08 (12%)	01 (6%)	04 (57%)	13	14
Drugs and alcohol	04 (6%)	-	02 (29%)	06	7
Education	03 (4%)	01 (6%)	-	04	4
Sports	02 (3%)	-	-	02	2
Film	02 (3%)	-	-	02	2
Feminism	01 (1%)	-	-	01	1

5.3 Semiotic resources present in indigenous language memes

Van Leeuwen (2004) defines semiotic resources as *'actions, materials and artefacts used for communicative purposes'*. Any material, social and cultural resource that is used as a means of meaning-making then qualifies as a semiotic resource. A person's voice, facial muscles, gestures he/she makes, a pen, ink, paper, phone, genres, modes, or media are all examples of semiotic resources as long as they act as means of meaning-making. Their meaning potential is based on their past uses, and affordances are based on possible uses depending on the social contexts within which they belong.

The meanings made using the various semiotic resources are bound to context. This means that these resources are constantly being transformed as the users and contexts change. People have the freedom and fluidity to combine semiotic resources to suit their interests and communication needs. (Kress, 2010b).

Linguistic resources and colour were used in 100% of the indigenous language memes analysed. Dholuo, Kalenjin and Kikuyu languages were represented in the analyses of the samples. Emoji as a semiotic resource was used to express emotion and mood in 56% of the semiotic text analysed. All three languages represented in the texts analysed emoji to stress various sentiments accompanying the message. Other semiotic resources present in the meme samples analysed include images (animals and people), nature, architecture, shapes,

texture, vehicles, TV characters, electronics, food, utensils and road signs. The frequency of use of these resources varied per indigenous language, as shown in Table 2.

Table 2: Semiotic resources on indigenous language memes

Semiotic Resources	Dholuo (68)	Kalenjin (18)	Kikuyu (7)	Total (93)	% (100)
Linguistic	68 (100%)	18 (100%)	7 (100%)	93	100
Colour	68 (100%)	18 (100%)	7 (100%)	93	100
Emoji	41 (60%)	7 (39%)	4 (57%)	52	56
Animal images	12 (18%)	3 (17%)	-	15	16
People images	10 (15%)	7 (39%)	4 (57%)	21	23
Nature	7 (10%)	5 (28%)	2 (29%)	14	15
Architecture (interior / exterior of buildings)	10 (15%)	4 (22%)	2 (29%)	16	17
Shapes	6 (9%)	1 (5%)	-	7	8
Texture	4 (6%)	-	-	4	4
Vehicles	4 (6%)	-	-	4	4
TV characters	5 (7%)	2 (11%)	-	7	8
Electronics	-	1 (5%)	1 (14%)	2	2
Food	-	-	1 (14%)	1	1
Utensils	-	-	1 (14%)	1	1
Road signs	1 (2%)	-	-	1	1

5.4 Modes of communication used in indigenous language memes

Modes are defined as representational channels that are particular to a community with shared knowledge and understanding of semiotic characteristics. They are, therefore, not universal, and for communication to take place, context is critical. Modes can be grouped under linguistic, visual, gestural, spatial or aural categories (Jewitt, 2009; Kress, 2010b).

Table 3 below represents the frequency of the five categories of modes on the indigenous language memes from WhatsApp. It is important to note that none of the memes were in audio or video format, and therefore, no aural mode was registered. 100% of the indigenous language memes analysed used linguistic modes. For this study, linguistic modes included indigenous words and numbers. Visual and gestural modes were also popular, with 84% and 73% representation, respectively. The visual modes included the use of colour, shapes, textures and images as part of the background or at the centre of the meme. Gestural mode included the use of emojis and images of people and animals that mimicked human gestures.

Table 3: Modes of communication in indigenous language memes

1. Mode	Frequency	%
Linguistic	93	100
Visual	78	84
Gestural	68	73
Spatial	47	51
Aural	0	0

According to Kress and Van Leeuwen (2006), spatial mode refers to the layout of the meme. In other words, it refers to the arrangement and placement of semiotic resources in either

two or 3-dimensional spaces within the frame of the meme. For this study, only memes with a combination of linguistic, visual and gestural modes were considered under the category of spatial modes. 51% of the indigenous language memes applied spatial mode.

5.5 Cultural references present on the modes used in indigenous language memes

50% of the memes analysed made references to cultural norms and traditions. In terms of the specific indigenous languages represented, as shown in Table 1, 83% of Kalenjin memes, 57% of Kikuyu memes and 40% of Dholuo memes made references to cultural norms and traditions. Drugs and alcohol abuse, food, death, religion, politics, sex, money and sarcasm are some of the topics discussed while making cultural references. Linguistic, visual and gestural modes were used in the discussions of the above topics.

6 Implications of the study

Memes employ a variety of modes, making them a useful digital tool that can be integrated into both formal and informal language learning curricula to promote not only the preservation but also the revitalisation of indigenous languages. The use of indigenous language memes on social media platforms by the youth is indicative of their efforts to take ownership of their linguistic and cultural heritage. The results show that memes are rich in semiotic resources and make reference to popular themes amongst the youth. As part of language learning initiatives in the digital age, there is a need to consider critical engagement and the creation of indigenous memes in the development of digital literacy skills.

The findings of this study could inform the development of curricula and teaching materials for indigenous languages and cultural studies, thus fostering an in-depth understanding of cultural expression and linguistic diversity. The results could also inform indigenous language revitalisation policies as they provide insights into effective indigenous language preservation and promotion in the digital age.

This study has shown that the complex interplay between language, culture, and digital communication needs to be explored. Collaboration between linguists, media studies researchers, anthropologists, and sociologists is also needed. This will, in turn, lead to the development of methodologies and approaches in the study of language use in digital environments incorporating techniques from the aforementioned domains.

7 Conclusion

The author concludes that the main focus of WhatsApp memes containing indigenous language was satire with social and cultural norms as their main theme. The findings are indicative of the popularity of memes with text-image combinations. From the focus group discussions, it was evident that these text-image memes had a positive reception amongst learners of indigenous languages as they provided context and incited curiosity among viewers.

The findings of this research confirm the author's suspicion that the young generation is engaging in discussions in indigenous languages using the available social media platforms. Humour, sarcasm and satire were employed to manoeuvre delicate and controversial topics. It is also worth noting that there were instances of code-mixing and code-switching in cases of insufficient lexicon in the indigenous language, leading to cultural cross-pollination.

8 Recommendations

An academic investigation into the use and/or application of the grammar of multimodal meaning in indigenous language memes is needed. Since the sample collected for analysis was skewed towards Dholuo, further research on the other indigenous languages is needed. A comparative study of the three indigenous languages represented in this research would be of interest to the author.

References

- BBC Media Action. (2018). *Kenya media landscape report*. Retrieved from <http://www.communityengagementhub.org>
- Cassels, M. (2019). Indigenous languages in new media: Opportunities and challenges for language revitalisation. *Working Papers of the Linguistics Circle*, 29(1), 25–43. <https://journals.uvic.ca/index.php/WPLC/article/view/18767/8271>
- Chew, K. A. (2021). #KeepOurLanguagesStrong: Indigenous language revitalisation on social media during the early COVID-19 pandemic. *Language documentation and conservation* 15, 239–266. <https://www.nccih.ca/en/publicationsExternalview.aspx?sortcode=2.21.0.0&id=1682>
- Corntassel, J. (2003). Who is indigenous? ‘Peoplehood’ and ethno-nationalist approaches to rearticulating indigenous identity. *Nationalism and ethnic Politics*, 9 (1), 75-100.
- Crystal, D. (2000). *Language Death*. Cambridge: Cambridge University Press.
- Degawan, M. (2019). Wide angle: Indigenous languages: Knowledge and hope. *The UNESCO Courier*, 2019(1), 6–8.
- Dexis Consulting Group. (2021). *USAID report on the language of instruction country profile: Kenya*. Washington DC: Bureau for Africa. https://pdf.usaid.gov/pdf_docs/PA00XH25.pdf
- Dwivedi, A. V. (2014). Linguistic realities in Kenya: a preliminary survey. *Ghana Journal of Linguistics* 3(2), 27–34.
- Eberhard, D. M., Simons, G. F., & Fennig, C. D. (2020). *Ethnologue: languages of the world*. Dallas: SIL International. *Online version: <http://www.ethnologue.com>*.
- Garcia-Alix, L. (2008). The United Nations Permanent Forum on Indigenous Issues discusses climate change. *Indigenous affairs*, 2, 1-23. https://www.iwgia.org/images/publications/IA_1-2_08_UNPFII.pdf
- Jewitt, C. (2009). *The Routledge Handbook of Multimodal Analysis*. London: Routledge.
- Kanyiga, K. (2014). *A review by AfriMAP*. Nairobi: University of Nairobi. https://www.refworld.org/themes/custom/unhcr_rw/pdf-js/viewer.html?file=https%3A%2F%2Fwww.refworld.org%2Fsites%2Fdefault%2Ffiles%2Flegacy-pdf%2Fen%2F2014-3%2F53aa8a954.pdf
- Kress, G., & Van Leeuwen, T. (2006). *Reading Images: The Grammar of Visual Design*. London: Routledge.
- Kress, G. (2010a). *Multimodality*. London: Routledge.
- Kress, G. (2010b). *Multimodality: A Social Semiotic Approach to Contemporary Communication*. London: Routledge.
- McIvor, O., Chew, K. A., & Stacey, K. N. I. (2020). Indigenous language learning impacts, challenges and opportunities in COVID-19 times. *AlterNative: An International Journal of Indigenous Peoples*, 16(4), 409-412.
- Munyadziwa, M. & Mncwango, M. (2021). Promoting the use of indigenous languages on social media. *International Journal of Research and Innovation in Social Science* 5(5), 310-314.

- National Cohesion and Integration Act (2008). Nairobi: National Council for Law Reporting. http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/NationalCohesionandIntegration-Act_No12of2008.pdf
- Outakoski, H., Cocq, C., & Steggo, P. (2018). Strengthening Indigenous languages in the digital age: social media-supported learning in Sápmi. *Media International Australia*, 169(1), 21-31.
- Sallabank, J. (2010). The role of social networks in endangered language maintenance and revitalisation: The case of Guernesiais in the Channel Islands. *Anthropological Linguistics*, 52(2), 184-205.
- The Government of Kenya. (2010). *The constitution of Kenya*. Nairobi: National Council for Law Reporting. <http://kenyalaw.org/kl/index.php?id=398>
- United Nations declaration on the rights of indigenous peoples. (2007). *UN Wash*, 12,1-18. https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf
- United Nations Permanent Forum on Indigenous Issues (n.d.) Indigenous Peoples and Languages <https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/04/Indigenous-Languages.pdf>
- Van Leeuwen, T. (2004). *Introduction to social semiotics: An introductory textbook*. London: Routledge.
- Vicari, S. & Murru, M. (2020). One platform, a thousand worlds: On Twitter irony in the early response to COVID-19 pandemic in Italy. *Social Media and Society*, 6(3). 1-4.
- Walsh, M. (2005). Will indigenous languages survive? *The Annual Review of Anthropology*, pp. 34, 293–315.

18. Promoting indigenous languages: code-switching and code-mixing in political discourse in Dholuo

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Abstract

Kiswahili is the national language of the Republic of Kenya as stipulated by the Kenyan constitution. Both Kiswahili and English are stipulated as the official languages of the republic. As for the indigenous languages, the constitution states that the state shall promote and protect the diversity of languages of the people of Kenya. As a result, the number of indigenous radio stations promoting the use of indigenous languages has increased in Kenya. This chapter presents the findings of a study that was conducted to investigate the use of code-switching in indigenous radio stations, specifically in the discussion of political issues. The chapter demonstrates how social representations influence the use of English and Kiswahili lexicon during discussions of political issues in indigenous languages in Kenya. The research was based on the markedness model and the social representations theory. Face-to-face interviews were conducted to collect data from Dholuo-speaking respondents selected by a combination of purposive and snowballing techniques. The sample population included respondents from the Kobong'o sub-location, the Onjiko location in Kisumu County, and students and staff from The Technical University of Kenya. A sample of political discourse was also recorded and analysed from an indigenous radio station (Mayienga FM). It was found that the use of the English lexicon is prevalent in the discussion of political issues in indigenous languages and that the attitude towards code-switching in indigenous languages was positive, especially amongst literate respondents. The authors concluded that the insufficient indigenous lexicon in discussion of political issues is due to the lack of formal structures for teaching indigenous languages.

Keywords: *Communication, radio stations, markedness, Dholuo, social representations*

1 Introduction

Corntassel (2003) states that indigenous people have a common culture, history and institutions anchored in native communities. The word indigenous is therefore grounded in community, history, people and their language. Walsh (2005) broadly defines indigenous language as any language that is native to a particular area and is spoken by the native inhabitants. In Kenya, this definition excludes English, Kiswahili, and Sheng languages.

Linguistically, Kenya is a heterogeneous country with an estimate of between 41-61 spoken languages (Muaka, 2011). A report by UNESCO-IBE (2010) states that English is the language of instruction in secondary schools in Kenya. According to the constitution of the Republic of Kenya (2010), the national language of the republic is Kiswahili, while both Kiswahili and English are stipulated as the official languages. The same constitution promotes and protects the diversity of languages of the people of Kenya. Each individual, therefore, has the right to use the language and participate in the cultural life of the individual's choice.

Codes are the various languages that people use to communicate with each other. Existing literature (Muysken, 2000; Wardhaugh, 1998; Fasold, 1996; Myers, 1993; Hymess, 1986;

Gumperz, 1982) indicates that the code choice in a multilingual setting (like Kenya) is dependent on various factors. One of the most important considerations that people make while choosing the code is the ease of communication as per the topic of discussion. These authors define code-mixing and code-switching as the alternation of two language varieties in the same conversation, especially in discussions involving individuals in multilingual communities. The literature suggests that the main difference between code-switching and code-mixing is at the sentential level: code-switching is an inter-sentential code-alternation, whereas code-mixing is an intra-sentential code-alternation.

From the 2019 Kenya Population and Housing Census report published by the Kenya National Bureau of Statistics (2022), 41.4% of the enumerated population above three years old were attending school, with the highest attendance being from 7 to 13 years old. This means that Kenyan youth can easily communicate in Kiswahili and English. However, this is different. Young adults and pre-adolescents use a variety of language called “sheng” as a symbol of group identity (Momanyi, 2009; Dwivedi, 2014; Otieno & Abong’o, 2017).

According to the Kenya-Media Landscape Report by BBC Media Action (2018), nearly all Kenyans have access to some form of media, with 98% of the population having access to radio, 97% having access to mobile phones, 81% access to television, and 51% have access to the internet. 63% of the population reside in rural areas, while 37% reside in urban areas. 95% of the rural population have frequent access to radio, while the number stands at 94% for those in urban areas. The report further indicates that Kenya has over 100 radio stations. English and Kiswahili language radio stations have the highest audience share because of their national outreach. Indigenous radio stations target specific ethnic groups and, therefore, have a lower audience share in comparison with the more national English and Kiswahili language radio stations. The indigenous language radio stations are, however, as indicated in the report, more influential in the rural areas where these languages are spoken as the mother tongue.

Existing literature (Orao, 2012; Sang, 2015; Cohen & McIntyre, 2019; Kemei et al., 2023) indicates that indigenous language radio stations in Kenya, mainly dedicated to news broadcast and entertainment, are thriving. Their growth and popularity continue despite the need for more state support in terms of moderation and promotion structures. Programs that engage communities in the discussion of socio-political and economic issues have also contributed to the proliferation of indigenous language radio stations.

The Royal Media Service (RMS), a private enterprise, operates 11 indigenous language stations, including Ramogi Radio for the Dholuo. The Kenya Broadcasting Corporation (KBC) is a governmental enterprise that operates radio services in several local languages, including Mayienga FM, which transmits from Kisumu to Dholuo (BBC Media Action, 2018). For the interest and benefit of this study, a sample conversation between a politician and a radio presenter was recorded from Mayienga FM.

In terms of the political discourse in Kenya and dissemination of socio-political and economic information, the Media Council of Kenya (2012), in their monitoring report, indicated that indigenous language radio stations were the main source of information in rural areas. This was later supported by a report by AfriMAP (2014) on Kenya’s Democracy and political participation. The report underlined the role of media in public awareness and sensitisation of various social, political, and economic activities. Indigenous FM radio stations in Kenya were found to have improved people’s awareness of socio-political and economic issues, especially in the rural areas where the majority of the Kenyan population resides.

Kenyan youth spend much time in school, where their language use is restricted to English, which is the language of instruction, and Kiswahili. As for the indigenous languages, the constitution states that the state shall promote and protect the diversity of languages of the people of Kenya. Radio stations promoting the use of indigenous languages have a significant influence on creating awareness of socio-political and economic issues in indigenous languages. This has translated into these radio stations becoming the authority in terms of lexicon in socio-political and economic discourse.

2 Problem statement

Kiswahili is the national language of the Republic of Kenya as stipulated by the Kenyan constitution (Republic of Kenya, 2010). Both Kiswahili and English are stipulated as the official languages of the republic. As for the indigenous languages, the constitution states that the state shall promote and protect the diversity of languages of the people of Kenya. As a result, the indigenous radio stations promoting the use of indigenous languages have increased in number in Kenya (the Media Council of Kenya, 2012; Orao, 2012; AfriMAP, 2014; Sang, 2015; BBC Media Action, 2018; Cohen & McIntyre, 2019; Kemei et al., 2023). We have observed that there is a lot of code-switching and code-mixing involving Kiswahili and English lexicon in indigenous radio stations. This is especially rampant in political discourse. This chapter, therefore, aims to investigate the motivations for and attitudes towards code-switching and code-mixing in political discourse in Dholuo.

By the end of this chapter, the authors intend to provide answers to the following questions: What are the types of code-switching and code-mixing used in Dholuo political discourse? What are the functions of code-switching and code-mixing in Dholuo political discourse? What is the motivation for using code-switching and code-mixing in Dholuo political discourse? What is the role of social representation in determining attitudes towards code-switching and code-mixing?

Language is not only a vehicle for cultural norms, traditions, and values but also a person's identity. People lose their identity and culture when they stop using their indigenous languages in communication. With politics at the centre of many debates and discussions in Kenya, enriching vocabulary in indigenous political discourse ensures the promotion and continued use of indigenous languages. This study highlights the inadequacy of the indigenous lexicon in political discourse and gives suggestions and recommendations to improve it.

By focusing on political discourse, the authors aim to bring the public's attention to a specific area of the lexicon that needs development and improvement. The popularity of political discourse in Kenya can enrich indigenous languages and promote their use.

3 Theoretical framework

Markedness theory

The markedness theory by Myers-Scotton (1989) posits that individuals in multilingual settings make use of linguistic choices for the negotiation of identity in conversations during interpersonal communication. Speakers make the code choices at a subconscious level indexical of social relationships in conversations. The code choices indexing 'expected rights and obligations set between participants' are unmarked, while the other codes are marked. The use of a marked code choice is, therefore, a negotiation strategy. Community norms dictate the status of codes; therefore, the participants rely on their knowledge of readings

of markedness to interpret social meanings of code choices during conversations. Members of the same community make similar interpretations of social meanings of marked and unmarked code choices. Unmarked code choice is an indication or negotiation of status quo while marked code choices indicate social distance between participants. The distance can be more or less depending on participants' backgrounds.

Code-switching (CS) has four motivations within a single conversation: Sequential unmarked choices (switching from one unmarked choice to another due to external forces like a new participant joining the conversation or a change of topic); CS as an unmarked choice (where participants have dual identities and CS is the norm); CS as a marked choice (indicative of change in social distance); CS as an exploratory choice presenting multiple identities (indicative of non-conventional exchange of first-time meeting).

Myers-Scotton (1993) developed the Matrix Language Frame Model (MLF) to analyse extra sentential code-switching data. The model posits that the basic word structure of the Matrix Language (ML) determines what happens to words in the Embedded Language (EL). Therefore, ML is the dominant language, while EL is the subordinate language in a conversation involving CS.

Social Representations theory

Serge Moscovici formulated this theory (1988, 2000). The theory postulates that social structures such as family, religion, and educational institutions inform our thinking and behaviour as individuals in society. An individual's interpretation and perception of the world stems from his socialisation over time. Höijer (2011) states that meaning-making under social representations theory is viewed as a "collective process" that leads to common cognition, which in turn unites societies through social bonding.

For Moscovici (1973, 1984), Social representations (SR) are ways in which individuals and groups conventionalise objects, people and events they encounter. The collection of past social conventions is the basis of SR prescription. We tend to anchor the unfamiliar on the familiar, making comparisons in order to make sense of the world. Our Social Representations provide the codes used for naming and social exchange. This means that a slight change in the code can change our collective thoughts and behaviour. For example, we are changing the meaning of a word like 'gay' from 'happy' to 'homosexual' or changing our speech patterns to include words from a foreign language.

The combination of markedness theory and social representations theory can provide a comprehensive framework for understanding code-switching in multilingual contexts. This framework explains how marked forms are used in code-switching to convey social meanings and how social representations influence the interpretation and use of code-switching. This conceptual framework highlights the complex interplay between linguistic and social factors in code-switching. It provides a foundation for further research on the role of markedness and social representations in multilingual contexts.

At the heart of this framework is the idea that both linguistic and social factors influence language use. Markedness theory posits that language forms are marked or unmarked based on their frequency of use and their typicality in a particular linguistic context. In the context of code-switching, this means that speakers may use marked forms from one language to convey a particular meaning or intention or to signal their social identity or group membership.

Social representations theory, on the other hand, emphasises the ways in which social context and cultural norms shape the construction and interpretation of meaning. In the context of code-switching, this means that speakers may use code-switching to negotiate social relationships and assert their social status or power or to accommodate the linguistic needs of others in a particular social context.

The combination of these two theories provides a more complete understanding of code-switching, in which language forms and social meanings are seen as interdependent and mutually reinforcing. Marked forms are used in code-switching to signal social meanings and social representations shape the interpretation and use of code-switching in multilingual contexts.

To illustrate this framework, consider a multilingual community where speakers regularly switch between two languages, A and B. In this context, speakers may use marked forms from one language (English or Swahili lexicon) to convey social meanings or to signal their group membership. For example, a speaker may use a marked form from Language A to assert their identity as a member of a particular ethnic group or to express solidarity with a particular social movement.

Social representations of the groups involved influence the interpretation of code-switching in this context. For example, suppose Language A is associated with a lower education status. In that case, the use of code-switching to incorporate marked forms from Language A may be interpreted as an attempt to assert one's education status or identity within that group. Conversely, if Language A is associated with a higher education status, the use of code-switching may be interpreted as an attempt to signal one's exposure or global identity.

4 Methodology

This being qualitative research, face-to-face interviews were conducted to collect data from respondents selected by a combination of purposive and snowballing techniques. These two techniques were applied as we were only considering respondents who spoke Dholuo and indulged in Dholuo political discourse. As mentioned, Kenya is a multilingual country with an estimated 65 indigenous languages. A combination of purposive and snowballing techniques enabled us to get the right sample for the current research. The study population included respondents from the Kobong'o sub-location, the Onjiko location in Kisumu County and students and staff from the Technical University of Kenya. We applied the principle of saturation to determine our sample size, which included 20 respondents. Kobong'o sub-location is home to Dholuo speakers for reasons of accessibility and feasibility for the researchers. The Technical University of Kenya was also chosen for accessibility and feasibility reasons, as all the researchers are members of staff at the same institution. The respondents from the Technical University were also selected using purposive and snowballing sampling techniques. The interview technique was used to collect data on the motivations for and the role of social representations in code-switching during political discourse. A sample of political discourse from Mayienga FM (27 May 2021) was analysed using the markedness model to determine the types and functions of code-switching and code-mixing. This radio station is operated by the Kenya Broadcasting Corporation (KBC), which is a government enterprise.

5 Findings

The findings of the study are presented and discussed hereunder.

5.1 Types of code-switching and code-mixing used in Dholuo political discourse

In our analysis of an interview between Festus Amimo (radio presenter) and Babu Owino (Member of Parliament from Embakasi East constituency in Nairobi County, Kenya) on *Mayienga FM radio* during *Gari Mokinyi* show on 27 May 2021, the borrowed words were mainly from English. Kiswahili words also featured in the conversation. The following sample extract from the interview demonstrates the switching and mixing of codes by both participants.

Babu Owino: ka gi see dhii ofis kanyo gi **drop certificate** gi...abiro kelo nuu ng'ama **train** wuu... idhii mi wuu **loans** utim go **biashara...biashara at least** dhii miyo wuu gimoro matin ukonyru go... [*when they go to the office, they drop their certificates...I will bring somebody to train you...you will be given loans for business...the business will at least give you something to survive on*]

Festus Amimo: ...**unless pesa** michiwo Nairobi opogore gi michiwo kaluo kocha... [*Unless the amount of money given in Nairobi is different from the amount given in Luo land*]

Babu Owino: **Pesa** to rom, en mana ni ok adwaa ni awuo ne **colleagues** ga...jomoko kane **campaign** ne dwaro tich ne **power** kende... [*the amount of money is equal, but I do not want to talk on behalf of my colleagues... when some people were campaigning, they did it only for power...*]

Festus Amimo: **Mheshimiwa** Babu Owino, **siasa** mar piny luo ochomo kumachal nade? [*Honourable Babu Owino, where is Luo politics headed?*]

Babu Owino: **Siasa** mar piny luo ni gi **leadership**, to **leadership** mar piny luo wachago gi baba... ka ne Joho owuok nidwaro chung **president**, nanyise ni **too much ambition destroyeth a man however too little ambition takes a man nowhere....** Raila Amollo Odinga **is the only ODM leader** ma pok noyudo gi mane omanyoo ga... [*politics in luo land has its leadership, the leadership of luo land starts with Baba... when Joho wanted to run for president, I told him that too much ambition destroyeth a man however too little ambition takes a man nowhere.... Raila Amollo Odinga is the only ODM leader who has never gotten what he is looking for...*]

From this extract, it is evident that the indigenous language (Dholuo) is the unmarked choice, while English and Kiswahili are marked choices. Intra-sentential code-mixing is dominant in the conversation for both participants. The indigenous language remains dominant, while English and Kiswahili serve as subordinates. Insertion and alternation are the most dominant forms in the intra-sentential code-switching observed from the above extract.

5.2 Functions of code-switching and code-mixing in Dholuo political discourse

There were instances where **Code-Switching was used as an unmarked choice**. The participants used code-switching and mixing to indicate their dual identities. Both participants are multilingual and speak the three languages showcased at the same level; therefore, code-switching indexes the expected rights and obligations.

Code-Switching was also used as a marked choice. The politician Babu Owino uses this strategy to showcase his mastery of the English language and show the journalist Festus Amimo how educated he is, thus creating social distance between the participants. English is seen to have a higher status and prestige, which is indicative of differences in class between the speakers.

5.3 Motivation for using code-switching and code-mixing in Dholuo political discourse

To understand the motivations behind code-switching and mixing among Dholuo speakers when discussing political matters, we conducted face-to-face interviews with respondents. The main objective of the interviews was to find out if they switched and mixed codes during political discourse and why they did so.

80% of our respondents indicated that they switch and mix codes while engaging in Dholuo political discourse, while the remaining 20% did not switch and mix codes. Kiswahili, English, and Sheng were indicated by the respondents as the common languages from which they borrowed political terminology. The data indicated two primary motivations for switching and mixing codes during Dholuo political discourse. These motivations include:

a. Lexical gap

The insufficiency of indigenous vocabulary while engaging in political discourse was mentioned by 60% of respondents as the reason for switching and mixing codes. The respondents indicated that because most of the political lexicon is learned in school, they were unable to find indigenous language vocabulary to express political concepts. Those who knew the necessary indigenous vocabulary were forced to switch and mix with either English, Kiswahili or Sheng terminology in order to be understood when talking to those with limited indigenous language vocabulary.

b. Socialisation

50% of the respondents who switch and mix codes during Dholuo political discourse do so because they live in metropolitan settings or their friends influence them and think it is "cool" to do so. Institutions of socialisation such as peer groups, educational institutions, family and religious institutions seem to influence our speech patterns and choice of vocabulary.

5.4 Role of social representation in determining attitudes towards code-switching and code-mixing

The data collected from the interviews indicated that 40% of the respondents were in tertiary institutions, 40% had indicated high school as their highest level, and 20% had indicated primary as their highest level. In terms of attitudes towards code-switching in political discourse, 60% of the respondents had a positive attitude, 20% had a negative attitude, and 20% were indifferent. The 60% of the respondents with positive attitudes towards code-switching in political discourse were either in tertiary institutions or had finished high school. The 20% of respondents with negative attitudes towards code-switching in political discourse had indicated primary as their highest level of education.

6 Discussion of findings

The main objective of this study was to investigate the motivations for and attitudes towards code-switching and code-mixing in political discourse in Dholuo. To achieve this objective, we examined the types of code-switching and code-mixing used in Dholuo political discourse, the functions of code-switching and code-mixing in Dholuo political discourse, the motivation for using code-switching and code-mixing in Dholuo political discourse, and the role of social representation in determining attitudes towards code-switching and code-mixing.

Muysken (2000) states that there are three types of code-switching and mixing: insertion (word/phrase), alternation (clause) and segment lexicalisation (dialect). The author further indicates that alternation is the most commonly used of the three. According to Li (2008), there are grammatical (where in the utterance the switching occurs) and contextual (based on reasons why a bilingual switches) classifications of code-switching. Tag code-switching, inter-sentential code-switching and intra-sentential code-switching are classified as grammatical. Situational or contextual code-switching occurs when there is a change of context requiring the speaker to switch codes. From the extract, the interlocutors chose to employ either inter-sentential or intra-sentential code alternations. Instances of code-switching as an unmarked choice were indicative of the speakers' dual identities, while code-switching as a marked choice was used to show status. These functions of code-switching are in line with findings from Nwode and Osechukwu (2021).

Various authors (Muysken, 2000; Wardhaugh, 1998; Fasold, 1996; Myers, 1993; Hymess, 1986; Gumperz, 1982) concur that there are various factors affecting the code choices of multilingual speakers. The lack of relevant vocabulary in indigenous languages is considered a motivation for code-switching due to the fact that English and Kiswahili are the languages of instruction, especially for technical subjects. The respondents indicated that they are socialised to code-switch. Not enough time is allocated to indigenous languages in schools. The youth also have a variety of languages to choose from, so they do not develop their linguistic competencies in indigenous languages. These findings support the argument made by Ochieng (2009) that code-switching is a necessary consequence of extra-linguistic factors, including but not limited to social variables.

Educational institutions as avenues of socialisation. Our educational backgrounds largely influence the way we interpret the world around us. Kenyan youth prefer communicating in either English or Kiswahili, which are the official languages of instruction in Kenya. They also use a variety called "sheng" in their day-to-day conversations. (Momanyi, 2009; Dwivedi, 2014; Otieno & Abong'o, 2017). The results from this study indicate that 60% of the respondents had a positive attitude towards code-switching and code-mixing in Dholuo political discourse. This is reflective of their social representation and academic status.

7 Implications of the study

Indigenous radio stations transmitting programs in Dholuo use code-mixing and code-switching due to inadequate lexicon to express ideas in technical subjects like political discourse. This study has shown that their listeners also employ the same technique in political discourse. This implies that if media houses improve their lexicon in technical subjects, the same will be easily transferred to their listeners, thereby improving their indigenous vocabulary.

8 Conclusion

Social institutions play a significant role in defining the attitudes of speakers towards both dominant and less dominant cultural languages. As much as mass media play a vital role in the promotion of indigenous languages, there is a need for training journalist to improve their linguistic capabilities in the indigenous languages. Code-switching and code-mixing only diminish the status of indigenous languages in comparison with dominant culture languages like English, Kiswahili and Sheng.

9 Recommendations

- There is a need for the development and documentation of a political lexicon in indigenous languages.
- Media houses need to exercise restraint in using dominant cultural languages to develop and promote indigenous languages.
- There is a need to promote the use of indigenous languages in institutions of learning to change speakers' attitudes towards them.

References

- AfriMAP. (2014). *Kenya Democracy and Political Participation*. East Africa: Open Society Foundation. <https://www.opensocietyfoundations.org/uploads/b24bc86e-9fa4-4771-980d-0888a7871e60/kenya-democracy-political-participation-20140514.pdf>
- BBC Media Action. (2018). *Kenya media landscape report*. Retrieved from <http://www.communityengagementhub.org>
- Cohen, M. S., & McIntyre, K. (2019). Local Language Radio Stations in Kenya: Helpful or Harmful? *African Journalism Studies* 40(3),73-88
- Corntassel, J. (2003). Who is indigenous? 'Peoplehood' and ethno nationalist approaches to rearticulating indigenous identity. *Nationalism and ethnic Politics*, 9 (1), 75-100.
- Dwivedi, A. V. (2014). Linguistic realities in kenya: a preliminary survey. *Ghana Journal of Linguistics* 3(2), 27-34.
- Fasold, R. (1996). *The Sociolinguistics of Society*. Oxford: Blackwell.
- Gumperz, J. J. (1982). *Discourse Strategies*. Cambridge: Cambridge University Press.
- Höijer, B. (2011). Social Representations Theory. *Nordicom Review* 32(2), 3-16. https://www.researchgate.net/publication/313252833_Social_Representations_Theory
- Hymess, D. (1986). *Directions in Sociolinguistics: The Ethnography of Communication*. Oxford: Basil Blackwell.
- Kemei, J. N., Lusambili, K. M., & Okoth, P. G. (2023). History of Community and Indigenous Language Mass Media Evolution in Turkana County from 1963-2022. *Athens Journal of History* 9, 1-19 <https://www.athensjournals.gr/history/2023-5303-AJHIS-Kemei-03.pdf>
- Li, D. C. (2008). Understanding mixed code and classroom code-switching: Myths and realities. *New Horizons in Education*, vol.56, pp. 75-87.
- Mayienga FM radio (27 May 2021). *Babu Owino talks with Festus Amimo on Gari Mikinyi show*. [Video] YouTube. https://www.youtube.com/watch?v=8R088HNkKPE&ab_channel=KBCDigitalRadio
- Media Council of Kenya. (2012). *Performance of vernacular radio stations in kenya monitoring report*. Retrieved from <https://www.mediacouncil.or.ke/>
- Momanyi, C. (2009). the effects of sheng in the teaching of Kiswahili in Kenyan schools. *The Journal of African Studies*, pp. 127-138.
- Moscovici, S. (1973). Foreword. In C. Herzlich (Ed), *Health and illness: A social psychological analysis* (pp. ix-xiv). London: Academic Press
- Moscovici, S. (1984). *Psychologie sociale*. Paris: Presses Universitaires de France.
- Moscovici, S. (1988). Notes towards a description of social representations. *European journal of social psychology* 18, 211-250.

- Moscovici, S. (2000). *Social representations: explorations in social psychology*. Cambridge: Polity Press.
- Muaka, I. (2011). Language perceptions and identities among Kenyan speakers. *Selected proceedings on the 40th annual conference on African linguistics* (pp. 217–230). Somerville, MA: Cascadilla Proceedings Project. <http://www.lingref.com/cpp/acal/40/paper2577.pdf>
- Muysken, P. (2000). *Bilingual Speech: A typology of code-mixing*. Cambridge: Cambridge University Press.
- Myers, S. C. (1993). *Social motivations of code-switching*. Oxford: Clarendon.
- Myers-Scotton, C. (1983). The negotiation of identities in a conversation: a theory of markedness and code choices. *International journal of language* 44, 115–136.
- Myers-Scotton, C. (1989). Codeswitching with English types of switching, types of communities. *World englishes* 8(3), 333–346.
- Myers-Scotton, C. (1993). *Matrix Language Frame Model theory of codeswitching*. Oxford: Oxford University Press.
- Nwode, G. C., & Osechukwu C. N. (2021). Code-switching and code-mixing in Interactive Radio Phone-in Programmes. *Ebony Journal of Language and Literature* 4(1), 66–76.
- Ochieng, R. O. (2009). An exploration of extra-linguistic factors of English – Kiswahili code-switching in FM Industry in Kenya. *African Journals Online*, 151–159. <https://www.ajol.info/index.php/jolte/article/view/41780/37139>
- Orao, J. (2012). The Kenyan indigenous languages and the mass media: Challenges and opportunities. *Stellenbosch Papers in Linguistics Plus*. 38. 77–86.
- Otieno, T. A., & Abong'o, D. C. (2017). Role of language in indigenous knowledge management in Kenya. *Emerging trends in information knowledge management*, pp. 185–196.
- Sang, H. K. (2015). Development Discourse in Kenyan Vernacular Radio: A Case Study of Kass FM. *Research on Humanities and Social Sciences* 5(6), 63–72. <https://core.ac.uk/download/pdf/234674446.pdf>
- The Kenya Bureau of Statistics. (2022). *the 2019 Kenya Population and Housing Census report*. Nairobi: the Kenya Bureau of Statistics. <https://www.knbs.or.ke/2019-kenya-population-and-housing-census-results/>
- Republic of Kenya. (2010). *The constitution of Kenya*. Nairobi: National Council for Law Reporting. <http://kenyalaw.org/kl/index.php?id=398>
- UNESCO-IBE. (2010). *International Bureau of Education of UNESCO*. Retrieved from <http://www.ibe.unesco.org>
- Walsh, M. (2005). Will indigenous languages survive? *The annual review of Anthropology*, pp. 34, 293–315.
- Wardhaugh, R. (1998). *An Introduction to Sociolinguistics*. New York: Basil Blackwell.

19. The Importance of Indigenous Language in The Curation and Preservation of Indigenous Knowledge

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Abstract

Indigenous knowledge is the unique knowledge confined to a particular culture or society. It is also known as local knowledge, folk knowledge, people's knowledge, traditional wisdom or traditional science. Language is a critical element in all aspects of life. It is one of the most fundamental ways in which different communities in the world strengthen their community well-being, reaffirm their sense of belonging, and express their culture and the place of their communities in society, as alluded to by SDG 11. Communities across the world have experienced loss of their indigenous knowledge due to the absence of indigenous language for identity purposes. The objective of this research is, therefore, to examine the importance of language, more so, the indigenous language, in the curation and preservation of indigenous knowledge. A qualitative study using structured interviews with two museum curators and ten native speakers was carried out. The practical impact of the study is a proposal of ways in which indigenous languages can be used to preserve indigenous knowledge. The findings of this study pave the road towards integrative policies that recognise more explicitly the inseparable links between indigenous language and cultural heritage. These findings also intend to show further that the curation and preservation of indigenous knowledge largely depend on an indigenous language. The study implies that promoting the use of indigenous languages in curating and preserving Indigenous knowledge can contribute to cultural sustainability and intergenerational knowledge transfer. The conclusion is that the use of indigenous languages in curating and preserving Indigenous knowledge across the world can help meet the broader objectives of society.

Keywords: *Native language, transmission of knowledge, cultural heritage, linguistic heritage*

1 Introduction

Indigenous People are valued people in society because of the wealth of knowledge they have and have been transmitting from one generation to the other. Every year on the 9th of August, the whole world celebrates the “indigenous communities”. The day is known as “The World’s Indigenous People’s Day”, which came into being by a decision made by the UN General Assembly in December 1994. The day was picked in honour of the 1982 Geneva-based Working Group on Indigenous Populations of the UN Sub-Commission on the Promotion and Protection of Human Rights inaugural meeting, which served as the inspiration for the date. This day holds immense significance as it serves to spotlight the rich cultural diversity, heritage, and contributions of indigenous communities globally.

According to the message from Ms Audrey Azoulay, Director-General of UNESCO, on the occasion of the International Day of the World’s Indigenous (UNESCO, 2023a): Indigenous Peoples live in all regions of the world and own, occupy or use some 22% of global land area. Numbering at least 370-500 million, Indigenous Peoples represent the greater part of the world’s cultural diversity. They speak an overwhelming majority of the world’s estimated

7,000 languages and represent 5,000 different cultures. Despite their cultural differences, Indigenous Peoples from around the world share common problems related to the protection of their rights as distinct people.

One of the common problems faced by these Indigenous Peoples, amongst others, is the fact that their languages continue to be endangered everywhere in the world. According to indigenisation researchers, some of these indigenous languages are critically endangered and may be extinct within the next generation. In 2017, Otieno and Abong'o stated that amongst the youth today, for example, in Kenya, very few speak the indigenous language. As a result, there is a significant threat to the loss of indigenous knowledge in Kenya. This study also points out that some of the Kenyan adults interviewed in this current study have difficulties expressing themselves in the indigenous language. Therefore, they need help even to identify the indigenous artefacts in the indigenous language. The problem of the loss of indigenous languages, which is a worldwide phenomenon, is quite worrying. The Kenyan government has been actively working towards preserving the country's indigenous languages. According to adf-magazine (2020), the civil society groups and the Kenyan Ministry of Sports, Culture and the Arts have collaborated to draft a bill aimed at documenting and promoting indigenous languages in Kenya. This initiative reflects the government's commitment to safeguarding the nation's linguistic diversity. We are aware that the indigenous languages are of great importance in the traditional society. The current study, therefore, postulates that if the indigenous language is not used to curate and preserve indigenous knowledge, the culture of a given community will be lost within the many cultures in the world. However, only language and indigenous languages, in particular, will help identify and distinguish a given community in a given space.

Traoré (2017) emphasises the crucial role of language in communication and sustainable development. He highlights that without effective communication, development cannot occur, making language essential for achieving sustainable development goals.

The indigenous communities have had traditional objects for their day-to-day activities. These traditional artefacts include pots, baskets, headdresses/headgear, plates, chairs and so on. These objects or containers have their indigenous names, values and purposes. The current study is going to delve into *pottery* from the indigenous point of view and give examples from three African countries, namely Kenya, Ghana and South Africa.

This paper hypothesises that when a traditional container is not labelled or called in the indigenous language to denote the purpose, the meaning of this object loses its cultural value and purpose along the way. This study, therefore, seeks to address the critical link between an indigenous object and its name in the indigenous language.

2 Problem statement

Language is identified as the vehicle of a worldview, the vehicle of a culture and, most importantly of all, the instrument of thought. A people's culture is precious. When culture is not curated and preserved, a community loses its identity. An indigenous language, therefore, is the tool that will play this crucial role in helping identify an indigenous object and relate it to the community where it belongs. Therefore, for Indigenous Peoples, their culture is the essence of who they are, who they belong to, where they come from, and how they relate to one another. Culture is the accumulated teachings of ancestors.

Indigenous languages are considered not only as methods of communication but also as extensive and complex systems of knowledge that have developed over millennia. These languages are

essential and central to the identity of indigenous peoples and the preservation of their cultures, worldviews, and visions, and they equally serve as an expression of self-determination.

Traditional societies have created language to capture the nuances of their daily activities. For instance, the word was not just “pot”; there was a word for POT1, which was used for A, and POT 2, which was used for B. Enter COLONIALISM, and a new language and values – culture – was imposed, which ignored the nuances captured by the different traditional names of the POTS. However, even where post-colonial societies have tried to reclaim their pre-colonial values, an even more robust, more insidious enemy has arisen in the form of GLOBALISATION, whose effect is to erase diversity in the name of the ‘global village’ – Formal education, English; Hollywood; Coca Cola; Microsoft; Internet; English Premier League; Artificial Intelligence; Mac Donalds. Individualism has been/is being sacrificed at the altar of the global one.

In this context, indigenous cultures and values are being erased from memory as we all compete to be the global best. The loss of indigenous languages is accompanied by the loss of the values that such languages encapsulated.

Meanwhile, there has been a growing concern with the globalising trend that is eradicating diversity and individuality. Organisations like UNESCO have been at the forefront of championing the curation and preservation of indigenous knowledge, such as through the preservation of indigenous languages. This paper illustrates how the globalisation of language is papering over indigenous knowledge and thereby highlights the need for the preservation of indigenous languages, which are a significant repository of indigenous knowledge.

The main objective of this study is to determine whether the curation and preservation of Indigenous Knowledge can be done without an indigenous language. The research also reflects on the value of the curation and preservation of Indigenous Knowledge. As such, the objective of the study has led to the following research questions: 1. What is the importance of the curation and preservation of indigenous knowledge? 2. Is an indigenous language important in the curation and preservation of indigenous knowledge? 3. Has the loss of indigenous languages contributed to the loss of Indigenous knowledge? 4. What is the impact of globalisation on indigenous knowledge? 5. What have (the various) governments done to implement the SDG 11?

From time immemorial, people’s culture and knowledge have been kept in oral tradition, which is still highly valued to date. Oral narratives were used to teach skills and transmit cultural values through indigenous languages. Today, these indigenous languages across the world are endangered. Meanwhile, it is well known that language plays a crucial role in protecting a people’s culture anywhere in the world. All communities in the world have vibrant cultures that merit being showcased. This study will go a long way in proposing ways in which language can be used in the curation and preservation of indigenous knowledge for future generations, our museums, and any other cultural centres in a country. These indigenous languages contain a wealth of knowledge that can be invaluable for sustainable development. UNESCO (2023b) points out that *For the indigenous peoples, languages not only identify their origin or membership in a community, but they also carry the ethical values of their ancestors, which include the indigenous knowledge systems that make them one with the land and are very crucial to their survival and to the hopes and aspirations of their youths.* Language is, therefore, a key element in all aspects of life.

This study fills a gap in the literature on the curation and preservation of Indigenous Knowledge. The study explores the use of Indigenous language in the curation and preservation of indigenous artefacts. The study also proposes a framework for the curation and preservation of Indigenous Knowledge.

3 Understanding the theory of language

The theory that guides this study is based on the principles of “Linguistic relativity”, which tells us that language directly influences the way people view the world. The Sapir-Whorf Hypothesis posits that language either determines or influences one’s thoughts. In other words, people who speak different languages see the world differently based on the language they use to describe it. The United States Anthropologist Edward Sapir stated that the language habits of specific groups of people built the real world, and no two languages are similar in such a way that they would represent one society. The world for each society is different. A given culture in Kenya, for instance, will have indigenous containers for storing water, cooking food and so on and give it an indigenous name, just like a given culture in South Africa will have an indigenous container for the same purpose in a different shape and give it an indigenous name according to that culture so as to identify this object or the container. Another culture in Ghana will name the same container for the same purpose with a totally different indigenous name. This, therefore, means that speaking a language means that the person is assuming a culture. Sapir-Whorf’s hypothesis also reiterates the fact that we are more alike than we are different, no matter what language we speak.

Going by this theory of language, the authors give an overview of the measures for preserving indigenous knowledge within a society, as illustrated in Figure 1, with particular emphasis on the preservation of indigenous languages and cultures. The figure proposes at least four ways of preserving these languages and cultures: by encouraging their use in homes and communities, by integrating them into educational programmes, by promoting activity-based cultural festivals, and by integrating culture into the arts, such as song and theatre.

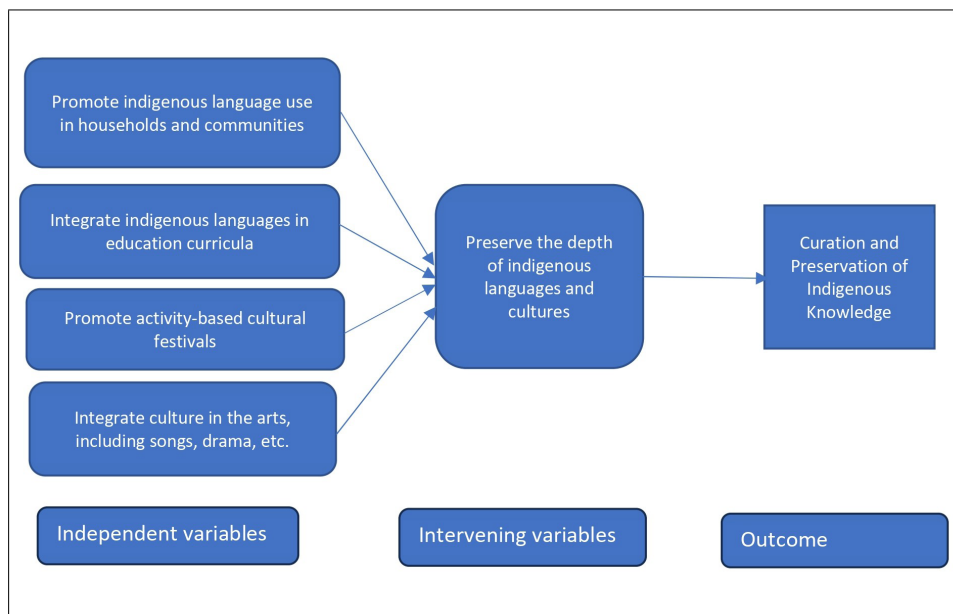


Figure 1: Measures for preserving indigenous language

Source: The authors

The study concentrates on the artefacts of a given community and touches on the impact of colonisation and globalisation on these artefacts.

As in many societies, indigenous identities are usually expressed in specific words, which are, in turn, embedded in cultural practices, political outlooks, as well as in religious beliefs. The role of words - that is, language - is therefore vital: it organises and gives meaning to people’s experiences. In other words, a language is tied to the culture and worldview of an indigenous group; it is obviously central to that group’s identity, for it defines the way a group understands itself, the world, and its place in it.

The takes us through the literature review on the curation and preservation of indigenous knowledge using the indigenous language.

4 Literature review

A diverse body of research has been done to tackle the area of language and culture. Navare (2013) talks about “Conservation of Culture through Language”, where she mentions the use of language as a practical gadget to conserve cultural heritage. Navare takes it from the angle of literary forms and art forms that depict history, giving a sense of continuity to a given culture. She advocates for vernacular literature because this is the only form that offers a continuous record of the society’s adaptations and formations. Viader (n.d) deplores that the Indigenous peoples today stand at the crossroads of globalisation. She evokes the risk of the extinction of indigenous languages, culture and ways of life in the indigenous communities because of the imposition or the voluntary subscription to the modern ways of life. Yankuzo (2013) talks of how *“the world is being compressed into a single space now referred to as a global village’ where African societies are forced into accepting the uniform moral principle of what is right and wrong within the global cultures, whereas the African communities have their many unique cultures.”*

Evidently, this shows the concern researchers have in this area about the importance of curation and preservation of indigenous knowledge for future generations.

In the current study, the authors have come up with the table below to show how the communities in these three different African countries have different indigenous names for the various containers used for different purposes.

Table 1: Pots in an African context

	Kenya		South Africa	Ghana
	Luo	Luyia	Zulu	Vume
Water storage	<ul style="list-style-type: none"> ▪ <i>Mbiru</i> – narrow mouth ▪ <i>Dapi</i> – wide mouth 	Isukha <ul style="list-style-type: none"> ▪ <i>Isiongo</i> Bukusu <ul style="list-style-type: none"> ▪ <i>Esongo</i> Samia <ul style="list-style-type: none"> ▪ <i>Esiongo</i> 	<ul style="list-style-type: none"> ▪ <i>Izinkhamba</i> - for serving and storing water/beer and preparing medicines 	<ul style="list-style-type: none"> ▪ <i>Ede</i> – Large water storage pot ▪ <i>Toko deze</i> – For fetching water from the river ▪ <i>Afotize</i> – For storing water

Beer	<ul style="list-style-type: none"> ▪ <i>Tavo</i> – for drinking beer ▪ <i>Dagkong</i> – for brewing and storage of beer 	<p>Bukusu</p> <ul style="list-style-type: none"> ▪ <i>Enyungu</i> – For brewing ▪ <i>Embang'a</i> – For serving beer <p>Samia</p> <ul style="list-style-type: none"> ▪ <i>Endamu</i> – For brewing (<i>Esatsi</i> – For drinking beer) 	<i>Ukhamba</i> - a traditional clay pot for serving/ drinking beer (<i>Utsbwala (Beer)/ Umqombothi (Traditional Zulu Beer)</i>)	
Food	<ul style="list-style-type: none"> ▪ <i>Oigla</i> – For cooking fish ▪ <i>Dakuoun</i> – For cooking <i>ugali</i> 	<p>Bukusu</p> <ul style="list-style-type: none"> ▪ <i>Esachi</i> - For keeping flour ▪ <i>Eningilo</i> – For cooking food <p>Samia</p> <ul style="list-style-type: none"> ▪ <i>Enungiro</i> –Cooking greens or meat ▪ <i>Haika</i> – Cooking fish ▪ <i>Hafuka</i> – For cooking <i>ugali</i> ▪ <i>Sikae</i> – Serving barbeque 		<ul style="list-style-type: none"> * <i>Katu</i> – For preparing soup * <i>Akpledaze</i> – For cooking food

It is essential to point out here that *Izinkhamba* is a traditional Zulu container used for storing water. These containers are typically made from materials such as clay, wood, or metal and are often decorated with intricate designs and patterns. *Izinkhamba* plays a vital role in Zulu culture, as water is a precious resource in the region, and these containers are used for carrying and storing water for various purposes, as indicated in (Armstrong *et al.*, 2008; Art Institute Chicago, n.d). The name *umqombothi* refers to traditional African beer made from sorghum and other ingredients. It is popular in southern and other parts of Africa where it has many variations and names (e.g. *joala*, *bojalwa*, *utshwala*, *chibuku*, *doro*, *dolo*, *ikigage*, *tchoukoutou*, *merissa*, *pito*, *mtama*, and more). (Hlangwani *et al.*, 2020)

It is also important to note that in the Luo community, there were different types of beer: (a) *bare* beer, which is drunk with a straw known as *sake*. (b) *otiya* beer is drunk in *otee calabash*.

Research has shown that indigenous languages play a crucial role in the transmission of traditional knowledge and cultural practices within indigenous communities. When indigenous languages are lost or marginalised, there is a risk of losing valuable knowledge and wisdom that has been passed down through generations.

The outcome of the literature review on this topic may highlight the gaps in existing research on the relationship between indigenous language and knowledge preservation. This study may address these gaps by exploring the ways in which indigenous languages can be used to document and preserve traditional knowledge, as well as the implications of language loss on indigenous communities.

We conclude this section by saying that the indigenous names for these vessels, referred to in English as 'pots' in Table 1, highlight the cultural and linguistic richness associated with these traditional objects.

5 Methodology

The research design used was a multiple case study targeting 1) Native speakers of some indigenous languages in Kenya, Ghana, and South Africa picked at random and 2) curators of the museum. The study adopts a qualitative approach with structured face-to-face interviews and discussions with 10 Kenyan native speakers of different ethnic groups. The data for this research study was collected at the National Museums of Kenya in Nairobi and Kisumu. Desktop research was also carried out on the Kenyan, Ghana and Zulu “pottery” artefacts. A study was also done at Alliance Française of Nairobi, where beautiful African pots are used as decorations within the premises of the building.

The rationale for using a multiple case study design in this research is to gain a deeper understanding of the cultural significance of pottery in different indigenous communities in Kenya, Ghana, and South Africa. By targeting native speakers of indigenous languages and museum curators, the study aims to gather diverse perspectives on the topic.

The use of a qualitative approach with structured face-to-face interviews allowed for an in-depth exploration of participants’ experiences, beliefs, and practices related to pottery. This method is well-suited for capturing rich, detailed data that can provide insights into the cultural meanings and traditions associated with pottery in these communities.

Collecting data at the National Museums of Kenya and conducting desktop research on pottery artefacts from different regions further enhanced the study’s validity and reliability. By examining physical artefacts and engaging with experts in the field, the researchers contextualised their findings and ensured a comprehensive analysis of the topic.

Overall, the methodology chosen for this research study is well-suited for exploring the cultural significance of pottery in indigenous communities and provides a robust framework for data collection and analysis.

6 Findings of the study

The continent of Africa is very rich in cultural artefacts, including masks, pottery, bows, arrows, shields, baskets, metalworks, wood carvings, musical instruments, canoes, ornaments, clothing, and mats. These artefacts have been passed from one generation to the other.

As mentioned earlier, this study has chosen to present only the art of pottery. Africa is a big continent with a diverse and vibrant culture. The findings were narrowed down to three countries: Ghana in West Africa, Kenya in East Africa, and South Africa in South Africa, and by showing a few examples from a few indigenous languages.

Findings reveal that preserving indigenous knowledge requires a multi-faceted approach that involves protecting traditional knowledge holders and their languages, and sometimes, this will require integrating their knowledge into modern systems, too. To create a form of collaboration among a given community, one essential step is to create awareness among indigenous communities about the importance of their knowledge and language and the need to preserve them. In many cases, indigenous communities may need to understand the significance of their traditional knowledge fully and may even view it as inferior to modern technologies. To have continuity and prevent the loss of Indigenous knowledge, it is essential to empower Indigenous communities and give them the tools to preserve and promote their knowledge, such as digital technologies and documentation techniques. The curation and preservation of Indigenous Knowledge is essential for several reasons.

First and foremost, Indigenous Knowledge is often unique and valuable, containing insights and wisdom that have been passed down over generations. Second, this knowledge can provide critical insights into sustainable practices that can help us address some of the world's most pressing environmental challenges. Last but not least, preserving Indigenous Knowledge is a matter of respecting cultural diversity and, at the same time, promoting social justice. There are several ways in which indigenous knowledge can be preserved, and one outstanding approach is to document this knowledge through oral histories, written records, and other forms of documentation.

People need to be more interested in following their traditions and cultural practices. Therefore, there is a great need to sensitise young people because they are the future of this world. The youth in most African communities are becoming more attracted to Western culture, and following their African tradition is considered outdated.

What is, therefore, the impact of the loss of indigenous languages on Indigenous knowledge? The loss of a native language obviously leads to the collapse of the culture and ethnic identity moribund of the language, ultimately leading to the extinction of the language. Timalina (n.d) has discussed the issue of the decline of indigenous languages among native populations, resulting in a weakening of ethnic identity and potential alteration of family names. This phenomenon is commonly observed in various African nations.

Many Africans have lost their cultures due to cultural globalisation. This is the process by which one culture's experiences, values, and ideas are disseminated throughout the world through various means: foreign cultures can replace local, traditional cultural norms, values, and practices. Great ideas can be transmitted from one culture to another, including new forms of thinking about economic or political questions.

SDG goal 11.4 is geared towards protecting the world's cultural and natural heritage. Most African states are making a lot of efforts to protect and safeguard cultural and natural heritage within their territories (UNEP, n.d).

Pottery has long been recognised as a valuable source of information about past societies. The Indigenous communities mainly made pots because they needed containers to store their grains and water or even to cook their food. Pottery has, therefore, long been recognised as a valuable source of information about past societies. Contemporary African Arts (n.d), suggests that *“Pots are like data; they provide insight into the cultural interchanges of African societies: the life they led, the paths they trod, the needs they had and the skills they possessed. Shards of pottery found by archaeologists in ancient sites tell us that pots were being made as early as 7000 BC.”*

In this section, we are going to present the artwork of the 3 African countries mentioned earlier to establish the common points and the differences in the vision around this indigenous artefact. Africa is a vast continent with 54 countries. Within a country, there are diverse cultures, as already mentioned earlier.

Most African communities had clay containers, which women and girls traditionally made. These containers were usually made in different shapes and sizes to suit their respective purposes, thus giving them different indigenous names. The shapes of these containers were determined by what they stored or what kind of food was cooked in them; in short, the shape largely depended on the purpose. For example, in most cases, the wide-mouthed containers were used for cooking different dishes.

In English, we will refer to these containers as “pots”, as already mentioned in section 1.1 the African pots represent both conceptual ideas and practical utility. The indigenous

communities had techniques for making these containers, and they were handed down through the generations. Table 1 above gives examples of the indigenous names of the various pots and their purposes.

In *Table 1*, it is essential to point out the rich culture of the *Vume* people in Ghana (Halluska, 1999). They have three different containers for water, and each container has an indigenous name. If all these containers are referred to as “pots”, their value and purpose will be lost. However, suppose we refer to these containers in the indigenous language as they are identified in the table above. In that case, we will be sure to curate and preserve these containers for the generations to come. Language, therefore, helps preserve cultures, but it also allows us to learn about others and spread ideas quickly. An indigenous language is an essential element in society as it is also transmitted through culture: a language is passed on from one generation to the next in a community. At this juncture, language is a part of culture. Through it, we can express cultural beliefs and values, the specific usages of a given word that are peculiar to a language, and its relationship with culture. An indigenous language is, therefore, the means by which culture and its traditions and shared values may be conveyed and preserved.

7 Discussion of the findings

Language has consistently held a central position in human endeavours, primarily serving as a means of self-expression and identity. Acknowledging the significant value individuals attribute to their language encourages active engagement in development efforts that yield sustainable outcomes in line with the objectives of Sustainable Development Goal 11. Goal 11.4 of the Sustainable Development Goals (SDGs) emphasises the importance of preserving and managing cultural and natural heritage in communities, with a goal to protect the identity and heritage of indigenous populations. (Ezeh & Udaba, 2020)

Unfortunately, as we lose our indigenous languages, the names of these indigenous containers also vanish. Some of the people between the age bracket (50 to 75) interviewed for this research had no idea of the indigenous names of these containers. To make matters worse, they live in the village. We can attribute this to certain factors pointed out by specific authors such as Cámara-Leret *et al.* (2019) that the *indigenous ILK systems worldwide are therefore at risk of attrition as a direct result of the compounded forces of globalisation, colonialism, political oppression, and economic interests on the territories of Indigenous Peoples and local communities.*

Indigenous languages are essential to the indigenous people because these languages are not only methods of communication but also extensive and complex systems of knowledge an indigenous community has developed over millennia. To the identity of indigenous peoples, the preservation of their cultures, worldviews, and visions is an expression of self-determination. Cámara-Leret *et al.* state that: *“The knowledge of nonliterate societies may vanish in silence, jeopardising indigenous peoples’ livelihoods”*. This means that if we do not help document the Indigenous Peoples’ knowledge, the future generations may not know at all the Indigenous names of the containers used by our forefathers because globalisation is erasing all the Indigenous knowledge. The pots displayed on certain premises have no documentation at all. Therefore, it was impossible to identify these pots, that is, their origin and indigenous name. We would propose to our local authorities to help the Indigenous People have all this information on the container itself so that it can travel with its identity, and this will, in turn, serve as a point of reference for researchers. We would be proud to go to France, for example, and find a pot bearing its indigenous name in the indigenous language.

Using an indigenous language to curate and preserve indigenous knowledge can bring much development to society. Curating and preserving indigenous knowledge in an indigenous language is more meaningful as this will also play a significant role in helping save the endangered indigenous languages (Kasten & de Graaf, 2013). The three reasons here below support the reasons why we need to curate and preserve indigenous knowledge by using indigenous knowledge. First and foremost, indigenous knowledge can help provide essential insights into sustainable practices that can help address some of the world's most pressing challenges, mainly if they are expressed in an indigenous language that will be understood more readily by the local community. Secondly, indigenous knowledge is often unique and valuable as it contains insights and wisdom that have been passed over from one generation to the other.

Last but not least, curating and preserving indigenous knowledge in the indigenous language is simply a matter of respecting cultural diversity in a society. There are different ways in which we have been told we can preserve indigenous knowledge, including oral histories, written records, and other forms of documentation. This study adds to this list the use of an indigenous language record of what needs to be written. This will ensure that this indigenous knowledge remains relevant and valued in society.

8 Conclusion

In conclusion, in today's modern society, the preservation and promotion of indigenous knowledge are vital for both the protection of cultural heritage and the potential application of traditional knowledge. A multi-pronged approach that empowers indigenous communities, protects their knowledge, and integrates it into modern systems is necessary to ensure the continued transmission of this invaluable knowledge. In this study, we advocate for the integration of the indigenous language as we showcase or as we make these artefacts for sale or importation. The world has much to gain from learning from indigenous communities, and their knowledge must be given the respect and recognition it deserves, even in the far lands. Our museums are vital spaces for education and dialogue, both for actively engaging Indigenous Peoples in cultural institutions and for displaying Indigenous artefacts to tourists and locals (in the learning institutions and interested individuals) with a view to promoting an appreciation of Indigenous cultural heritage. Our museums are doing excellent work here.

9 Recommendations

The inclusion of indigenous languages in knowledge curation practices and the preservation of indigenous cultural heritage is crucial to ensure the preservation and promotion of these valuable languages and cultures. Here are some recommendations this study proposes for consideration: 1. involve indigenous communities early in the process to ensure authentic and respectful representation. 2. train curation and preservation professionals to understand the importance of indigenous languages and associated cultural practices. 3. Use innovative technologies to digitise and archive indigenous language knowledge. 4. encourage bilingual education to promote the use and transmission of indigenous languages to future generations. By incorporating these recommendations, we can contribute to the preservation and enhancement of indigenous languages and cultural heritage.

References

- adf-magazine. (2020). “*Promoting Indigenous Languages in Kenya*”. Retrieved from <https://adf-magazine.com/2020/09/kenya-tries-to-preserve-vanishing-languages/>
- Armstrong, J., Whiteland & Reusch, D. (2008). Pots that talk, izinkamba izikhulumayo. *Southern African Humanities* 20 (2): 513–548. Retrieved from https://www.researchgate.net/publication/289815134_Pots_that_talk_izinkamba_izikhulumayo
- Arts Intitute Chicago. (n.d). Arts of Africa. Retrieved from <https://www.artic.edu/art-works/185691/vessel-for-serving-beer-ukhamba>
- Camara-Leret, R., Bascompte, J., Macía, M. J., Lema, F. J., García, C., & Espinosa, C. I. (2019). Indigenous Knowledge Networks in the Face of Global Change. Stanford University; California. Retrieved from <https://doi.org/10.1073/pna.1821843116>
- Contemporary African Arts, (n.d.). *African Arts*. Retrieved from <https://www.contemporary-african-art.com/african-pottery.%20html>
- Davis, J. L., & Krupa, K. L. (2022). Toward a Language of Possibility in Curation and Consultation Practices. *Collections*, 18(1), 18–27. <https://doi.org/10.1177/15501906211073074>
- Ezeh, N. G., & Udaba, R. O. (2020). *The Role of Language in Achieving the World's Sustainable Development Goals (SDGs)*. <https://ejournals.org/ejells/vol-8-issue-6-september-2020/the-role-of-language-in-achieving-the-worlds-sustainable-development-goals-sdgs/>
- Google Arts and Culture. (n.d). *28 Incredible Containers Used by Kenyan Communities*. Retrieved from <https://artsandculture.google.com/story/28-incredible-containers-used-by-kenyan-communities/SAIy7TIep4KKA>
- Halluska, D. (1999). *Pottery and Progress: Traditional and Contemporary Pottery in Vume, Ghana*. Retrieved from https://digitalcollections.sit.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1020&context=african_diaspora_isp
- Hlangwani, E., Adebisi, J. A., Doorsamy, W., & Adebisi, A. O. (2020). *Processing, Characteristics and Composition of Umqombothi (a South African Traditional Beer)*. Retrieved from <https://www.mdpi.com/2227-9717/8/11/1451>
- Kasten, E., & de Graaf, T. (2013). Sustaining Indigenous Knowledge: Learning Tools and Community Initiatives for Preserving Endangered Languages and Local Cultural Heritage. Kulturstiftung Siberien.
- Navare, N. B. (2013). Conservation of Culture through Language. Conference: National Level Seminar on “Resource Conservation Towards a New Paradigm Shift. At: Pune, India Retrieved from https://www.researchgate.net/publication/268449037_Conservation_of_Culture_through_Language
- Otieno, T., & Abong’o, D. C. (2017). Emerging Trends in Information Knowledge Management. In T. Kwanya, J. Kiplang’at & J. Wamukoya, (Eds.), *Role of language in Indigenous Knowledge Management in Kenya*. (pp. 187–196). Moi University Press, Eldoret
- Senanayake, S. G. J. N. (2006). *Indigenous knowledge as a key to sustainable development*. Retrieved from https://www.researchgate.net/publication/265197993_Indigenous_knowledge_as_a_key_to_sustainable_development#:~:text=Indigenous%20knowledge%20is%20the%20unique,a%20particular%20culture%20or%20society.
- Timalsina, M. P. (n.d). *Causes and consequences of the loss of Native language among Paharis at Khopasi: Sociocultural and Linguistic perspectives*. Retrieved from <https://neltachoutari.wordpress.com/2011/02/01/causes-and-consequences-of-the-loss-of-native-language-among-paharis-at-khopasisociocultural-and-linguistic>

- Traoré, D. (2017). *The Role of Language and Culture in Sustainable Development*. Retrieved from https://www.researchgate.net/publication/331940836_The_Role_of_Language_and_Culture_in_Sustainable_Development
- ULG (2017). *The Sapir Whorf Hypothesis and Language's Effect on Cognition*. Retrieved from <https://www.unitedlanguagegroup.com/learn/the-sapir-whorf-hypothesis-and-languages-effect-on-cognition>
- UNEP (n.d). *Goal 11: Sustainable Cities and Communities*. <https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-11>
- UNESCO (2023a). *The International Day of the World's Indigenous People*. Retrieved from <https://www.unesco.org/en/international-day-worlds-indigenous-peoples>
- UNESCO (2023b). *Indigenous Languages: Knowledge and Hope*. Retrieved from <https://en.unesco.org/courier/2019-1/indigenous-languages-knowledge-and-hope#>
- Viader, J. K. (n.d). Globalisation and Its Impact on Indigenous Cultures. *Leading the Change – A Resource for Aspiring Leaders in Sustainability*. Retrieved from <https://leadthechange.bard.edu/blog/globalization-and-its-impact-on-indigenous-cultures>
- Yankuzo, K. I. (2013). Impact of Globalisation on the Traditional African Cultures. *International Letters of Social and Humanistic Sciences Online*: 2013-10-31 ISSN: 2300–2697, Vol. 15, pp 1-8 doi:10.18052/ www.scipress.com/ILSHS.15.1

SECTION FIVE:
INDIGENOUS
KNOWLEDGE AND
FOOD SECURITY

20. Effective Communication Strategies for Dissemination of Integrated Soil Fertility Management Practices Among Smallholder Farmers in Makueni County, Kenya

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Abstract

Effective communication is critical for the adoption and use of innovations such as agricultural technologies. Despite there being various communication strategies for the dissemination of agricultural technologies such as Integrated Soil Fertility Management (ISFM) practices, choosing an efficient strategy is key towards the diffusion of such technologies, which are essential for improving farmer productivity, contributing to increased food production, and alleviating poverty. The study was conducted in Muvau and Kathonzweni wards in Makueni County, Kenya, to investigate the effectiveness of communication strategies used in disseminating ISFM practices. Using diffusion of innovations theory as the theoretical framework, the study investigated this topic by employing a descriptive survey design. Questionnaires were used to collect data from 368 respondents sampled from two Makueni wards, Muvau and Kathonzweni. Data collected were analysed using SPSS version 22. The study established that the use of indigenous farming practices, such as farm yard manure, crop rotation, animal manure, mixed farming, inorganic fertiliser, and cereal-legume rotation, has led to significant production increases for maize, sorghum, cowpeas, and pigeon peas. The study re-affirms that indigenous knowledge practices play a critical role in enhancing farmer productivity. Indigenous or traditional communication strategies such as face-to-face communication, farmer field schools, and demonstration plots remain the most effective ways of disseminating technologies among smallholder farmers. The study recommends that technology developers, government, and development partners should consider prioritising traditional communication strategies as a means for disseminating agricultural technologies to farmers, a sure way to spur adoption and use for increased food productivity needed to fight food insecurity and poverty.

Keywords: *Indigenous knowledge, food security, integrated soil fertility management, improving farmer productivity, farming technologies*

1 Introduction

Agriculture remains the major contributor to the economies of many countries in sub-Saharan Africa (SSA) (OECD, 2016). Agriculture contributes 60% of the total labour force, 20% of the total exports and 17% of the Gross Domestic Product (GDP) for many countries south of the Sahara. Food production in Sub-Saharan Africa (SSA) has been dropping, particularly among smallholder farmers. The decline in production has been attributed to a number of factors, the key among them being the drop in soil quality and fertility (Odunga, 2019; Wawire et al., 2021).

To restore agricultural productivity, various actors in the agricultural sector have come up with a range of strategies aimed at recreating soil fertility to enhance production potential. Since the late 1990s and early 2000s, the Kenyan government has implemented various macroeconomic,

sectorial, and institutional reforms earmarked to result in high and sustainable economic growth, the realisation of food security, and enormous poverty reduction. The government has introduced a number of initiatives aimed at boosting farmers' yields and steering the country on the path of becoming food secure. Through its various departments and working in collaboration with development partners, the government has advocated for the implementation of a number of innovative agricultural practices amongst various farming communities.

The government has advocated for the adoption and use of emerging technologies and innovations aimed at reversing this declining trend in production, as was documented in the National Agricultural Soil Management Policy (2020). Integrated Soil Fertility Management (ISFM) practices have explicitly been promoted by the Government of Kenya through the Ministry of Agriculture, Science and Technology and the Kenya Agricultural Research Institute (KARI) working closely with like-minded organisations such as the Alliance for a Green Revolution in Africa (AGRA); Tropical Soil Biology and Fertility Institute of the International Centre for Tropical Agriculture (ISBF-CIAT); and the International Centre for Research in Agro-forestry (ICRAF), to address the low food production menace faced by smallholder farmers spread across the country. ISFM advocates for the strategic use of fertilisers, organic and inorganic inputs and improved crop varieties, combined with the knowledge of how to adapt these practices to local conditions to maximise agronomic use efficiency of the applied inputs (Vanlauwe et al., 2013).

ISFM practices have been promoted for over seven years now, but the expected increase in production amongst farmers still has not matched up. Successful use and adoption of innovations require that appropriate strategies are put in place to transfer these knowledge and skills. This calls for practical communication approaches to be deployed by the technology developers. The development of these innovations is just part of the solution and is a critical starting point to realising gains in the sector. Ensuring that innovations like ISFM are widely and easily accessible and available to the end users is as critical in ensuring that the end goal is achieved (Pettengell, 2010). Pettengell (2010) further argues that access to these innovations should not be hampered at all as a result of a lack of information because they are expensive and/or because of intellectual property rights. For a hunger-free world, small-scale farmers who play a critical role in global food security should be placed at the centre of the new emerging investments and innovative partnerships (FAO et al., 2014).

Most agricultural innovations are knowledge-intensive and require more attention in the process of transferring skills. In the case of ISFM practices, an appropriate mechanism or communication approach is needed if the skills are to be transferred, adopted, and put into practice by the farmers. The communication approaches used to matter a lot as they ensure that knowledge and skills are effectively transferred from the developers to the users.

ISFM was introduced in Makueni County in 2006 by the government and development partners and was unveiled as a promising solution to improving farmer productivity. Despite being a promising solution to farmers' low production predicament, ISFM has not yet resulted in improved productivity for many farmers in Africa (Sanginga, 2012). To ensure that this dilemma of effective ISFM knowledge dissemination for improved farmer productivity is addressed, the national planners and development partners need to put effective communication approaches into practice. In the agriculture sector specifically, communication holds an integral place because it provides information that fills the knowledge gaps within the system. There is a dearth of informational knowledge in the farming community with regard to soil health, weather fluctuations, market trends, demand-supply chain practices

and government policies. Proper communication channels and tools can directly combat the information asymmetry for the farmers. The development of newer technology in the field of communication helps impart important news about the latest farming practices and tools that will aid the farmers in understanding what is needed and ultimately increase farm efficiency.

However, problems encountered in transferring improved, well-adapted agricultural technologies from the level of research to the farmer in the field continue to place a severe constraint on agricultural development in most developing countries (Janssen et al., 2017). These problems encompass a series of interrelated issues, such as appropriateness, practicality, dependability, and potential economic viability of improved technologies developed through research in relation to the farmers for which they are intended. Although technology transfer projects address the issue of technology diffusion most directly, coordination and collaborative action with projects and programs affecting other factors, such as those just cited, are essential to the achievement of the technology transfer objective (Abebe et al., 2021).

2 Statement of the problem

Despite efforts by the Kenyan government to ensure that farmers' production improves through investment in research and technological invention, adoption and use of innovations are still very low, whereas poverty and hunger still threaten the lives of many Kenyans. Over 50% of the rural population in Kenya is still living below the poverty line. Even after the various initiatives and efforts that have been supported by development partners working with the government, information from the Kenya Agricultural Research Institute (KARI) shows that a number of viable agricultural technologies that have been developed and advocated for are actually not being used by the farmers. The Government of Kenya and other development partners like AGRA have invested in promoting ISFM practices to farmers as a potential solution to the perennial low food production caused by declining soil fertility. Ukamba Christian Community Services (UCCS) has been supported by the government and a number of development partners, including AGRA, to implement ISFM practices for farmers.

However, most farmers in Makeni, as well as other parts of the country, still experience declining food productivity after about ten years of promoting ISFM practices. Food insecurity is still the order of the day and something that the country still has to grapple with. ISFM practices have been promoted to be perfect in helping to regain soil fertility, resulting in increased yields; hence, there is an urgent need to re-look into what has been happening in the process of transferring ISFM practices to farmers (FAO, 2014). The numbers of these technologies have not translated yet into what has been intended, and worse off, food production by many farmers in Kenya is still way below optimal, signifying a problem in the process of knowledge transfer of ISFM practices.

3 Literature review

The literature review for this study covers themes that are in line with the objectives and looks into previous studies in similar subject matter. This rigorous review contextualised the current study within the broader area of the channel for sharing agricultural technologies and knowledge transfer to smallholder farmers. Communication plays a critical role in technology transfer and is an essential tool for disseminating information to farmers. Communication channels are media that facilitate the transfer of messages from sender to receiver (Mtega, 2021). The information, however, has to be timely, rightly packaged, relevant, and, most importantly, a vital partner in initiatives that involve voluntary change in the behaviour of the targeted group.

In a study that investigated how communication channels are used to increase awareness among researchers, Zaira (2012) observes that the online channels preferred by researchers included blogs, Wiki, Facebook, LinkedIn, and Twitter. The study also reported that offline channels preferred by researchers to create awareness among them include printed materials, magazines, and frequent departmental meetings. Researchers from developed nations, in particular, have been sharing and accessing research data through web-based channels such as data repositories. Several meta-analysis and survey studies have revealed that researchers have been sharing research data by depositing it into data repositories (Adika & Kwanya, 2020).

According to Yahaya and Olajide (2000), the diffusion and adoption of innovations remain the backbone of the expected development in agriculture. The effectiveness of these channels varies depending on a number of factors, including the level of farmer education, complexity of the technology, capacity to adapt and use among farmers, and the period during which dissemination takes place.

4 Conceptual framework

For farmers to be able to adopt ISFM practices, they need to acquire knowledge and skills related to ISFM practices. The knowledge has to be transferred from a particular information source to the farmer. The transfer of information is done through a particular channel. For full adoption, there is a need for complete knowledge dissemination, which is a result of effective knowledge and skills transfer. Effective knowledge transfer needs necessary and appropriate approaches. For the adoption of ISFM practices to occur and lead to the stated benefits, communication remains central, and the approach used is very significant. This framework borrows from the diffusion of innovation model, which states that much interaction needs to occur between technology developers and targeted end users via a specific channel of communication that adopts a given approach. This is as per the Figure 1:

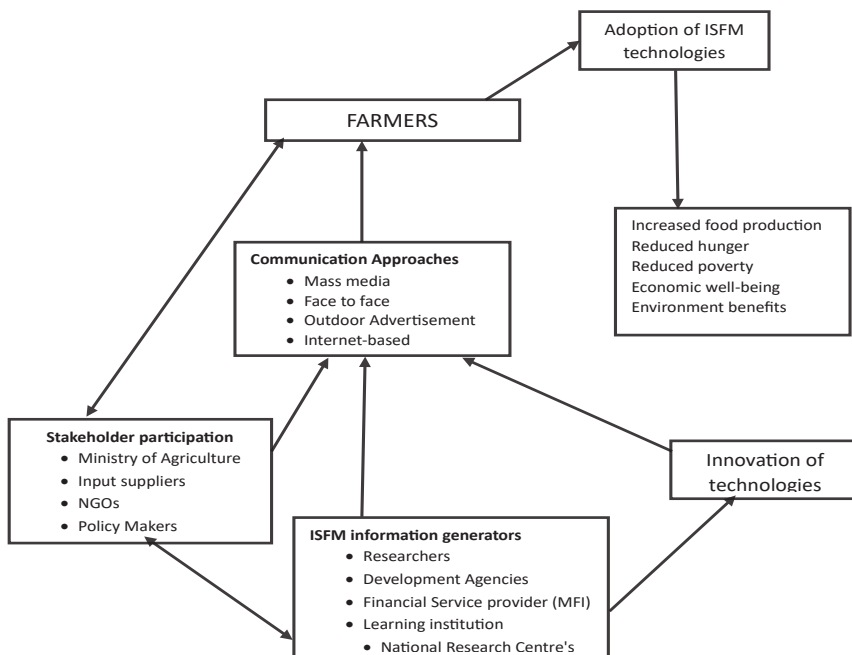


Figure 1: Information transfer conceptual framework

This study was designed to assess communication strategies that are effective in the dissemination of Integrated Soil Fertility Management practices to enhance food production among smallholder farmers in Makueni County, Kenya. Specific study objectives were to identify indigenous farming practices utilised by farmers; to examine the type of ISFM information acquired and used by farmers; to identify the communication approaches used in disseminating ISFM practices to farmers in Makueni County; to assess the effectiveness of communication approaches used; and to establish the challenges faced by farmers in the use of indigenous farming practices.

5 Materials, methods and sampling

This study used a descriptive survey design hailed for its effectiveness in ensuring internal reliability and corroboration of facts and opinions (Orodho, 2009). A survey was done involving farmers enrolled in an ISFM project in Makueni County by the Ukamba Christian Community Services (UCCS) practising ISFM. This study was used to answer the study objectives. The two wards at the time of the study had a total farming population of 9,959 (Muvau -4850 and Kathonzweni -5,109).

A total of 368 respondents participated in the study, which was arrived at using the Krejcie and Morgan (1970) table, which gives a sample size of 368 for a population between 9,000 and 10,000. First, stratified equal proportionate sampling was done to arrive at the two wards, Muvau and Kathonzweni, in Makueni sub-county, Makueni County. After the two strata (wards) were identified, an equal proportionate sampling method was used to arrive at the target 368 respondents, giving each ward an equal amount of 184. To arrive at the 184 respondents in each ward, the snowballing technique was used where the staff of UCCS helped identify the first respondents.

6 Results and discussion

This section presents the results of the study based on the objectives and critical concepts investigated.

Respondents' demographic characteristics

A total of 368 respondents participated in the study. Information about the respondents' main occupations, gender, and farming systems was analysed and presented in Table 1.

Table 1 Respondent's main occupations, distribution by sex, and farming systems

Demographic characteristic	Category	Frequency	Percentage
Profession	Government officer	33	8.9%
	Farmer	328	89.2%
	Student	4	1.1%
	Elected leader	3	.8%
Gender	Male	132	35.8%
	Female	236	64.2%
Household decision maker	Self	292	80.0%
	Other	76	20.0%
Farming	Subsistence	361	98.1%
	Commercial	7	1.9%

Demographic characteristic	Category	Frequency	Percentage
Farm size	Less than 1 acre	26	7.0%
	More than 1 acre	342	93.0%

Source: Field Survey 2022

It was established from the study that the majority of the respondents (89%) were farmers, and this gives a good representation of the farming community, who are the primary target users for ISFM practices. An analysis of the respondents' distribution by gender established that the majority of the respondents were female, accounting for up to 64% of the study respondents. The dominance of female respondents can be easily attributed to socialisation, community culture and societal settings. Traditionally, farming has been left as a reserve for female farmers, especially when it is being done majorly for subsistence, as the majority of the respondents were also subsistence farmers. Regarding their farming systems, 98% of the farmers were subsistence farmers but farming on lands of more than one acre, as reported by 93% of the respondents. Most respondents, comprising 80% of the respondents, made decisions themselves in their households.

The findings on gender distribution and agriculture dominance by gender are in line with the position of the Food and Agriculture Organization, International Fund for Agricultural Development and World Food Programme that the majority of farmers in Africa are actually women (FAO, IFAD and WFP, 2014). They further stated that ensuring a sustainable increase in food productivity will involve lifting the many women locked in traditional farming practices to adopting modern farming techniques.

An analysis was also conducted to determine the age of the respondents involved in the study, with the main aim of finding the age groups that are highly involved in agriculture. The respondents' distribution by age is presented in Figure 2. Age is also a significant factor when it comes to decision-making and, hence, an essential variable for this study.

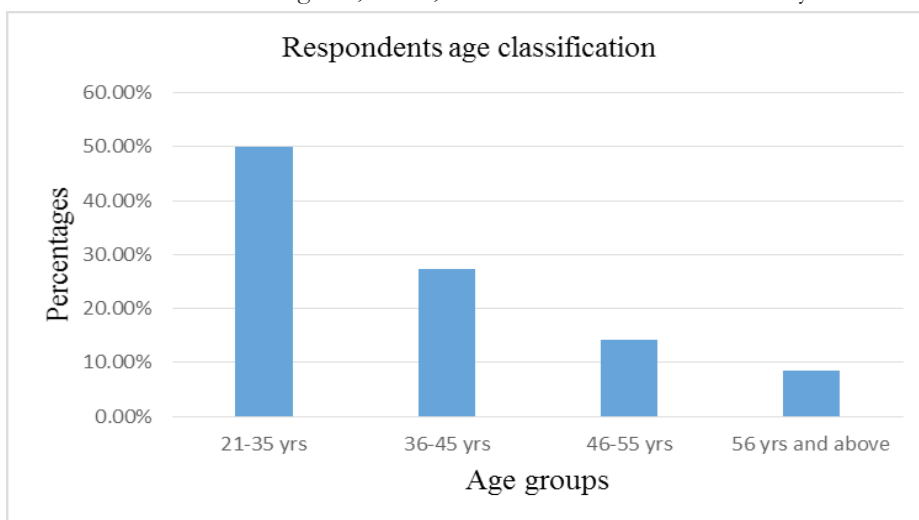


Figure 2: Respondents distribution by age

Source: Field Survey 2022

The majority of the respondents were in the age category of 21-35 years, comprising 50% of the respondents, followed by those in the age category of 36-45 years, comprising 28%.

Others, 14% and 9%, were in the age category of 46-55 years and 56 years and above, respectively. This finding shows that the majority of the respondents belonged to the age groups at which they were able to make independent and informed decisions. This is very necessary when it comes to the adoption and use of agricultural innovations and technologies like ISFM. Most of the respondents for this study were at an ideal age for making decisions on technology adoption and use and were able to make independent decisions regarding farming practices. Most of the farmers had primary and secondary levels of education, comprising 40% and 41% of the respondents, respectively. 9% of the respondents had a tertiary level of education, with 1% having post-graduate education, with the rest having not gone to school at all. This distribution is presented in Figure 3.

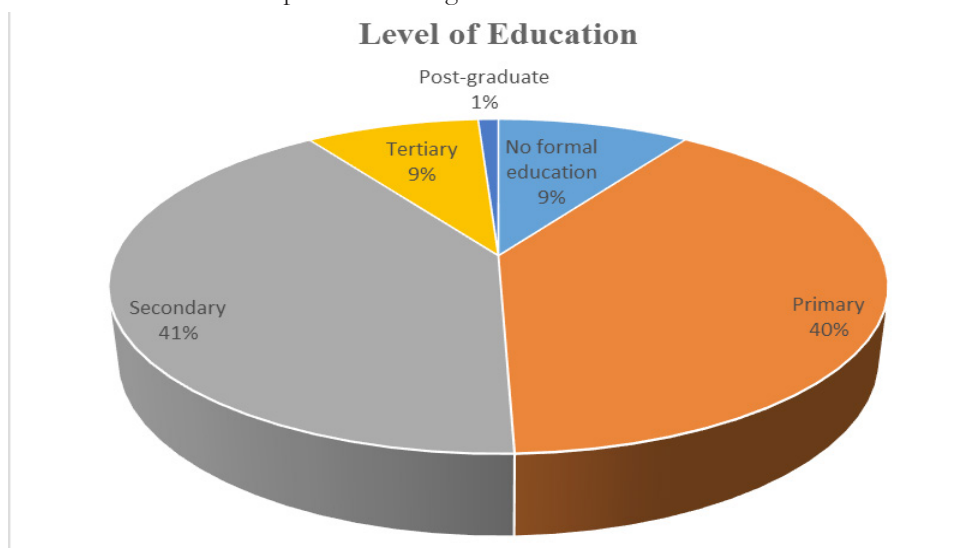


Figure 3: Respondents' levels of education

Source: Field Survey 2022

6.2 Communication approaches used in disseminating ISFM practices to farmers in Makueni County

Agricultural research is the source of knowledge and innovations that propel current and future agricultural development. With the increasing challenges of globalisation, information technology, and international and regional competitiveness, the role of agricultural research as a source of knowledge, technology and innovations has become even more imperative and demanding. Rural farmers play an essential role in Kenyan agriculture. However, there has been a challenge to agricultural extension in Kenya in finding creative, cost-effective and practical ways to communicate agricultural innovations to rural farmers.

6.2.1 Sources of information on ISFM technologies

Of the farmers interviewed, the majority, 23.4% and 21.8%, got information about ISFM technologies from the Ministry of Agricultural Extension Officers and NGOs, respectively. Other sources reported by 14.3%, 13.7%, 13.5%, and 13.2% of the farmers were research institutions, the mass media, farmer cooperatives, and farm input suppliers, respectively, as presented in Figure 4.

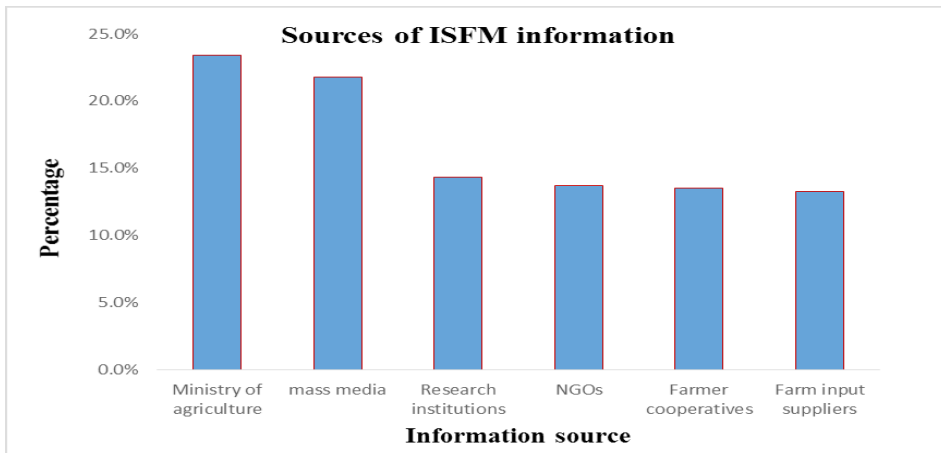


Figure 4: Sources of information on ISFM practices

Source: Field Survey 2022

“I have been farming for long, and the only source of information about farming for me has been extension workers”, said Nduta, a participant at the Focus Group Discussion held in Muvau ward. Contacted, the County Minister of Agriculture for Makueni County, Mr Jacobus Mutuku Kiilu, said, “Most of the farmers in Makueni County prefer getting their information from the farmer field schools, extension workers and development partners like NGOs.”

6.2.2 Channels of information dissemination

From Figure 4 below, a number of channels were identified as being used in disseminating ISFM information to farmers in Makueni County. They include farmer field schools, mobile phones, neighbours and friends, the Internet, on-farm demonstrations, workshops and seminars, radios, and newspapers. The frequency of use differs, as per the Figure 5.

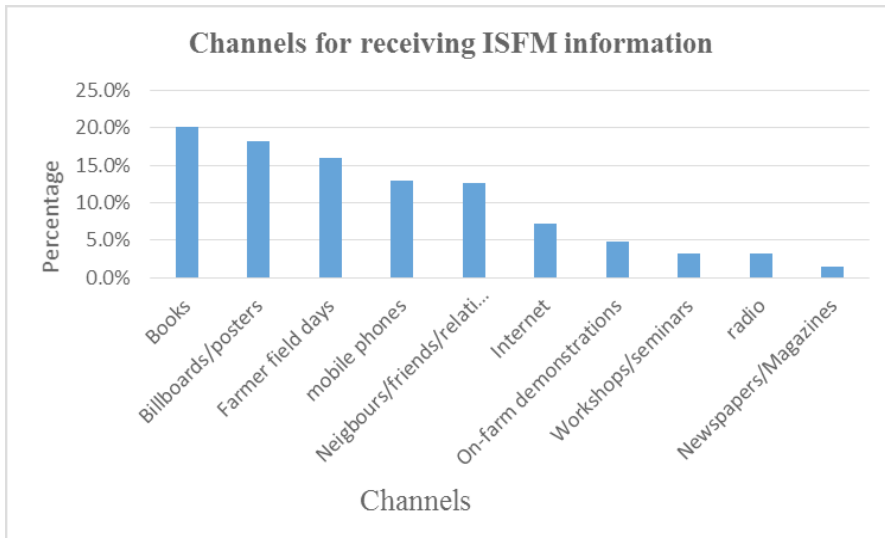


Figure 5: Channels used in disseminating information on ISFM technologies

Source: Field Survey 2022

6.3 Effectiveness of communication approaches used in disseminating ISFM to farmers in Makueni County

To measure the effectiveness of the communication channels, the various channels were rated in terms of accessibility, reliability, preference, informativeness, and comprehensiveness. This was to establish how the identified channels were perceived by the respondents and to establish how they ranked with each other. Responses were analysed and presented in the Figure 6.

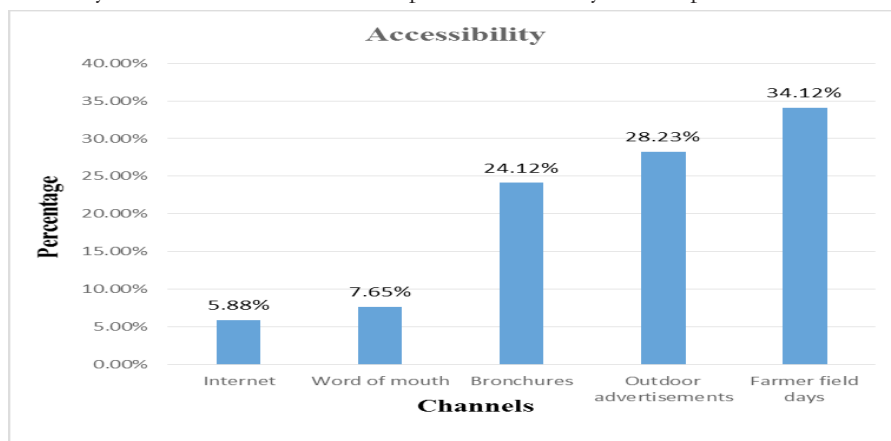


Figure 6: Ranking the channels on accessibility

Source: Field Survey 2022

Figure 6 above represents the analysis of the accessibility of communications channels used in disseminating ISFM information in Makueni County. The respondents ranked farmer field days as the most accessible, followed by brochures. Posters and billboards were rated as the least accessible, with the Internet being the second least accessible.

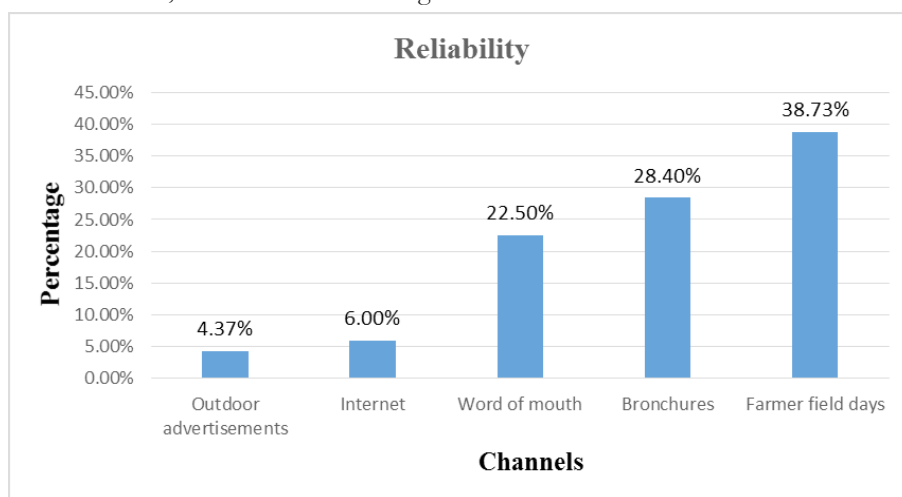


Figure 7: Ranking the channels on reliability

Source: Field Survey 2022

Figure 7 is the representation of the ranking of information channels in terms of reliability. Farmer field days were rated as the most reliable by the respondents at 38.73%. It was followed by brochures at 28.40%, word of mouth at 22.50%, Internet at 6.00% and outdoor advertisements at 4.37%.

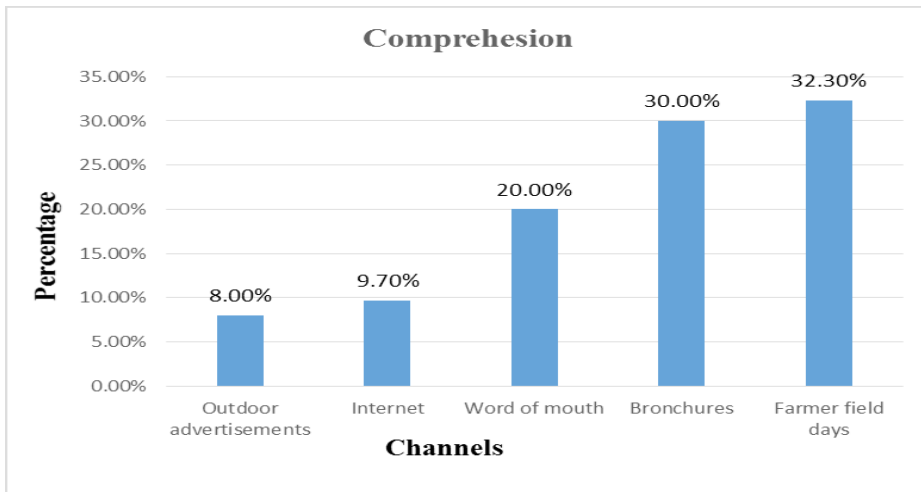


Figure 8: Ranking the channels of comprehension

Source: Field Survey 2022

Figure 8 above represents the ranking of communication channels on the level of comprehensiveness. The farmers ranked farmer field days as the most comprehensive channel, at 62.5%. Brochures followed, and billboards were the least comprehensive, at 16.25%.

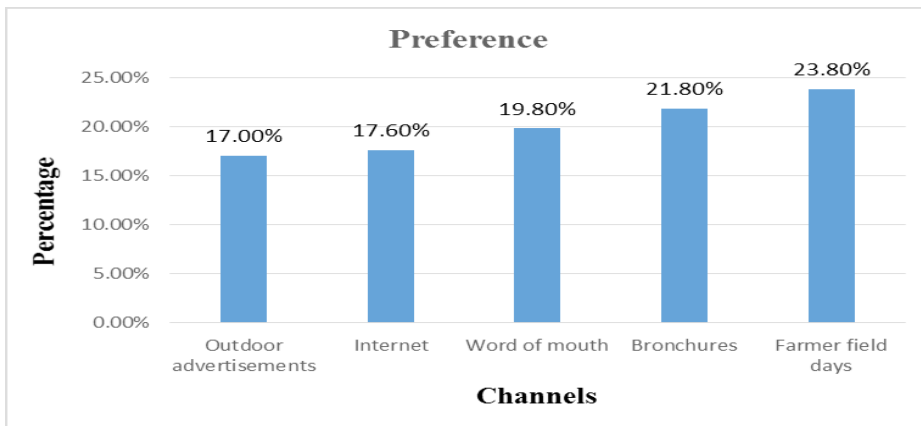


Figure 9: Ranking the channels on preference

Source: Field Survey 2022

Figure 9 above shows how the respondents ranked the communication channels in terms of preference. Farmer field days were ranked as the most preferred by farmers (respondents). Farmer field days were the most preferred channel by the respondents in Makueni County. Farmer field days were ranked at 73.75%, followed by brochures at 67.5%, neighbours/friends at 61.2%, Internet at 55%, and the least at 52.50%.

6.4 Ranking of effectiveness of communication approaches

An analysis was done to establish which of the investigated approaches was the most effective when used in disseminating ISFM practices to farmers in Makueni County. The channels were first ranked as above to establish how accessible, comprehensive, reliable and preferred

they were as sources of agricultural information. The rankings were then subjected to further analysis, which resulted in Figure 4.9 below. According to Figure 10, face-to-face approaches were the most effective at 42.3%, followed by mass media approaches at 26.2% and written approaches at 23.1%. The last is internet-based approaches at 8.3%.

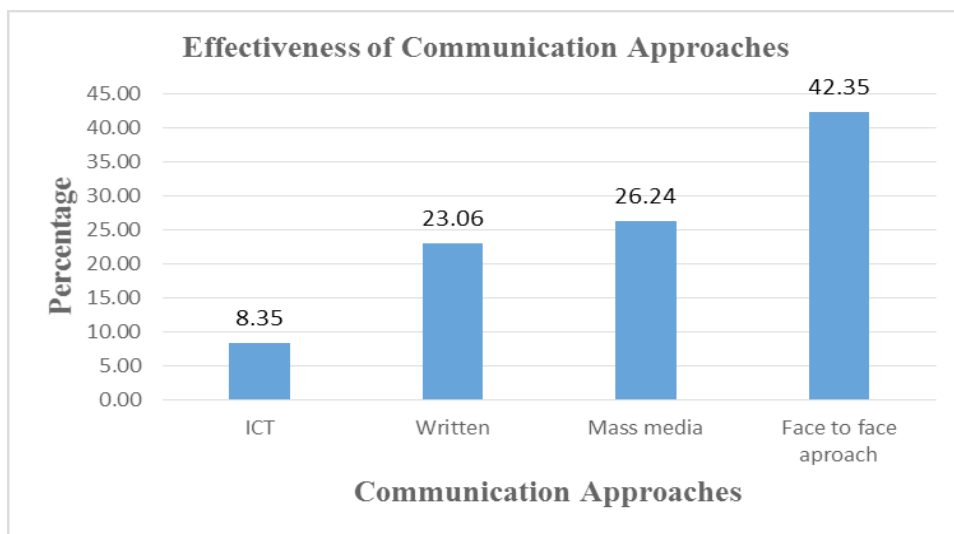


Figure 10: Ranking of the effectiveness of communication approaches

Source: Field Survey 2022

These findings confirm the argument by Rusike and Dimes (2004) that face-to-face approaches are still the most widely used and efficient way of reaching out to farmers, especially in rural areas.

6.5 Effect of ISFM practices on local farmers on their production levels in Makueni County

The researcher sought information about the acquisition and use of the acquired information in the application of ISFM technologies in order to establish whether the acquired information had any impact on their production levels. Responses on variables such as whether the farmers had acquired any information on ISFM, general production and farming systems and productions and farming systems using ISFM were analysed, and results were presented in Table 2.

Table 2: Acquisition and use of information in the application of ISFM practices by farmers in Makueni County

	Crops farmed	Frequency	Percentage
Crops farmed and which farmer acquired information on ISFM practices	Maise	24	9.1%
	Sorghum	75	28.3%
	Cowpeas	73	27.5%
	Pigeon peas	73	27.5%
	Other crops	20	7.5%
	Total	265	100.0%

	Crops farmed	Frequency	Percentage
Crops farmed using ISFM information acquired	Maise	14	5.3%
	Sorghum	60	22.6%
	Cowpeas	68	25.7%
	Pigeon peas	69	26.0%
	Other crops	15	5.7%
	Total	226	85.3%

Source: Field Survey 2022

It was established from Table 2 above that 85% of the farmers who acquired information on ISFM technologies had practised them on their farms. The majority of farmers had acquired information on technologies for growing sorghum, as reported by 28% of the respondents, and cowpeas and pigeon peas, as reported by 27% of the respondents. Other crops farmers knew how to grow using ISFM technologies, including maise, among others. Similar results were reflected in the adoption of the technologies, as the majority of farmers had used ISFM information acquired to grow sorghum, cowpeas and pigeon peas.

In terms of the adoption of ISFM technologies disseminated, farmyard manure, animal manure, and cereal-legume rotation were the highly adopted technologies at the rates of 22.5%, 28.2%, and 28.2%, respectively. Farmers had similarly practised the same technologies for the most extended periods, with each practised for an average of 7, 6, and 6 years, respectively. Inorganic fertilisers had been adopted by lesser farmers at a rate of 4% for an average period of 3 years, as shown in Figure 11.

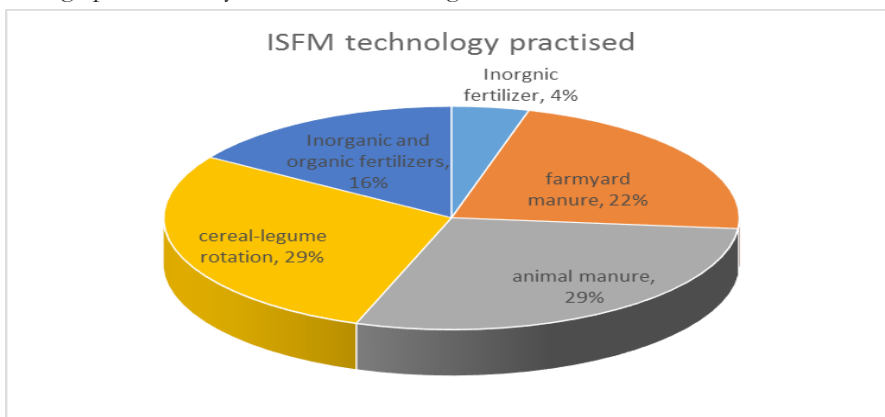


Figure 11: ISFM technology adoption rates and practice

Source: Field Survey 2022

Generally, farmers' adoption of ISFM technologies is very low in Makueni County. This might be explained by the fact that communication approaches used in disseminating the technologies have various limitations. For instance, some sources such as research institutions, the mass media, farmer cooperatives and farm input suppliers, and channels such as reading books and posters, farmer field schools, mobile phones, neighbours and friends, radio and television, as reported by the majority of the farmers in Makueni County are not compressive and informative enough.

An analysis was conducted to establish the impact of ISFM practices on farmer production. The production trends were analysed, focusing on yields before and after the application of ISFM technologies, and the results are shown in Figure 11 below.

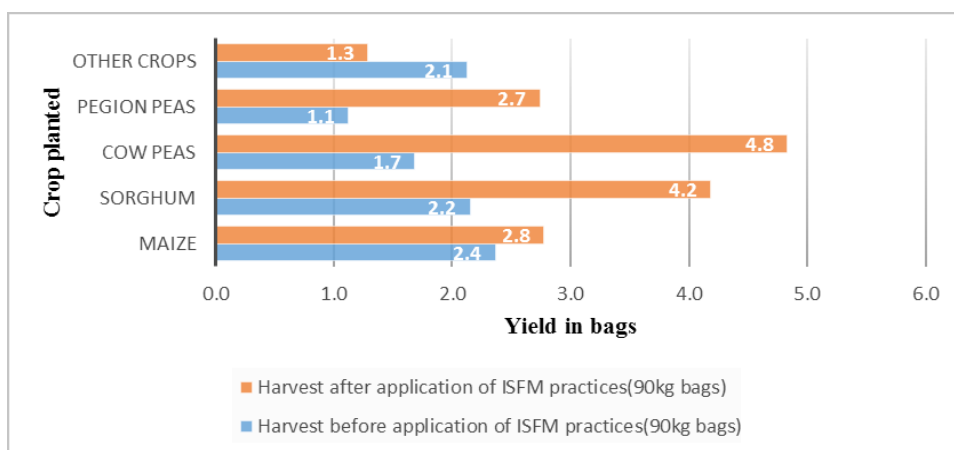


Figure 12: Comparison between production yield from different crops before and after application of ISFM technologies

Source: Field Survey 2022

It was established from Figure 12 above that yields from the harvest of the crops grown using the application of ISFM technologies adopted by farmers had increased significantly compared to the other crops. Yields from cowpeas and sorghum had increased tremendously compared to previous seasons, where high yields were mostly realised from maize and other crops not promoted in the ISFM technologies. The use of ISFM practices can lead to an 182% increase in the production of cowpeas, a 145% increase in the production of pigeon peas, a 90% increase in the production of sorghum, and a 17% increase in maize production. As Sanginga (2012) suggested, this study has actually confirmed that the use of ISFM practices leads to a resultant increase in crop production for farmers.

The findings clearly demonstrate the fact that access to agricultural information and knowledge enhances farmer adoption and use of the technologies, thus increasing their productivity in terms of crop yields. Asaba et al. (2006) state that agricultural information is a critical component in improving small-scale agricultural production and linking increased production to markets, thus leading to improved rural livelihoods, food security, and national economies. Therefore, knowledge and information must be channelled to farmers through appropriate dissemination that uses appropriate communication approaches.

7 Conclusion

In conclusion, according to the findings of this study, a number of communication approaches have been used to disseminate ISFM practices to farmers in Makueni County. A number of communication approaches have been used to disseminate information and knowledge on ISFM practices to farmers in Makueni County. The effectiveness of the different communication approaches in knowledge dissemination varies, as has been found in this study. Face-to-face approaches that include farmer field days/schools, on-farm demonstrations, agricultural extension, and community channels emerged to be the most effective. Face-to-face approaches were also found to be very comprehensive, reliable, and informative and, therefore, highly preferred. The use of an appropriate approach to communication was found to lead to the adoption of ISFM practices. The adoption and use of ISFM practices were hence found to be having a positive impact on farmer productivity, and those who have adopted

some aspects reported an increase in yields. 85% of the farmers who acquired information on ISFM practices and practised them in their farms to grow sorghum, pigeon peas and cowpeas reported that ISFM practices indeed had improved their farm productivity.

Not all aspects of ISFM practices are being used by farmers. In agreeing with this argument, the study found that not all aspects of ISFM practices are actually in use by farmers who have adopted and are using ISFM practices. Most of the farmers using ISFM practices apply only portions of the ISFM package. The majority of the farmers had received information on the following components of ISFM practices: farmyard manure, animal manure and cereal-legume rotation and were adopted at the rates of 22.5%, 28.2% and 28.2%, respectively. There were reported increases in yields after the application of these ISFM practices observed.

Finally, this study has confirmed that adoption of ISFM practices occurs through a process. Despite the introduction of ISFM practices to all farmers in Makueni County, only a few farmers have adopted them. It is, therefore, necessary to factor this in while taking innovations to users like farmers and to use appropriate communication approaches to inform, equip, and persuade people to adopt and use the practices.

8 Recommendations

The researcher wishes to make the following recommendations.

- Face-to-face communication approaches should be prioritised as the means of transferring knowledge and skills on agricultural innovations;
- Establishment of demonstration sites in at least each sub-county as central points for acquiring knowledge on innovations;
- ISFM practices be introduced in all counties and, most importantly, counties that lie in arid and semi-arid areas of the country;
- All farmers are encouraged to farm crops that can do better in their specific regions so that they can realise maximum benefits from their farms. Farmers in arid and semi-arid lands are advised to concentrate on farming drought-resistant crops such as cowpeas, pigeon peas, and sorghum;
- Government and development agencies need to invest more resources in knowledge transfer and innovations. More time and money need to be allocated towards knowledge and skills transfer;
- Research is needed to explore how emerging new media can be used to transfer knowledge about innovations to farmers. A study should be conducted to find out how this can be used to ensure even more farmers are reached with these innovations.

References

- Abebe, G., McMillan, M., & Serafinelli, M. (2022). Foreign direct investment and knowledge diffusion in poor locations. *Journal of Development Economics*, 158, 102926.
- Adika, F. O., & Kwanya, T. (2020). Research data management literacy amongst lecturers at Strathmore University, Kenya. *Library Management*, 41(6/7), 447-466.
- Ajayi, O. (2009). The role of communication in the dissemination of improved agricultural technology in Bosso Local Government area of Niger, Nigeria. *Journal of Agricultural Extension*, pp. 66-72.

- Anol, B. (2012). *Social Science Research: Principles, Methods, and Practices*. Tampa, Florida, USA: University of South Florida.
- Asaba, J. F., Musebe, R., Kimani, M., Day, R., Nkonu, M., Mukhebi, A., ... & Nakagwa, A. (2006). Bridging the information and knowledge gap between urban and rural communities through rural knowledge centres: case studies from Kenya and Uganda. *Quarterly Bulletin of IAALD*, 51(4), 143-151.
- Bationo, A., Fairhurst, T., Giller, K., Kelly, V., Lunduka, R., Mando, A., . . . Zingore, S. (2012). *Handbook for integrated soil fertility management*. Africa Soil Health Consortium.
- Cheffo, A. (2021). Mass Media And Its Role In Agricultural Technology Transfer: The Case Of Dendi And Ejere Weredas, Oromia, Ethiopia. *Journal of Agriculture & Rural Development*. 6. 66–77.
- GoK. (2022, March 11). *Kenya Vision 2030*. Retrieved from Vision 2030: <http://www.vision2030.go.ke/index.php/pillars>
- Janssen, S. J., Porter, C. H., Moore, A. D., Athanasiadis, I. N., Foster, I., Jones, J. W., & Antle, J. M. (2017). Towards a new generation of agricultural system data, models and knowledge products: Information and communication technology. *Agricultural systems*, 155, 200-212.
- KNBS. (2010). *Kenya Population and Housing Census, 2009*. Nairobi: Kenya National Bureau of Statistics. <https://www.knbs.or.ke/2019-kenya-population-and-housing-census-reports/>
- Krejcie, R., & Morgan, D. (1970). *Determining Sample Size for Research Activities*. *Educational and Psychological Measurement*. s
- Macharia, P. (2013). *The status of soil resources, needs and priorities towards sustainable soil management in Kenya*. Nairobi: Kenya Agricultural Research Institute.
- Miller, K. (2014). *Organisational Communication: Approaches and Processes*. Boston: Cengage Learning.
- Mtega, W. P. (2021). Communication channels for exchanging agricultural information among Tanzanian farmers: A meta-analysis. *IFLA journal*, 47(4), 570-579.
- Odunga, G. (2019). Food Production and Food Security of Smallholder Farmers and their Support by the County Government of Siaya, Kenya. MA thesis. University of Nairobi. <https://shorturl.at/zDOZ8>.
- Orodho, J. A. (2009). *Elements of Education and Social Science Research Methods*. Nairobi.
- P.N. Macharia, E.G. Thurairira, L.W. Ng'ang'a, J. Lugadiru, S. Wakori Perceptions and adaptation to climate change and variability by immigrant farmers in semi-arid regions of Kenya Afr. Crop Sci. J., 20 (Supplement s2) (2012), pp. 287–296;
- Pettengell, C. (2010). Climate Change Adaptation: Enabling people living in poverty to adapt. <https://oxfamlibrary.openrepository.com/bitstream/handle/10546/111978/rr-climate-change-adaptation-poverty-290410-es.pdf?sequence=3>
- Place, F., Barrett, C., Freeman, H., Ramisch, J., & Vanlauwe, B. (2003). *Prospects for*
- Rarieya, M. J. (2007). *Environmental Degradation, Food Security, and Climate Change: An STS Perspective on Sustainable Development in Western Kenya*. Michigan: ProQuest.
- Republic of Kenya, Makueni County First County Integrated Development Plan 2013-2017, August (2013);
- Rogers, E. M. (2010). *Diffusion of Innovations, 4th Edition*. United Kingdom: Simon and Schuster.
- Rusike, J., & Dimes, J. P. (2004). Effecting change through private sector client services for smallholder farmers in Africa.
- Salami, A., Kamara, A. B., & Brixiova, Z. (2010). *Smallholder Agriculture in East Africa: Trends, Constraints and Opportunities*. Tunis, Tunisia: African Development Bank,
- Sanginga, N. (2012). Closing the yield gap through integrated soil fertility management. Nairobi: International Institute of Tropical Agriculture.

- Scherr, S. J., Wallace, C., & Buck, L. (2010). *Agricultural Innovation for Food Security and Poverty Reduction in the 21st Century: Issues for Africa and the World*. Washinton, D.C: Ecoagriculture Partners.
- Swift, M., & Seward, P. (1994). Long-term experiments in Africa: developing a database for sustainable land use under global change. In R. A. Leigh & A. E. Johnston, eds. *Long-Term Experiments in Agricultural and Ecological Sciences*. pp. 63–76.
- UN. (2011). *World Economic and Social Survey 2011: The great green technological transformation*. New York: Department of Economic and Social Affairs, United Nations. New York: Department of Economic and Social Affairs, United Nations.
- Vanlauwe, B., Pypers, P., Birachi, E., Nyagaya, M., Schagen, B. v., Huising, J., . . . Asten, a. P. (2013). *Integrated Soil Fertility Management in Central Africa: Experiences of the Consortium for Improving Agriculture-based Livelihoods in Central Africa (CIALCA)*. Nairobi: CGIAR.
- Walden Education Programs. (2015, 3 10). *Shannon and Weaver Model of Communication*. Retrieved from Communication Theory: <http://communicationtheory.org/shannon-and-weaver-model-of-communication/>
- Wawire, A. W., Csorba, Á., Tóth, J. A., Michéli, E., Szalai, M., Mutuma, E., & Kovács, E. (2021). Soil fertility management among smallholder farmers in Mount Kenya East region. *Heliyon*, 7(3).
- Woomer, P. (2012). *Integrated Soil Fertility Management in Africa: from Microbes to Markets: Conference Information, Program and Abstracts. An international conference was held in Nairobi, Kenya*. Nairobi: CIAT.
- Yahaya, M. K., & Olajide, R. B. (2005). Assessment of the impact of Nigerian Agricultural and Cooperative Bank's Credit Facilities on Small Scale farmers in Ibarapa East LGA of Oyo State. *Journal of Agricultural Extension*, 8.

21. Integrating Artificial Intelligence with Indigenous Knowledge in Food Security Practices within Kenya Women in Parliament Association (KEWOPA)

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Abstract

The purpose of the study was to understand how the use of AI may enhance food security communication with a specific focus on the Kenya Women Parliamentary Association (KEWOPA). The study sought to answer the following questions: What are the food security communication strategies currently used by KEWOPA to reach their target audiences? What are the challenges and opportunities that KEWOPA may encounter in the adoption of AI algorithms in communicating food security? What is the nature of AI tools that can be designed to enhance the communication of indigenous knowledge in food security in Kenya? The study employed a qualitative research approach utilizing a case study of KEWOPA. Purposive sampling was used to select participants responsible for the communication facet within the organization. Data was collected through in-depth interviews and document analysis. Thematic analysis was applied to the qualitative data collected in alignment with the study's research questions, facilitating the identification of the main themes, patterns, and trends. The findings of the study indicate a diverse range of perspectives within KEWOPA regarding the incorporation of AI-driven communication strategies into indigenous practices. While some participants expressed optimism regarding the advantages of technological innovation in the optimization of food security initiatives, others voiced their concerns about knowledge preservation, misinformation, and the displacement of traditional wisdom. Findings reveal that KEWOPA has faced many challenges with the overall use of technology, which has catapulted the use of AI further.

Keywords: *Knowledge preservation, sustainability, communication, technology, indigenous agricultural development*

1 Introduction and background

Food security continues to be a global concern, affecting millions of people and directly influencing individuals, communities, and countries. In Kenya, it has encountered a myriad of challenges, such as poverty, drought, floods, climate change, and limited markets. According to a recent publication by the Global Report on the Food Crisis 2022 mid-year update, nearly 205 million people are expected to face acute food insecurity and need urgent assistance (IPC/CH Phase 3 or above or equivalent) in 45 countries (FAO, 2023). The National Council for Population and Development (NCPD) states that 46 per cent of the population in Kenya is currently living on less than 1 USD a day. As a result, 36.5 per cent are food insecure, with 35 per cent of children under five being stunted (chronically malnourished). Despite several attempts by the government and various stakeholders to address the underlying problems causing these concerns, the situation is expected to worsen, with the country's growing population projected to reach 81 million in 2039 (NCPD, 2019).

Achieng (2022) posits that indigenous knowledge has been used for generations by many African communities to increase agricultural production, preserve food, and conserve natural

resources such as water. In light of this, this study intended to determine how members of KEWOPA can employ AI-enabled communication as a way of improving the dissemination of information or messages regarding food security. The study was conducted at the Kenya Women in Parliament (KEWOPA) offices in Nairobi, Kenya. This study will contribute towards improving the communication strategies relating to indigenous knowledge in food security by KEWOPA through the use of AI.

The World Economic Forum (2020) defined AI as the application of sophisticated algorithms and computer models to develop systems that can acquire knowledge from data and recognize patterns, as well as provide decision-making with little to no human input. Consequently, AI algorithms include programming that instructs the computer on how to learn to operate on their own through acting and thinking humanly besides acting and reasoning. The main aim is to build machines that are capable of thinking like humans. It is important to note that the goal of AI is to build computers that can carry out tasks that require intelligence akin to that of a human, such as comprehending language or spotting patterns (Dora et al., 2022).

Millions of Kenyans continue to experience food insecurity, including hunger and malnutrition, in spite of several efforts to promote food security. A determining factor for this is the inadequate communication of information related to food security. Most notably, it has become evident that the existing communication initiatives are limited by the volume and complexity of data, posing a challenge in the identification of critical issues and trends affecting food security. Overall, statistics demonstrate the continued growth and increasing adoption of AI across various industries and applications. According to KPMG (2022), the worldwide AI market is anticipated to generate 118.6 billion USD in sales by 2025. AI will increase the global GDP by 15.7 trillion dollars, or 14%, by 2030. In a report published by the Public Relations Society of America, 66% of communication professionals believe that the impact of AI will have substantial effects on the industry over the next five years (PRSA, 2021). A survey of corporate communicators conducted by the Public Relations and Communications Association (PRCA) found that 26% of respondents were using AI or machine learning tools to analyze media coverage and social media sentiment (PRCA, 2022).

In line with the statistics, the likelihood of the adoption of AI as a communication tool in food security and transforming how organizations and communities can address hunger and food-related challenges is very high. Preliminary studies, however, indicate that KEWOPA has focused more on its other key roles, such as gender and equality, with less emphasis on technology, which is a critical feature in the attainment of the Millennium Development Goals (MDGs). Consequently, this research investigated the key factors affecting the communication of indigenous knowledge relating to food security by female legislators to their constituents towards the access and preservation of nutritious and affordable food.

According to the 2024 – 2027 strategic plan, KEWOPA is an association that brings all sitting female Parliamentarians drawn from both the National Assembly and Senate. The association advocates for democracy and gender-responsive policies and laws that address the needs of women and children, including food security. The caucus, which operates under an Executive Committee, is led by a chairperson who is assisted by a Secretariat whose primary function is to provide administrative and technical support. Their core values include justice and equality, respect, diversity, and integrity. The study's particular focus on KEWOPA is therefore of significance because the advocacy of women's empowerment and gender equality plays an important role globally.

2 Statement of the research problem

Food security can be achieved when all people have consistent, physical, and financially accessible food at all times that satisfies their nutritional demands, allowing them to lead active and healthy lives (Kenya Food Security Act, 2017). Consequently, the role of indigenous knowledge in the sustainability of food security should not be overlooked following the proliferated decrease in agricultural productivity (Achieng, 2022). Despite the communication efforts made by a range of stakeholders, including KEWOPA, food insecurity remains a concern in Kenya. Furthermore, the communication strategies toward the utilization and preservation of indigenous knowledge within initiatives concerning food security have received minimal attention and should, therefore, be treated as a matter of priority (Ragnedda, 2019; Prasad & Singh, 2020; Molino, 2023).

Arakpogun et al. (2021) asserts that to create the institutional frameworks necessary for AI to thrive, governments in the Global South must address governance challenges and a lack of institutional capacity. Hence, it is on this background that the study aimed to address these setbacks by examining the use of AI-based technologies as a solution to improving communication and information-sharing in the context of KEWOPA. Liu et al. (2019) states the importance of using AI to improve food security communication by providing more accurate and timely information to farmers and policymakers. According to Chen et al. (2023), the challenges facing food security continue to persist following factors such as climate change, the expansion of the population, and economic inequalities. They add that some of the indigenous agricultural practices that have for years promoted the sustainability of food security include polyculture, crop rotation, building terraces, agroforestry, food preservation techniques, the cultivation of traditional medicinal plants, apprenticeship, pastoralism, seed saving, harvest festivals, and environmental conversation.

One key impediment faced by KEWOPA is the limited impact of their communication strategies when engaging the public, mobilizing support, and influencing policy decisions. Further, traditional communication strategies may fall short of reaching diverse audiences and effectively conveying the urgency and complexity of the food security crisis. Innovative strategies are therefore needed to address these concerns, such as the use of AI technologies to empower communities in Agriculture. The key issues that this study addresses include the challenges and opportunities associated with integrating these technologies into the existing framework of KEWOPA's initiatives and the identification of the gaps and areas of improvement. Thus, the goal of this research was to look into the possible use of AI to advance the communication of indigenous food security knowledge. Furthermore, this study addressed sustainable communication practices geared towards the improvement of food security communication through AI-enabled channels and provided recommendations. Through this study, KEWOPA can solidify its position towards the promotion of food security in the country, as well as strengthen its commitment towards the improvement of lives, particularly for women and children who are the most affected by food insecurity.

The study aimed to investigate the current communication practices of KEWOPA towards ensuring the integration of AI in preserving indigenous knowledge in food security. The specific questions to the study were: What are the food security communication strategies currently used by KEWOPA to reach their target audiences? What are the challenges and opportunities that KEWOPA may encounter in the adoption of AI in communicating food security? What is the nature of AI tools that can be designed for food security in Kenya?

3 Related literatures

While many studies have looked at the use of AI in other fields, such as healthcare and finance, particular studies on the use of AI-enabled communication to promote food security in the field of corporate communication are few. It is worth noting that AI continues to evolve and become more integrated into our daily routines. Previous studies have shown that effective communication is crucial in addressing food insecurity (Ragnedda, 2019). The social learning theory has been widely applied in communication studies to understand how individuals learn and adopt behaviours through observation and imitation.

Indigenous knowledge, which has been passed down through many generations, embodies a wealth of sustainable agricultural practices that can provide solutions to the current challenges incurred when addressing matters concerning food security (Spanaki et al., 2021). These include practices related to crop selection, pest management, and natural resource conservation, which need to be adequately communicated as a way of promoting traditional practices.

A general overview of the literature review reveals that there have indeed been studies surrounding the use of AI as a communication tool in food security. From the literature review, it is evident that an overwhelming number of studies have been conducted in the Global North, with very few studies in the Global South. Hence, there exists an existing gap in the literature addressing AI as a communication tool in settings such as food security and its benefits and limitations of such an approach. The combination of AI technologies and traditional communication practices is indeed promising due to aspects such as resource allocation, predicting crop yields, and improving the efficiency of food production (Leslie, 2019; Russ, 2021). Further, the intersection of AI and indigenous knowledge is considered crucial for promoting inclusive and culturally sensitive approaches to address global food security issues (Dwivedi et al., 2021).

In their study, Liu et al. (2021) examined the use of social media data and AI to predict food security risks. The research, which used machine learning algorithms to analyze social media data and identify indicators of food insecurity, established that social media data can provide valuable insights into food security risks and that AI can be used to predict and prevent food crises. Schwab (2016) discusses the various technological advances that are driving the current wave of industrial revolution, including AI. The premise of the study was the idea of the budding potential of AI, which has indeed transformed various sectors of society, such as healthcare, education, and manufacturing. He notes that the world is undergoing a new technological revolution, which he refers to as 'the Fourth Industrial Revolution (4IR)'. He then discusses the opportunities that inevitably arise with the emergence of technologies such as AI, robots, the Internet of Things, and 3D printing in business, government, and culture.

The Fourth Industrial Revolution, which the widespread implementation of AI has largely driven, is empowering communication professionals globally in a rapidly evolving technological landscape (Papadopoulos et al., 2021). Blanckson and Bossman (2023) agree with Schwab (2016), who explores the Fourth Industrial Revolution through the adoption of AI amongst communication professionals in Africa. In their study, the adoption of new digital communication tools offers public relations practitioners an unprecedented opportunity to reinvent themselves to strengthen relationships, build customer satisfaction, effectively monitor the environment, and improve communication. Chen et al. (2023) add their voice by recognizing the strengths and opportunities that lie in the communication of AI technologies, ensuring productivity and sustainability in food systems.

In the African context, the integration of AI with indigenous knowledge in food security has gained attention as a means to address the unique challenges faced by the continent. Researchers emphasize the importance of the recognition and respect of local knowledge systems in ensuring the successful integration of AI technologies in African agricultural practices (Kiemde & Kora, 2022). It is important to note that the incorporation of AI into these traditional practices holds the potential to bolster resilience in the face of climate change, optimize farming techniques, and improve smallholder farmers' access to markets (Leslie, 2019).

Achieng (2022) posits that indigenous knowledge of several agricultural practices is increasingly fading due to inefficient preservation and documentation. Certainly, the growth and implementation of AI technologies provide an opportunity to bridge the gap between traditional knowledge and modern agricultural practices, hence enhancing the preservation of knowledge through adequate communication. The onset of AI has indeed shaped digital opportunities, impacting how communication is transmitted (Molino, 2023). Although there have been many predicted benefits associated with AI, there continues to be a lack of comprehensive understanding of the goals driving AI adoption and its effects (Lakshmi & Corbett, 2020).

The study was informed by the Social Identity Theory (Tajfel & Turner, 1979). The social identity theory is highly relevant to this study as it provides a lens through which people develop their identities and relate to others based on their group membership. KEWOPA, which is viewed as a distinct social group based on its membership of female parliamentarians, is capable of utilizing AI in its communication as a way of passing indigenous knowledge. Against this backdrop, members can use their influence to create and promote a specific identity or persona to which their followers may identify and feel connected.

In summary, the literature review highlights the critical role of communication in the preservation of indigenous knowledge in food security. It additionally highlights the need for stronger communication tools, such as AI, to ensure that this information represents the interests of all stakeholders. While this study seeks to establish the integration of AI and indigenous knowledge in the communication of food security practices within KEWOPA, there exists a significant research gap on the specific mechanisms detailing practical guidelines and strategies. Most notably, existing literature largely focuses on the advantages that the use of AI has introduced to the field of organizational communication. However, there is limited guidance on actionable communication strategies leveraging the strengths and challenges of AI.

4 Research methodology

The study adopted a qualitative approach. Creswell (2014) defines qualitative research as a research approach that explores people's lived experiences and the meanings they attach to those experiences, often in their natural settings, through the collection of detailed data via open-ended and flexible methods such as interviews, observations, and content analysis. In light of this, the researcher wanted to comprehend how the qualitative technique was used in establishing KEWOPA's communication practices when interacting with communities regarding food security. The research used the case study method. According to Yin (2018), the use of case studies allows researchers to conduct an in-depth exploration of a particular phenomenon within its real-world context. The context of this study involved the selection

of participants who play a pivotal role in matters of communication within KEWOPA, enabling the researcher to capture a range of perspectives.

The population for this study is KEWOPA since they are the leading players in coordinating communication for female legislators in Kenya. The study was conducted at the KEWOPA offices based in Nairobi, Kenya. Purposive sampling was used to select participants with expertise in the communication of food security within KEWOPA. Patton (2015) highlights the significance of purposive sampling when determining the target population in qualitative research. This involved selecting participants based on their roles in KEWOPA, their involvement in initiatives related to food security, or their expertise in relevant fields such as gender and technology.

These participants included members of KEWOPA who are involved in food security communication. The sample size was dependent on the scope of the study and the level of detail required to answer the research questions; hence, the number of participants interviewed in the study was 17. It is important to note that KEWOPA currently has 102 members (KEWOPA, 2023). Given the nuanced nature of this research, whose focus was the communication surrounding food security within KEWOPA, the sample size of 17 participants was determined as sufficient to achieve data saturation and comprehensively explore the experiences, perspectives, and practices relevant to the research questions. This is in line with Hennick et al. (2020), who provide guidelines determining when saturation is achieved while ensuring that the data collected is rich and sufficient for data analysis.

Data was collected through In-depth interviews and document analysis. The interviews were used to collect data from participants. The documents analyzed included the KEWOPA's 2024 -2027 strategic plan and the 2019 - 2023 strategic plan, which both provided guidelines on how KEWOPA communicates to the public. Data was analyzed thematically in light of Braun and Clarke (2006), who define thematic analysis as a method for identifying, analyzing, and reporting patterns (themes) within data. The ethical principles that guided the study included data privacy, bias, transparency, fairness, accountability, and the protection of the participant's privacy and rights.

5 Research findings

The key findings of the study are discussed and presented hereunder:

5.1 Food security communication strategies currently used by KEWOPA

The first research question sought to address the approaches that are currently being used by KEWOPA when communicating with their constituents. Following the study findings, communication strategies are crucial for organizations as they serve as a roadmap to effectively convey their messages, engage with stakeholders, and achieve their objectives and goals. When asked about the current strategies used by KEWOPA to communicate to their key audiences, one participant had this to say:

Certainly! KEWOPA has adopted a multi-faceted communication approach to address food security challenges. We use traditional channels such as press releases, media interviews, and public speeches to raise awareness and advocate for policy changes. Additionally, we have integrated digital platforms, including social media, to engage with a broader audience and disseminate information in real time. (A8)

Additionally, the findings of the study revealed that KEWOPA uses various forums and platforms to create awareness regarding their activities, mainly those affecting women and

children. These campaigns include social media outreach, public events, and collaboration with the media. Another participant had this to say:

Through the years, KEWOPA has engaged its audiences through the media. As a tradition, we always send media invites to journalists and media houses. We have also collaborated with organizations such as the Association of Media Women in Kenya (AMWIK). Just recently, we put in place a social media team whose main function is to ensure our social media pages are constantly updated with relevant information. The aim is to create brand visibility through promoting the KEWOPA brand. However, our traditional communication approaches may no longer resonate with different stakeholders, hindering our ability to mobilize support as we used to, hence the pressing need to find more sustainable solutions. (A1)

To this end, participants acknowledged the importance of the KEWOPA's 2019 - 2023 Strategic plan, which offers a guideline on various aspects of the organization, including communication. This strategic plan provides priority areas and defines the strategies and policy areas required to attain KEWOPAS key result areas besides setting targets. This incorporates a roadmap towards achieving the 2015 – 2030 SDGs, specifically those of Goal 2, whose aim is to bring an end to hunger, enhance food security, improve nutrition, and promote sustainable agriculture.

Following a document analysis of the study, it was revealed that the guiding documents which provide the foundation upon which KEWOPA operates include the Constitution of Kenya (CoK), 2010, Vision 2030 Medium Term Plan (MTP) III 2018-2022, the United Nations Development Assistance Framework (UNDAF) 2018 – 2022, and the Big 4 Transformative agenda in which Food security directly falls under. Through these documents, the communications team can ensure that the communication between KEWOPA and their targeted audience on matters of food security is achieved. Besides advocacy and awareness campaigns, the staff at KEWOPA were in agreement that their direct engagement with female legislators was an avenue that they used to pass their intended messages to the local communities. As of 2022, KEWOPA had 97 active members. They stated how they coordinate and plan for training and workshops for women lawmakers, which assist them in comprehending the specific challenges faced by their target audiences. This, in turn, assists them on how best to engage various communities in the country. One participant stated that:

A key strategy we have utilized that has enabled direct engagement and relying on key messages by the women lawmakers is training and workshops both locally and internationally. This is to ensure adequate community involvement, which is highlighted in the projects carried out by KEWOPA. We are currently working towards a better assessment of our community engagement programs with a specific focus on monitoring and evaluation, as well as the handling of feedback mechanisms from participants, which can provide a smooth implementation of relevant interventions. (A4)

Study findings point to the fact that through their training, KEWOPA has been able to directly engage with various stakeholders, such as community leaders, policymakers, and local organizations, with the knowledge and skills that address their concerns. In line with their implementation framework, KEWOPA aims to establish a dynamic, robust, and comprehensive capacity-building program for its members and county assembly caucuses through the induction of members, exposure visits to other legislative bodies which are already taking place, and holding targeted trainings that advance their members work.

5.2 Opportunities and challenges encountered by KEWOPA when using AI in food security communication?

The other question was regarding the opportunities and challenges that KEWOPA may encounter when handling food security from a communication perspective. This question assisted in understanding whether or not the organization should adopt AI in their daily use. From the findings, it is evident that AI as a communication tool can open up several opportunities and promote KEWOPA's objectives. The Opportunities include:

5.2.1 Improved communication

The study established that communication professionals globally are already using AI to improve their efficiency through chatbots and virtual assistants, social media management, and the generation of content such as news articles, press releases, speeches, reports, and social media posts based on predefined templates and data inputs. AI algorithms can assist KEWOPA in analyzing public sentiments and feedback, enabling better communication strategies tailored to the target audience. Through the use of AI as a communication tool, AI-powered data visualization tools can make complex food security data more accessible and understandable for policymakers and the public. During the study, it emerged that AI-powered data analysis can assist KEWOPA in gathering and processing vast amounts of information related to food production, distribution, and consumption. This data-driven approach can provide valuable insights into food security issues, such as identifying regions with high food insecurity rates and understanding the root causes of food shortages.

5.2.2 Crisis communication and management

Being a political outfit, crises are bound to occur amongst members when communicating on matters of food security. The research observed how predictive analytics can assist KEWOPA as an organization in anticipating food security crises and planning for interventions in advance, leading to more effective responses. AI may help in the monitoring of internet mentions and news stories pertaining to KEWOPA, helping its communication specialists to stay ahead of the curve about their brand's reputation in addition to acting quickly in times of crisis. Through the analysis of weather patterns and agricultural data, AI may be utilized to create early warning systems for food crises and disasters, allowing KEWOPA to proactively respond to possible risks to food security by allocating resources to impacted areas in advance.

5.2.3 Social media communication

This involves using data-driven techniques, which may include AI and analytics, to augment the effectiveness of a brand or organization's social media presence. The goal is to achieve better engagement, increased reach, and improved results from social media campaigns. AI-powered social media analytics can assist KEWOPA in identifying trending topics, sentiments, and the effectiveness of their social media campaigns. This data-driven approach would enable them to refine their social media strategy and engage with a broader audience. Following the findings of the study, leveraging AI algorithms for social media monitoring and sentiment analysis can aid in identifying key concerns, sentiments, and trends that are related to food security. It is important to note that while AI can assist in sentiment analysis and identifying public opinion, it is essential to address misinformation and disinformation that may spread through social media and other communication channels.

5.2.4 Public awareness and education

AI-powered chatbots and virtual assistants can be used to disseminate information about food security, sustainable farming practices, and nutrition to the general public. These communication issues. AI can facilitate communication and feedback loops with local communities to understand their specific food security challenges and gather insights on the effectiveness of ongoing interventions. Following this, AI-powered language translation tools can assist in translating communication materials into different local languages, ensuring broader accessibility and inclusivity of information as Kenya is a multilingual country with diverse ethnicities.

5.2.5 Collaborations and policy making

Research findings reveal that AI can be used to establish and facilitate collaborative networks among different stakeholders, including government agencies, NGOs, and international organizations, to share information and coordinate efforts to improve food security. These platforms may be used to inform policymakers about the potential benefits, limitations, and risks associated with integrating AI into communication strategies for food security as a result, contributing to the development of guidelines and frameworks to govern the responsible use of AI technologies in addressing food security challenges. According to the findings, KEWOPA has collaborated with several ministries, parastatals, and NGOs such as USAID, DAAD, and the UN to pull their resources and expertise when handling their goals, priorities, and challenges. These partnerships have indeed extended the reach of communication efforts by creating a unified approach to tackling food insecurity.

5.3 Challenges of using AI as a communication tool

This section outlines the challenges encountered by KEWOPA when using AI to communicate messages regarding indigenous messages in food security.

5.3.1 Cost and resources

Participants of the study noted how the implementation of AI technologies can be expensive because KEWOPA faces budget constraints when investing in specialized AI talent and infrastructure. They additionally noted how integrating the AI systems into the KEWOPA system can be complex as it requires skilled personnel, infrastructure, and staff training. Further, AI requires consistent monitoring, maintenance, and updates to stay relevant and efficient; hence, the chances of undergoing technical difficulties are high. In line with this, participants were indeed sceptical about interacting with AI tools, which they felt can be pretty costly, posing a challenge to KEWOPA considering that their budgets could be adversely affected by a situation which the organization is not ready for.

5.3.2 Data privacy and security

Participants expressed their concerns about data collection, storage, and usage, considering that AI systems heavily rely on data to make accurate predictions. Admittedly, this can lead to inaccurate and biased results following the lack of specific information. For this reason, further concerns include the handling of sensitive information, particularly when dealing with vulnerable populations, in this case, women and children. Ethical dilemmas and challenges related to data privacy and security are bound to rise, for example, in the use of AI to generate fake content and deep fake videos.

While AI offers exciting opportunities, I am worried about potential biases in AI algorithms. Ensuring fairness and inclusivity in the communication process is crucial, especially when addressing food security issues that disproportionately affect vulnerable groups. We must also address data privacy and security concerns to protect the information of our constituents and stakeholders. (A12)

5.3.3 accessibility and digital divide

The findings of the study indicate how some communities lack access to technology and the internet, limiting the reach of AI-powered communication initiatives. Further, some audiences may be sceptical or hesitant to engage with AI-powered communication platforms, which could impact their effectiveness. Participants of the study agreed that the preferences and accessibility need of the diverse target audiences of KEWOPA, especially, can be a challenge to address when adapting to the use of AI-driven communication tools. A further limb reveals that factors such as literacy levels, technological literacy, preferred communication channels, and device accessibility are a challenge when reaching out to various stakeholders, especially in rural areas and marginalized communities.

5.3.4 Localization of content

During the study, it emerged that the use of localized content when communicating to KEWOPA's diverse audiences posed a challenge to the adoption of AI. The organization, which handles women lawmakers across the 47 counties in Kenya, has a wide audience range. Indeed, the adaption of AI-driven communication tools to regional dialects, cultural contexts, and local knowledge in enabling comprehension and resonance could be a challenge in ensuring that the relevant messages regarding food security are reached. Several participants mentioned that they had just recently heard of the use of AI in tailoring information and messaging for specific target groups. Some participants admitted to having no prior knowledge regarding AI.

5.4 Recommendations for the development of AI tools in enhancing food security communication

According to the findings of the third research question, participants made various recommendations that can be considered when designing and developing AI tools in line with the opportunities established in the second research question. Here are some key recommendations that participants made for the study:

5.4.1 Communication strategy

A majority of participants recommended the utilization of AI when communicating about issues pertaining to food security. This is due to the capacity of AI to offer real-time information on food prices, weather, and food security alerts, which can aid in decision-making and response planning. One participant recommended the inclusion of mechanisms for users to provide feedback and suggestions for continuous improvement of the AI tools. Further to this, establishing a robust system for monitoring and evaluating the impact of AI tools on food security is therefore important. Likewise, regular assessments should be carried out to assist in identifying areas for improvement. Following Kenya's linguistic diversity, AI tools can cater to users who speak different languages and assist in shedding light upon relevant and localized content while considering regional food practices, nutritional needs, and agricultural practices.

5.4.2 training and support

The study findings recommend ensuring sustainability and scalability in the design of AI tools, considering factors such as infrastructure and maintenance, which are essential for KEWOPA. This can be achieved by providing training and support for users to effectively utilize AI tools, especially in rural areas where technical assistance may be needed. The implementation of AI algorithms that allow for personalized communication and tailor responses and recommendations to individual users' needs is also essential.

5.4.3 Stakeholder mapping

Participants recommended the aggressive engagement and involvement of key stakeholders, communities, policymakers, NGOs, and experts in the design process of AI. This, they believe, will narrow down to address specific needs and challenges faced by different groups that the communications team at KEWOPA handles. Participant A10 had this to say:

By mapping its stakeholders on matters of food security, KEWOPA can gain a comprehensive understanding of the different actors involved. This can assist in recognizing the diverse range of perspectives and interests that might influence decision-making or policy formulation. AI can encourage collaboration by analyzing stakeholder mapping data and identifying common goals and interests. This will enable us to create targeted and inclusive communication strategies that resonate with different groups. By engaging with stakeholders through AI-driven platforms, we can better understand their needs and concerns and strengthen partnerships in addressing food security challenges collectively. (A3)

6 Discussion of findings

The amalgamation of AI with indigenous knowledge within the context of food security practices unveils varied perspectives and challenges, which this study contributes to addressing. Food security communication involves the use of various communication strategies and channels to promote awareness, education, and action toward sustainable food systems. Effective communication can enhance stakeholders' understanding of food security challenges, promote healthy and sustainable diets, reduce food waste, and improve access to food and nutrition for vulnerable populations. Russ (2021) posits that key areas of research in food security communication include the use of social media, community-based approaches, and innovative technologies such as Artificial Intelligence.

One notable finding from the study is the divergence of opinions within KEWOPA regarding the adoption of this relatively new form of technology in the sustainability of traditional food security practices. While some members expressed optimism about the potential benefits, including increased efficiency and resource optimization, others voiced concerns about the potential erosion of cultural values and the displacement of traditional knowledge systems (Prasad & Singh, 2020; Chen et al., 2023). It is important to note that the development of AI-based food security communication strategies for sustainable agricultural development in Kenya will assist in addressing some of the significant challenges facing the country. Further, these strategies will enhance the efficiency of communication, support better decision-making, and ultimately contribute to achieving food security and sustainable agricultural development in the country.

In conclusion, the discussions surrounding knowledge sustainability underscored the importance of involving the key stakeholders in the design and implementation of AI-driven solutions. Members emphasized the need for a collaborative approach that respects and

integrates Indigenous knowledge, ensuring that technology enhances rather than replaces traditional practices (Imoro et al., 2021; Chen et al., 2023).

7 Conclusions

The integration of AI in communication has the capability of positioning KEWOPA as a forward-thinking and proactive advocate for food security in Kenya. The study found that the successful adoption of AI in communication brings several opportunities, such as improved communication. Besides being a relatively new platform for communicating messages, AI-driven communication tools such as chatbots, speech recognition software, and social media listening can significantly expand the reach and engagement of food security initiatives.

8 Recommendations

To achieve this, the following strategies need to be put into place:

- **Invest in AI-enabled Communication Infrastructure:** KEWOPA should consider investing in the necessary infrastructure and technological capabilities to support AI-driven communication initiatives. This may involve acquiring or developing AI tools, establishing data management systems, and ensuring reliable internet connectivity by KEWOPA. Further, adequate resources should be allocated to support the implementation and maintenance of these technologies.
- **Collaboration with AI Experts and Technology Providers:** KEWOPA should seek partnerships and collaborations with AI experts, researchers, and technology providers. Experts can assist in designing and implementing effective AI-driven communication solutions tailored to KEWOPA's specific needs. Technology providers can offer technical expertise, training, and ongoing support to ensure the successful integration and utilization of AI tools.
- **Conduct Stakeholder Needs Assessment:** A thorough needs assessment should be conducted to understand the communication needs and preferences of diverse stakeholders in the context of food security. This assessment should consider factors such as literacy levels, language diversity, access to technology, and cultural sensitivities. The findings will help inform the design and customization of AI-driven communication tools to ensure their relevance and effectiveness.

References

- Achieng, M. S. (2022). *Digitalization of Indigenous Knowledge of Agricultural Practices: A Strategy for Food Security in Africa*. *Journal of Public Administration*, 57(4), 802-818.
- Arakpogun, E. O., Elsahn, Z., Olan, F., & Elsahn, F. (2021). *Artificial intelligence in Africa: Challenges and opportunities*. *The fourth industrial revolution: Implementation of artificial intelligence for growing business success*, 375-388.
- Braun, V., & Clarke, V. (2006). *Using thematic analysis in psychology*. *Qualitative research in psychology*, 3(2), 77-101.
- Chen, K., Cate, A., & Cheren, H. (2023). *Communicating Agriculture AI Technologies: How American Agricultural Producers' Perception of Trustworthiness, Risk Perception, and Emotion Affect Their Likelihood of Adopting Artificial Intelligence in Food Systems*. *Environmental Communication*, 1-16.

- Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Dora, M., Kumar, A., Mangla, S. K., Pant, A., & Kamal, M. M. (2022). *Critical success factors influencing artificial intelligence adoption in food supply chains*. *International Journal of Production Research*, 60(14), 4621-4640.
- Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., & Williams, M. D. (2021). *Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice, and policy*. *International Journal of Information Management*, p. 57, 101994.
- FAO. (2023). *Rome Declaration on World Food Security and World Food Summit Plan of Action*. Retrieved from <http://www.fao.org/3/w3613e/w3613e00.htm>
- Imoro, Z. A., Imoro, A. Z., Duwiejuah, A. B., & Abukari, A. (2021). *Harnessing indigenous technologies for sustainable management of land, water, and food resources amidst climate change*. *Frontiers in Sustainable Food Systems*, 5, 691603.
- KEWOPA. (2023). *Kenya Women in Parliament Association*. Retrieved from (<https://www.kewopa.org/>)
- Kiemde, S. M. A., & Kora, A. D. (2022). *Towards an ethics of AI in Africa: rule of education*. *AI and Ethics*, 1-6.
- Lakshmi, V., & Corbett, J. (2020). *How artificial intelligence improves agricultural productivity and sustainability: A global thematic analysis*.
- Leslie, D. (2019). *Understanding artificial intelligence ethics and safety*. arXiv preprint arXiv:1906.05684.
- Liu, J., Zhang, X., Liu, J., & Zhang, Z. (2021). *Social media, artificial intelligence, and food security: A systematic review*. *Journal of Cleaner Production*, 291, 125847.
- Molino, J. N. (2023). *Interreligious Views on the Integration of Artificial Intelligence and Indigenous Knowledge for Environmental Preservation*. *Religion and Social Communication Journal of the*, 431.
- National Council for Population and Development 2019 Research Agenda on Population and Development in Kenya (May 2019).
- Papadopoulos, A., Bamparopoulos, G., Koulouriotis, D., & Vasiliadis, N. (2021). *Precision agriculture and artificial intelligence: A systematic review*. *Precision Agriculture*, 22(1), 60-97. doi: 10.1007/s11119-020-09805-8
- Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage publications.
- Prasad, V. K., & Singh, R. (2020). *Communication strategies for food security: a review of the literature*. *Indian Journal of Agricultural Marketing*, 34(1), 11–25.
- Ragnedda, M. (2019). *Artificial Intelligence and Communication: The Future is Here* Emerald Publishing Limited.
- Russ, M. (2021). *Knowledge Management for Sustainable Development in the Era of Continuously Accelerating Technological Revolutions: A Framework and Models*. *Sustainability* 2021, pp. 13, 3353.
- Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum.
- Spanaki, K., Karafili, E., Sivarajah, U., Despoudi, S., & Irani, Z. (2022). *Artificial intelligence and food security: swarm intelligence of AgriTech drones for smart AgriFood operations*. *Production Planning & Control*, 33(16), 1498-1
- Tajfel, H., & Turner, J. C. (1979). *An integrative theory of intergroup conflict*. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Brooks/Cole.
- Yin, R. K. (2018). *Case study research and applications: Design and methods*. Sage publications.

22. Research Productivity and Trends on Indigenous Kalenjin Cuisines

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Abstract

Scholarly research is one of the factors influencing the promotion, uptake and perpetuation of indigenous knowledge. Research products contribute to theoretical development, policy formulation and practical use of indigenous knowledge. The higher the relevant research productivity, the greater the influence on indigenous knowledge. This paper analyses the productivity trends, quantity, quality and visibility of research output on indigenous Kalenjin cuisines in Kenya. This study was conducted through bibliometrics. Relevant search terms were used to retrieve research publications on Kalenjin cuisines. Data was collected from Google Scholar using Harzing's Publish or Perish software. The collected data was cleaned, analysed and visualised using VOSviewer, which Nees Jan van Eck and Ludo Waltman from Leiden University, Netherlands, developed. This study found low quantity, quality and visibility of scientific publications on indigenous Kalenjin cuisines. Additionally, most of the materials on the subject have been published using subscription channels and are yet to attract their first citation. Therefore, the paper concludes that pertinent issues on indigenous Kalenjin cuisines remain undiscovered and unarticulated. There is a need to shore up the quantity, quality and visibility of research on indigenous Kalenjin cuisines to promote and perpetuate this knowledge. The findings of this study may be used by government agencies, especially county governments, to encourage the use of indigenous cuisines in the community. This effort will likely enhance food security and the community's general wellbeing.

Keywords: *Indigenous cuisines, Kalenjin, digital content, bibliometrics, Kenya*

1 Introduction

Many scholars have defined Indigenous knowledge variedly (Horsthemke, 2008; Kwanya, 2020; Morris, 2010). Many scholars agree that it is the collective wisdom of local communities passed down through multiple generations. Indigenous knowledge is exemplified through oral tradition, connection to nature, community-centric practices, holistic approaches to understanding the world, adaptation and resilience, and cultural identity. Morris (2010) argued that indigenous knowledge is simply the knowledge communities have of their immediate environment and how it supports their livelihood. On the critical attributes of indigenous knowledge, Morris (2010) explained that it is rooted in the local environment (physical and otherwise), shared and diffused in the concerned community, validated through the people's concrete experiences, practical in terms of orientation, uncodified and informal, and is constantly changing to adapt to emerging contexts. Tynan (2021) asserted that indigenous knowledge recognises and promotes interconnectedness and interdependence. Although indigenous knowledge is generally treated as secondary to scientific knowledge, for some communities, this is the primary knowledge on which their existence is anchored (Horsthemke, 2008).

According to Chepchirchir et al. (2019), the capacity of communities and nations to attain their development agenda is premised on their ability to mobilise their knowledge assets. They argued

that indigenous knowledge is the primary and unique component of any country's knowledge systems and provides the means to solve their developmental problems. Specifically, indigenous knowledge supports income generation activities such as indigenous tourism (Kwanya, 2019), conservation of the environment and promoting community response to climate change (Imoro et al., 2021; Kwanya, 2013); innovation through indigenous technologies (Manabete & Umar, 2014). Magni (2017) argued that indigenous knowledge contributes to sustainable development goals by supporting efforts to address gaps in education, poverty reduction, food security and nutrition, health and wellbeing, cultural diversity and inclusion, access to justice and response to climate change. Despite these potential benefits, many scholars acknowledge that indigenous knowledge is yet to be mainstreamed into development blueprints. Kwanya (2020) argued that indigenous knowledge is stigmatised as backward and retrogressive. Other factors which have contributed to the low integration of indigenous knowledge in development strategies include colonial legacy viewing indigenous knowledge as inferior; marginalisation of indigenous communities from decision-making positions; poor documentation and validation of indigenous knowledge capital; inadequate infrastructural and institutional support; cultural and linguistic barriers; modernisation and globalisation; inappropriate intellectual property regimes; and indigenous resource conflicts caused by unclear ownership (Dumbrill & Green, 2008; Garutsa & Nekhwevha, 2016; Lwoga et al., 2010; Ocholla, 2007).

Indigenous cuisines are an integral part of indigenous knowledge of communities. Indigenous cuisines encompass various cultural practices, including food preparation, cooking techniques, and culinary traditions. The aspects of indigenous cuisines which integrate them into indigenous knowledge include connection to the local, natural environment; cultural identity and heritage; sustainability through responsible harvesting; exemplification of culinary techniques yielding unique taste, nutrition, and food safety; use of indigenous ingredients which possess specific nutritional and medicinal properties; and adaptation to local environmental conditions (Bondzi-Simpson & Aye, 2019; Grey & Newman, 2018; Jalis et al., 2014; Sammells, 2016). Preserving and promoting indigenous cuisines as part of indigenous knowledge is essential for cultural heritage and sustainable food systems, biodiversity conservation, and understanding the rich relationship between people, land, and food. As societies evolve, it is crucial to recognise, value, and protect the traditional knowledge embedded in indigenous cuisines and ensure that it continues to be transmitted across generations (Everett, 2015; Moyo et al., 2016; Santafé Troncoso & Loring, 2021; Schlüter, 2012).

2 Rationale and context of study

The Kalenjin is an ethnic tribe in Kenya with eight linguistically and culturally related groupings. Currently, they occupy western Kenya's highlands and the Great Rift Valley. According to the Kenya National Bureau of Statistics (KNBS, 2019) census, there are 6,358,113 Kalenjin people in Kenya. The Kalenjin comprises the Keiyo, Marakwet, Kipsigis, Nandi, Pokot, Sabaot, Terik and Tugen. All the eight sub-tribes share common values and traditions. One of the traditions they share is their foods and how these are prepared and preserved. The Kalenjin are known for long-distance running. The community has produced numerous world-class athletes and Olympic champions, making them a dominant force in the global sporting arena (Tucker et al., 2015). Although athletic prowess is determined by individual talent, training, dedication, and access to resources, the Kalenjin of Kenya has produced a disproportionately higher number of successful athletes in Kenya. Some scholars have attributed the success of Kalenjins in long-distance running to several factors, including

high-altitude training conditions, a culture of running, and a tradition of nurturing young talent (Onywera, 2009; Rotich, 2016).

The Kalenjin community is known for its traditionally fermented milk, which is known as *music* and is specially prepared to give it a unique taste and flavour. Another traditional cuisine is known as *kimyet*. This is a dish made from millet and maize grains. It is often prepared during special occasions and celebrations. The other notable cuisines among the Kalenjin are roasted meat, traditional vegetables, and indigenous cereals (Mugalavai et al., 2010; Were, 2016; Zocchi & Fontefrancesco, 2020). Most foods are seasoned using indigenous spices such as cumin, cinnamon, and black pepper to improve their taste and nutritional value. The indigenous Kalenjin cuisines are unique in terms of traditional and organic ingredients; simplicity, conserving the nutritional value; traditional cooking methods, including steaming, boiling or roasting over open fires; seasoning and spicing with indigenous ingredients; and culinary diversity (Chebotibin et al., 2018; Kamau, 2018; Kangogo, 2020).

Despite their nutritional, health and cultural value, indigenous cuisines are gradually becoming extinct. The Kalenjin risk losing all their indigenous cuisines as more people adopt modern exotic fast foods. Besides the potential cultural loss, the community will become vulnerable to lifestyle diseases such as cancer. Scholarly research is one of the factors influencing the promotion, uptake and perpetuation of indigenous knowledge, such as traditional cuisines. Research products contribute to theoretical development, policy formulation and practical use of indigenous knowledge. The higher the relevant research productivity, the greater the influence on indigenous knowledge. Kwanya and Kiplang'at (2016) conducted a study which revealed a low level of research on indigenous knowledge in Kenya. They also found that most of the research on indigenous knowledge in Kenya is conducted by foreign nationals. Research trends on indigenous Kalenjin cuisines are unknown. This paper analyses the productivity trends, quantity, quality and visibility of research output on indigenous Kalenjin cuisines in Kenya.

3 Methodology

This study was conducted through bibliometrics. This branch of library and information science involves the quantitative analysis of bibliographic data, including publications, documents, articles, books, and other types of written materials (Godin, 2006; Momeni et al., 2021). The primary objective of bibliometrics is to measure and assess the influence and importance of scientific literature and its authors. This field provides valuable information for researchers, institutions, publishers, and policymakers to evaluate the performance of researchers, academic institutions, scientific journals, and research areas (Marginson, 2022; Martin, 2011). Bibliometrics is suitable for researching the evaluation of scientific research, journal analysis, research trends and patterns, collaboration analysis, institutional research performance evaluation, authorship and citation analysis, and literature review. This study used bibliometrics approaches to analyse research productivity on indigenous Kalenjin cuisines.

Data was collected from Google Scholar. This data source was selected because it is freely available and does not require a subscription. Google Scholar also has a broader coverage and indexes diverse document types. It is also easy to export data collected from Google Scholar. Harzing's Publish or Perish software was used to search for and retrieve relevant publications. The keywords used to retrieve the relevant publications were "Kalenjin indigenous cuisines" and "Kalenjin traditional cuisines". The collected data was cleaned, analysed and visualised using VOSviewer. Nees Jan van Eck and Ludo Waltman from Leiden University, Netherlands, developed this free search application.

Kalenjin, Luo, Kikuyu, Luhya, and Kisii. This indicates the cross-cultural orientation of the publications. Also evident in the keywords is that indigenous cuisines are part and parcel of traditional rites and ceremonies. For instance, *koito* (traditional engagement ceremony) is visible in the middle of the sociogram presented in Figure 1. It is also evident from the sociogram that indigenous cuisines can be studied from diverse perspectives. The perspectives discernible from the sociogram are gender (woman, son, girl), religion (Islam, Easter), society (family, society, community), occasions (music, dance), and food sources (agriculture, cocoa, avocado). Moi University is also clearly visible in the sociogram. This implies that most of the publications may have been produced by scholars affiliated with the university.

This study is similar to several studies on indigenous knowledge research productivity. Kwanya and Kiplang'at (2015) conducted a bibliometrics study which revealed minimal research on indigenous knowledge in Kenya. Similar trends have been witnessed elsewhere in sub-Saharan Africa (Bombom et al., 2023; Nwagwu, 2013; Spitzer & Twikirize, 2019), India (Baul & McDonald, 2015), Indonesia (Armanto et al., 2022) and Latin America (Du Plessis, 2006). The low research productivity on indigenous knowledge may be attributed to marginalisation and underfunding (Khumalo & Baloyi, 2017; McGregor et al., 2023). The low productivity of indigenous knowledge research reflects the general low research productivity witnessed by countries in the Global South (Hadlos et al., 2022).

4.2 Productivity trends

The majority (39) of the publications were produced between 2016 and 2020. The first paper on the topic was published in 1976. The number of publications has been on the increase since the early 1990s. Figure 2 presents the publication trend on the subject.

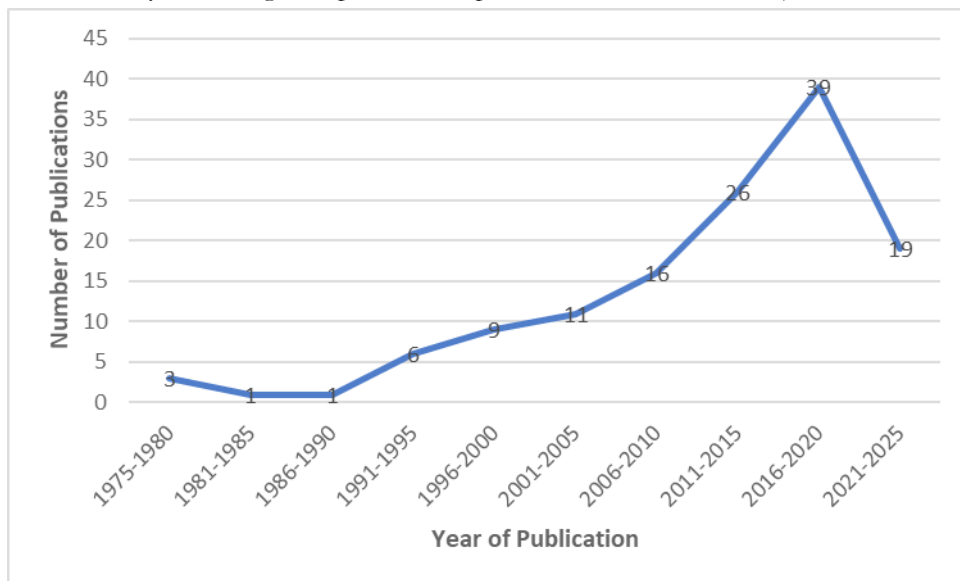


Figure 2: Publication trends on Kalenjin indigenous cuisines

The study's findings reveal a growing interest in indigenous knowledge research, with the highest rise witnessed from 2010. The improved recognition of the value of indigenous knowledge in socioeconomic development and sustainability has driven this growth. The role indigenous knowledge plays in climate change adaptation and mitigation, disaster preparedness

and management, biodiversity conservation, health and nutrition, and the general wellbeing of communities have been documented by several scholars (Manzur, 2013; Payyappallimana & Fadeeva, 2013; Shaw et al., 2008; Subramanian & Pisupati, 2010; Wilder et al., 2016).

A total of 166 authors produced the publications. Most of these authors produced just one publication. Only seven (7) produced two papers each. These are DM Zocci, MF Fontefrancesco, C Ojeili, P Hayden, J Nyairo, MN Amutabi, and S Tornay. Notably, only two of these top authors on the subject are Kenyans. This finding generally conforms to Lotka's law of scientific productivity (Sudhier, 2013). The law suggests that only a few authors will contribute much of the total publications on a particular subject. A much larger number of authors on the subject will make only a few contributions. Thus, many authors on a topic will produce only one (1) publication, while a minority produces the majority. The productivity patterns deviate slightly from the prediction of Lotka's law because even the most prolific authors only produced two (2) publications. Therefore, this study's findings demonstrate that indigenous Kalenjin cuisines are not a mature research area.

The findings above corroborate the view that foreign researchers and institutions have historically conducted many studies on indigenous knowledge in Africa. Scholars attribute this situation to several factors, including colonial legacy, limited access to resources, language and linguistic barriers, knowledge production power imbalance, and unfavourable research priorities (Johnson & Joseph-Salisbury, 2018; Mawere, 2015; Ndlovu, 2018; Patel, 2015; Simonds & Christopher, 2013; Tunstall, 2020).

A large number (101) of the publications were produced by one author each. This was followed by 13 publications which two co-authors produced; six (6) produced by three (3) co-authors; five (5) produced by four (4) co-authors; two (2) produced by five (5) co-authors; and four (4) co-authored by more than five (5) authors. These findings reveal a low level of research collaboration. This can be attributed to the topic being highly specialised and thereby attracting only a few researchers who work in silos. It is also possible that research grants exemplify no viable research collaboration opportunities. It may also be attributed to the lack of mainstreaming of indigenous Kalenjin cuisines in the national research agenda.

These findings do not reflect the general trends in research collaboration globally, which exhibit an increasing interconnectedness of the academic and scientific communities worldwide. The trends show that research collaboration across borders has been on the rise; a rise of cross-disciplinary collaboration since many contemporary research problems require expertise from multiple disciplines; advances in technology and digital connectivity have facilitated global research collaborations; open access movement has gained momentum, leading to an increase in research publications and data being made freely accessible globally and stimulating collaboration; establishment of global research networks, consortia, and partnerships has become more common; collaboration between academic institutions and industries is increasing, fostering innovation and the application of research findings in real-world contexts; funding agencies and policymakers are encouraging research collaboration through grants, incentives, and requirements for international cooperation; and increased research mobility (Adams & Gurney, 2016; Baskaran, 2016; Cerdeira et al., 2023; Confraria et al., 2020; Gazni et al., 2012; Kitayama, 2020; Kwiek, 2018; Vieira et al., 2022).

4.3 Quality of publications on indigenous Kalenjin cuisines

In this paper's context, publications' citations are considered a proxy of quality. Thus, the most cited works are deemed to be of a higher quality and relevance. This argument was initially

promoted by Garfield and Cawkell (1975). They argued that citations can serve as a valuable indicator of the importance and significance of a research paper. Therefore, many scholars have accepted using citations to measure research excellence regarding impact, influence, and significance (Crothers et al., 2020). The most cited publication on this subject had been cited 1,224 times. The other most cited publications have attracted 580, 259, 248, 116 and 105 citations. A total of 51 publications have not been cited at all. Figure 3 presents the findings.

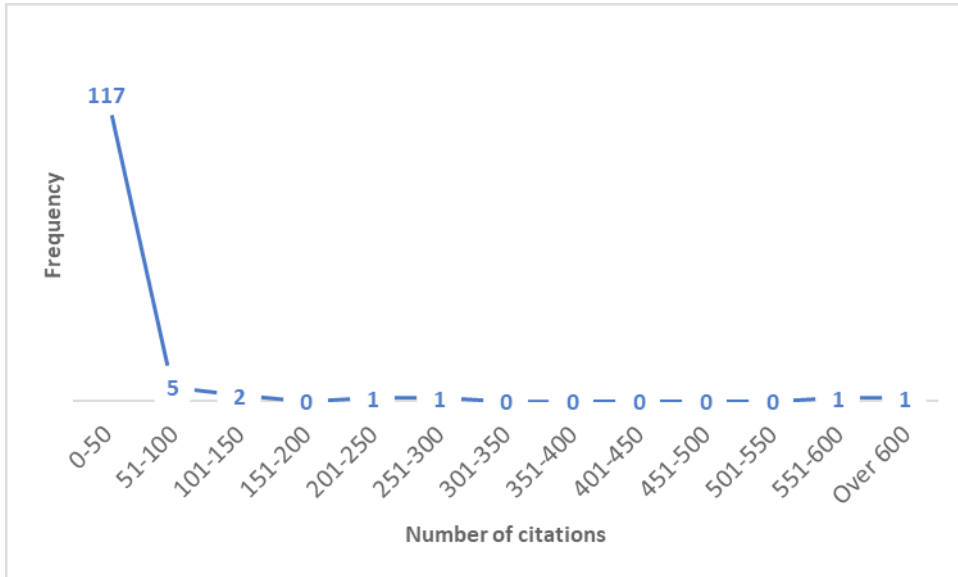


Figure 3: Distribution of citations

Although there is no standard on the number of citations a good publication should attract, it is evident that most of the papers have not attracted meaningful interest. This can be explained by many factors as well. Besides quality, the other factors influencing the citation of publications include relevance, timeliness, subject, and research collaboration. Going by the low citations, most publications have yet to make a meaningful scientific impact.

The findings of this study demonstrate that research publications on indigenous knowledge do not attract as much attention as other subjects. Scholars have found that these publications are usually less cited partly because there is low research focus on the theme (Kwanya & Kiplang'at, 2016; Ocholla & Onyancha, 2005; Onyancha et al., 2018; Sarkar et al., 2020).

4.4 Visibility of publications on indigenous Kalenjin cuisines

The visibility of publications is influenced by channel (journal) reputation, mode of publication (open or closed access), promotion of the publications (for instance, through social and traditional media), public engagement, and indexing by scientific databases (Dehdarirad & Didegah, 2020; Kim et al., 2019; Lovakov et al., 2022; Shahzad et al., 2017; Tang et al., 2017).

The findings of this study revealed that the majority of the publications were journal articles. Most of these papers were published through subscription channels, which limits their visibility. Similarly, most of the papers were single-authored, indicating low research collaboration. Although all the publications analysed for this study were indexed in Google Scholar, their citation was relatively low, with a large number (51) remaining uncited. Most of the publications were not adequately visible.

Studies outside Kenya have also found that most indigenous knowledge works are published in less visible channels (Hoskins, 2020; Pathak & Bharati, 2018; Rubis & Theriault, 2020). The relative low visibility has been attributed to many factors, including the low number of scholarly communities interested in the subject, publishing in channels closed by pay gates, low collaboration in indigenous knowledge research, low global relevance since indigenous knowledge is often localised, and most the journals publishing indigenous knowledge have a low impact factor.

5 Conclusions

This paper concludes from the study's findings that the quantity, quality and visibility of scientific publications on indigenous Kalenjin cuisines is relatively low. Most publications have been published using subscription channels and have yet to attract their first citation. Additionally, the productivity trends reveal only 131 publications since 1976. This implies that all the publications will be distributed equally over the years; it turns out to be just under three (3) publications per year. This is relatively low. Given the low quantity, quality, and visibility of research on the topic, it is unlikely that pertinent issues on indigenous Kalenjin cuisines will remain undiscovered and unarticulated. Therefore, this rich indigenous knowledge remains marginalised and at a high risk of being lost. There is a need to shore up the quantity, quality and visibility of research on indigenous Kalenjin cuisines to promote and perpetuate this knowledge.

6 Recommendations

Based on the evidence presented above, the authors make the following recommendations:

- The national and county governments of Kenya should invest in and fund research on indigenous cuisines. This will improve the quantity and quality of research output on the topic. Similarly, more researchers will be able to publish in open-access-open-access channels with good funding, which will, in turn, improve the visibility of the publications.
- Academic and research institutions in Kenya should promote multidisciplinary and collaborative research spanning all perspectives. Particular emphasis should be placed on promoting authentic and unique Kenyan indigenous knowledge research. This may be accomplished by creating and supporting research networks on indigenous knowledge, including traditional cuisines.
- Sensitise researchers working on indigenous knowledge by promoting their research products using mass media, social media, public engagement, policy advocacy and public lectures. This will ensure improved visibility and the likelihood of the research being mainstreamed in the national research agenda.
- Integrate indigenous knowledge in the national development agenda. Currently, development targets in Kenya have been framed through Vision 2030 and Sustainable Development Goals. The extent to which indigenous knowledge is integrated into these blueprints is unclear. This affects the supply of and demand for research data on indigenous knowledge, which ought to be considered a national resource that can contribute to national development.
- Research institutions should partner with county governments to establish local centres of research excellence on indigenous knowledge. Such centres would promote the output of relevant research products and improve communities' livelihoods.

References

- Adams, J., & Gurney, K. A. (2016). The implications of international research collaboration for UK universities. *Digital Science*.
- Armanto, M. E., Wildayana, E., Hermawan, A., Imanudin, M. S., Triana, A. N., Sukardi, S., ... & Lestari, E. F. (2022, September). Agricultural Development of Farmers Based on the Physical Accessibility in South Sumatra Wetlands. In *International Conference On Indigenous Knowledge For Sustainable Agriculture*. <https://prosiding.uib.ac.id/index.php/ikiksa/article/viewFile/55/36>
- Baskaran, A. (2016). UNESCO science report: towards 2030. *Institutions and Economies*, pp. 125–127.
- Baul, T. K., & McDonald, M. (2015). Integration of Indigenous knowledge in addressing climate change. *Indian Journal of Traditional Knowledge*, 1(1), 20-27.
- Bombom, A., Kaweesi, T., Walugembe, F., Bhebhe, S., & Maphosa, M. (2023). Millets: Traditional “Poor Man’s” Crop or Future Smart Nutri-Cereals? <https://www.intechopen.com/online-first/86467>
- Bondzi-Simpson, A., & Aych, J. K. (2019). Assessing hotel readiness to offer local cuisines: A clustering approach. *International Journal of Contemporary Hospitality Management*, 31(2), 998-1020.
- Cerdeira, J., Mesquita, J., & Vieira, E. S. (2023). International research collaboration: Is Africa different? A cross-country panel data analysis. *Scientometrics*, 128(4), 2145-2174.
- Chebotibin, D., Muniyiri, E., & Bitok, J. (2018). Influence of cultural festivals and custom artefacts on tourism development in Baringo County, Kenya. *Journal of Hospitality and Tourism Management*, 1(1), 1-20.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Confraria, H., Blanckenberg, J., & Swart, C. (2020). Which factors influence international research collaboration in Africa? *Africa and the sustainable development goals*, 243-255.
- Crothers, C., Bornmann, L., & Haunschild, R. (2020). Citation concept analysis (CCA) of Robert K. Merton’s book *Social Theory and Social Structure*: How often are certain concepts from the book cited in subsequent publications? *Quantitative Science Studies*, 1(2), 675-690.
- Dehdarirad, T., & Didegah, F. (2020). To what extent does the open-access status of articles predict their social media visibility? A case study of life sciences and biomedicine. *Journal of Altmetrics*, 3(1). <https://journalofaltmetrics.org/articles/10.29024/joa.29>.
- Du Plessis, H. (2006). Product design and action research: the Interdesign 2005 workshop on Sustainable Rural Transport. *Image & Text: a Journal for Design*, 2006(12), 42-49.
- Dumbrill, G. C., & Green, J. (2008). Indigenous knowledge in the social work academy. *Social Work Education*, 27(5), 489-503.
- Everett, S. (2015). Iconic cuisines, marketing and place promotion. In *Heritage Cuisines* (pp. 119–131). Routledge.
- Garfield, E., & Cawkell, A. E. (1975). Citation analysis studies. *Science*, 189(4200), 397–397.
- Garutsa, T. C., & Nekhwevha, F. H. (2016). Labour-burdened women utilising their marginalised indigenous knowledge in food production processes: The case of Khambashe rural households, Eastern Cape, South Africa. *South African Review of Sociology*, 47(4), 106-120.
- Gazni, A., Sugimoto, C. R., & Didegah, F. (2012). Mapping world scientific collaboration: Authors, institutions, and countries. *Journal of the American Society for Information Science and Technology*, 63(2), 323-335.

- Godin, B. (2006). On the origins of bibliometrics. *Scientometrics*, 68(1), 109–133.
- Grey, S., & Newman, L. (2018). Beyond culinary colonialism: Indigenous food sovereignty, liberal multiculturalism, and the control of gastronomic capital. *Agriculture and Human Values*, pp. 35, 717–730.
- Hadlos, A., Opdyke, A., & Hadigheh, S. A. (2022). Where does local and indigenous knowledge in disaster risk reduction go from here? A systematic literature review. *International Journal of Disaster Risk Reduction*, 103160.
- Horsthemke, K. (2008). The idea of indigenous knowledge. *Archaeologies*, 4, 129–143.
- Hoskins, R. (2020). Visibility and accessibility of indigenous knowledge on open access institutional repositories at universities in Africa. In *Digital Libraries and Institutional Repositories: Breakthroughs in Research and Practice* (pp. 454–472). IGI Global.
- Imoro, Z. A., Imoro, A. Z., Duwiewuah, A. B., & Abukari, A. (2021). Harnessing indigenous technologies for sustainable management of land, water, and food resources amidst climate change. *Frontiers in Sustainable Food Systems*, 5, 691603.
- Jalis, M. H., Che, D., & Markwell, K. (2014). Utilising local cuisine to market Malaysia as a tourist destination. *Procedia-Social and Behavioral Sciences*, pp. 144, 102–110.
- Johnson, A., & Joseph-Salisbury, R. (2018). ‘Are you supposed to be in here?’ Racial microaggressions and knowledge production in Higher Education. *Dismantling race in higher education: Racism, whiteness and decolonising the academy*, pp. 143–160.
- Kamau, G. G. (2018). Investigation on Entrepreneurial Viability of Indigenous Innovations in Kenya. A Survey of Baringo and Nakuru Counties on Mursik Milk.
- Kangogo, J. J. (2020). *The Elements of Drama in Koito: A Traditional Wedding Ceremony Among the Tugen People of Baringo Kenya* (Doctoral dissertation, University of Nairobi).
- Khumalo, N. B., & Baloyi, C. (2017). African indigenous knowledge: An underutilised and neglected resource for development. *Library Philosophy and Practice*, 1663.
- Kim, J. E., Kim, Y., Park, K. M., Yoon, D. Y., & Bae, J. S. (2019). Top 100 publications as measured by altmetrics in the field of central nervous system inflammatory demyelinating disease. *BioMed Research International*, 2019. <https://downloads.hindawi.com/journals/bmri/2019/3748091.pdf>.
- Kitayama, S. (2020). Open Society and Open Mind. *APS Observer*, p. 33. <https://www.psychologicalscience.org/observer/open-society-and-open-mind>
- Kwanya, T. (2013, September). Mainstreaming indigenous knowledge in climate change response: traditional ‘rainmaking’ in Kenya. In *The 8th International Conference on Knowledge Management in Organisations: Social and big data computing for knowledge management* (pp. 603–615). Dordrecht: Springer Netherlands.
- Kwanya, T. (2019). Leveraging tourism in Kenya through indigenous knowledge. *Positive tourism in Africa*, pp. 106–115.
- Kwanya, T. (2020). Stigmatisation of indigenous knowledge: The case of night-running in western Kenya. *Journal of Religion in Africa*, 48(4), 376–392.
- Kwanya, T., & Kiplang’at, J. (2016, July). Indigenous knowledge research in Kenya: a bibliometric analysis. In *Proceedings of the 11th International Knowledge Management in Organizations Conference on The Changing Face of Knowledge Management Impacting Society* (pp. 1–7).
- Kwiek, M. (2018). International research collaboration and international research orientation: Comparative findings about European academics. *Journal of Studies in International Education*, 22(2), 136–160.
- Lovakov, A., Panova, A., & Yudkevich, M. (2022). Global visibility of nationally published research output: the case of the post-Soviet region. *Scientometrics*, 127(5), 2643–2659.

- Lwoga, E. T., Ngulube, P., & Stilwell, C. (2010). Managing indigenous knowledge for sustainable agricultural development in developing countries: Knowledge management approaches in the social context. *The International Information & Library Review*, 42(3), 174-185.
- Magni, G. (2017). Indigenous knowledge and implications for the sustainable development agenda. *European Journal of Education*, 52(4), 437-447.
- Manabete, S. S., & Umar, B. (2014). Indigenous technology for sustainable development in West Africa. *Journal of Education and Practice*, 5(37), 54-62.
- Manzur, V. M. T. (2013). Community conservation and ethnoecology: The three dimensions of local-level biodiversity maintenance. In *Community Action for Conservation: Mexican Experiences* (pp. 13-24). New York, NY: Springer, New York.
- Marginson, S. (2022). Global science and national comparisons: beyond bibliometrics and scientometrics. *Comparative Education*, 58(2), 125-146.
- Martin, B. R. (2011). What can bibliometrics tell us about changes in the mode of knowledge production? *Prometheus*, 29(4), 455-479.
- Mawere, M. (2015). Indigenous knowledge and public education in sub-Saharan Africa. *Africa Spectrum*, 50(2), 57-71.
- McGregor, D., Latulippe, N., Whitlow, R., Gansworth, K. L., McGregor, L., & Allen, S. (2023). Towards meaningful research and engagement: Indigenous knowledge systems and Great Lakes governance. *Journal of Great Lakes Research*, p. 49, S22-S31.
- Momeni, F., Mayr, P., Fraser, N., & Peters, I. (2021). What happens when a journal converts to open access? A bibliometric analysis. *Scientometrics*, 126(12), 9811-9827.
- Morris, B. (2010). Indigenous knowledge. *The Society of Malawi Journal*, 63(1), 1-9.
- Moyo, C., Ngulube, P., & Kazembe, C. (2016). Preserving knowledge about indigenous cuisine for posterity in Zimbabwe. *Indilinga African journal of indigenous knowledge systems*, 15(1), 136-152.
- Mugalavai, V., Korir, J., Omutimba, H., Nassir, R., Kiama, F., Onyuna, A., ... & Makomere, J. (2010). Factors Affecting the General Acceptability of Traditional Foods Served at African Cuisine Luncheon in Moi University, Kenya. *Nurture*, 4(1), 20-25.
- Ndlovu, M. (2018). Coloniality of knowledge and the challenge of creating African futures. *Ufahamu: A Journal of African Studies*, 40(2), 95-112.
- Nwagwu, W. E. (2013). Open access initiatives in Africa—structure, incentives and disincentives. *The Journal of Academic Librarianship*, 39(1), 3-10.
- Ocholla, D. (2007). Marginalised Knowledge: An Agenda for Indigenous knowledge development and integration with other forms of knowledge. *The International Review of Information Ethics*, pp. 7, 236-245.
- Ocholla, D. N., & Onyancha, O. B. (2005). The marginalised knowledge: An informetric analysis of indigenous knowledge publications (1990-2004). *South African Journal of Libraries and Information Science*, 71(3), 247-258.
- Onyancha, O. B., Ngulube, P., Maluleka, J., & Mokwatlo, K. (2018). Towards a uniform terminology for Indigenous knowledge concepts: Informetrics perspectives. *African Journal of Library, Archives & Information Science*, 28(2), 155-167.
- Onywere, V. O. (2009). East African runners: their genetics, lifestyle and athletic prowess. In *Genetics and Sports* (Vol. 54, pp. 102-109). Karger Publishers.
- Patel, L. (2015). *Decolonising educational research: From ownership to answerability*. Routledge.
- Pathak, M., & Bharati, K. A. (2018). Growing visibility and impact of Indian Journal of Traditional Knowledge. *Indian Journal of Traditional Knowledge*, 17(3), 407-413.
- Payyappallimana, U., & Fadeeva, Z. (2013). Traditional knowledge and biodiversity. *Yokohama: United Nations University-IAS*. <https://rcnetwork.org/portal/sites/default/files/TKBio%20book.pdf>

- Rotich, W. (2016). Because we are us: Stereotype, cultural and athletic identity in Kenya's Kalenjin distance running success. *International Sports Studies*, 38(2), 21–32.
- Rubis, J. M., & Theriault, N. (2020). Concealing protocols: Conservation, Indigenous survivance, and the dilemmas of visibility. *Social & cultural geography*, 21(7), 962-984.
- Sammells, C. A. (2016). Haute traditional cuisines: how UNESCO's list of intangible heritage links the cosmopolitan to the local. In *Edible identities: Food as cultural heritage* (pp. 141-158). Routledge.
- Santafe-Troncoso, V., & Loring, P. A. (2021). Traditional food or biocultural threat? Concerns about the use of tilapia fish in Indigenous cuisine in the Amazonia of Ecuador. *People and Nature*, 3(4), 887-900.
- Sarkar, S., Roy, H., & Mazumder, S. (2020). Citation analysis of scholarly publications on indigenous knowledge. *Library Philosophy and Practice (e-journal)*, (4851).
- Schlüter, R. G. (2012, February). Promoting regional cuisine as intangible cultural heritage in Latin America. In *Food and the Tourism Experience: The OECD-Korea Workshop* (pp. 89-99).
- Shahzad, A., Nawi, N. M., Abd Hamid, N., Khan, S. N., Aamir, M., Ullah, A., & Abdullah, S. (2017). The impact of search engine optimisation on the visibility of research paper and citations. *JOIV: International Journal on Informatics Visualization*, 1(4-2), 195-198.
- Shaw, R., Uy, N., & Baumwoll, J. (Eds.). (2008). *Indigenous knowledge for disaster risk reduction: Good practices and lessons learned from experiences in the Asia-Pacific Region*. United Nations, International Strategy for Disaster Reduction.
- Simonds, V. W., & Christopher, S. (2013). Adapting Western research methods to indigenous ways of knowing. *American journal of public health*, 103(12), 2185–2192.
- Spitzer, H., & Twikirize, J. M. (2019). Towards integrating indigenous knowledge and problem solving into contemporary social work in Africa. *Social Work in Africa: Indigenous and Innovative Approach*. Kampala, Uganda: Fountain Publisher, 245-255.
- Subramanian, S. M., & Pisupati, B. (2010). *Traditional knowledge in policy and practice: approaches to development and human wellbeing*. United Nations University Press.
- Sudhier, K. P. (2013). Lotka's law and pattern of author productivity in the area of physics research. *DESIDOC Journal of Library & Information Technology*, 33(6), 457-464.
- Tang, M., Bever, J. D., & Yu, F. H. (2017). Open access increases citations of papers in ecology. *Ecosphere*, 8(7), e01887.
- Tucker, R., Onywera, V. O., & Santos-Concejero, J. (2015). Analysis of the Kenyan distance-running phenomenon. *International journal of sports physiology and performance*, 10(3), 285-291.
- Tunstall, E. D. (2020). Decolonising design innovation: Design anthropology, critical anthropology, and indigenous knowledge. In *Design Anthropology* (pp. 232-250). Routledge.
- Tynan, L. (2021). What is relationality? Indigenous knowledges, practices and responsibilities with kin. *cultural geographies*, 28(4), 597-610.
- Vieira, E. S., Cerdeira, J., & Teixeira, A. A. (2022). Which distance dimensions matter in international research collaboration? A cross-country analysis by scientific domain. *Journal of Informetrics*, 16(2), 101259.
- Were, S. O. (2016). *Cultural Determinants Of Food Choices By Hospitality Clientele In Commercial Catering Outlets Within Kisumu County, Kenya* (Doctoral dissertation, Kenyatta University).
- Wilder, B. T., O'meara, C., Monti, L., & Nabhan, G. P. (2016). The importance of indigenous knowledge in curbing the loss of language and biodiversity. *BioScience*, 66(6), 499-509.
- Zocchi, D. M., & Fontefrancesco, M. F. (2020). Traditional products and new developments in the restaurant sector in East Africa. The case study of Nakuru County, Kenya. *Frontiers in Sustainable Food Systems*, 4, 599138.

23. The Role of Indigenous Knowledge of Dietary Foods in Enhancing Food Security in Kenya

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Abstract

Indigenous foods are associated with local people's cultures. They are diverse, comprising crops and domesticated animals or from wild habitats and are a good source of nutrients. However, diverse factors impede their production and use. Kenya's population was 47,564,300 people in November 2019. They face food insecurity due to climate change and abandonment of traditional methods of conserving food species and habitats. This exploratory study investigated the role of indigenous knowledge of dietary foods in enhancing food security in Kenya towards achieving agendas 1 and 2 of the sustainable development goals. The objectives were to establish the role of indigenous knowledge in identifying and using these foods, examine factors which impede the use of indigenous foods in Kenya, and make recommendations for their value addition. Thirty female participants aged 60 and above were purposefully selected based on their association with indigenous foods from production, gathering, processing, preservation and storage at their households and consumption. Data was collected through interviews with 28 respondents through snowballing and literature reviews. Data was thematically analysed and integrated with findings from the literature review. The findings indicate that indigenous knowledge of indigenous foods was acquired from mothers, grandmothers, and relatives, as well as individual experiences of eating indigenous foods at home over time. It was used in the identification and selection of indigenous foods by communities to enhance food security, and the use of indigenous foods enhances food security in Kenya towards achieving agendas 1 and 2 of the sustainable development goals.

Keywords: *Culture, food culture, traditional foods, sustainable development goals*

1 Introduction

Indigenous knowledge (IK) refers to accumulated knowledge of the daily activities of a given people or society. Demi (2016) avers that IK is a body of cumulative knowledge practices and beliefs, evolved by adaptive process and handed down through generations by cultural transmission. Indigenous people possess immense knowledge of their environment based on centuries of living close to nature, including understanding the properties of plants and animals. This knowledge is primarily transmitted through socialisation, particularly interpersonal relations within family or community members, and is learned along gender lines. Thus, the use of indigenous knowledge helps communities in the understanding of indigenous food culture. Food security has four pillars: availability, accessibility, utilisation and stability. It is achieved when all people at all times have regular and permanent physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Government of Kenya, 2017).

The Constitution of Kenya 2010 states that Parliament shall enact legislation to recognise and protect the ownership of indigenous seeds and plant varieties, their genetic and diverse

characteristics and their use by communities in Kenya (Government of Kenya, 2010, p.27). The knowledge transmitted orally from generation to generation is unique to a particular community and forms part of their cultural identity and pride (Chepchirchir et al., 2019). Community cuisine reflects the history, lifestyle, values, and beliefs of a community that has been with man since interacting with nature as an agricultural community before moving to industrial, information society, and knowledge economies.

In Kenya, various research institutions such as the National Museums of Kenya (NMK) and Kenya Agricultural and Livestock Research Organisation (KALRO) have been involved in strategies to safeguard the loss of these essential indigenous foods from the Kenyan diet for years. Kibe (2016) asserts that KALRO increased its focus on indigenous crops such as sorghum, millet, and pigeon peas. Their activities involve researching and documenting information on indigenous foods, including food diversity studies, farming systems, utilisation, promotion and public education. NMK, through the Kenya Resource Centre for Indigenous Knowledge (KENRIK), has documented and published the traditional foodways of Isukha and Pokot communities under the UNESCO programme for safeguarding intangible cultural heritage, including How to grow and use traditional vegetables with support from the United Kingdom, Department for International Development (DFID). On a visit to secondary schools with a team from the Ministry of Agriculture in Nzambani District, Maundu (2010) discussed the possibility of secondary schools growing local vegetables and introducing them into school meals. Food plant species and varieties have been documented, and a proportion have been planted and domesticated. The indigenous cultivars are kept at the genebank for long-term conservation. IK on recipes and nutrition has been shared with the public in an endeavour to increase the consumption of these valuable foods. For example, in Kenya, Amaica Restaurant is one of the indigenous restaurants in Nairobi that promotes the use of indigenous dietary foods through traditional African experience based on culinary specialists unique to different communities in Kenya. The restaurant provides customers with authentic African food around a traditional African ambience, replicated in an urban setup. The food is prepared using traditional methods, which ensures a healthy diet to preserve traditional African history and culture that can be transferred to the current and the next generations. The food preparation methods are preserved electronically and accessible on the Amaica Restaurant website. Neema Restaurant in Kitui also prepares traditional vegetables such as cowpeas and African nightshade. They promote local farmers by buying fresh vegetables to make African dishes.

1.1 Indigenous vegetables

Indigenous vegetables contribute a significant source of food. They are traditionally gathered from inhabited lands and form a more significant part of the rural communities' daily diet, mostly during rainy seasons and along the wetlands during drought. Gido et al. (2016) observed that Kenya, like the rest of Africa, has a variety of vegetables, such as mushrooms originating from Africa, which are cultivated in rural areas, marketed and consumed in both rural and urban Kenya, and the rest of Africa. They include African nightshade, cowpeas, amaranth, spider plant, African kale, African eggplant, jute mallow, cassava leaves, pumpkin leaves and slender leaf, among others. One's cultural background influences the consumption of different varieties of vegetables. Mbhenyane (2017) asserts that indigenous foods and dietary diversity are vital to food and nutrition security. They can be a powerful source of nutrients that are better for health as they exacerbate micronutrient deficiencies.

Regarding production and sustainability, local seeds are used for re-planting and are usually intercropped with maize. Kabede and Bokelmann (2017) concur that they are usually grown in backyards or home gardens or intercropped with other crops. Indigenous people eat indigenous and traditional foods that grow in the wild as a coping strategy during drought and periods of food shortage or hard times to contribute to dietary diversity and food security. Maundu (1994) affirmed that the Ng'iketootok of Turkana use wild vegetables during the rainy season and fruits during the dry season. Vegetables such as mushrooms naturally grow after the staple food crops are harvested. Communities recognise them for their contribution to food security and income generation to ensure essential micronutrients are acquired in addition to curing and preventing humans against chronic diseases (Gido et al., 2016). Table 1 shows the nutritional values of some of the indigenous vegetables.

Table 1: Nutrient content of commonly eaten African indigenous vegetables (mg/100g)

Indigenous vegetable	Ca	P	Fe	Mg	Na	K	Vitamin C
Amaranthus (Mchicha)	323.70	89.00	7.50	122.00	230.00	341.00	50.00
<i>Solanum americanum</i> or Nightshade (Osuga)	100.47	62.50	8.63	461.00	74.22	100.00	54.00
<i>Crotalaria ochroleuca</i> or Slender leaf (Mitoo)	1,234.40	11.25	28.13	155.00	22.66	162.50	-
Cowpea (Kunde)	155.00	14.00	1.90	37.00	23.00	358.00	000
<i>Corchorus olitorius</i> (Mrenda)	207.00	88.00	6.30	30.00	18.00	283.00	37.00
<i>Basella alba</i> or vine spinach (Nderema)	231.50	155.00	1.026	46.45	20.31	125.00	80.00
<i>Cleome gynandra</i> or Spider plant leaves (Saga)	1,484.40	48.95	29.67	47.50	18.75	75.00	-

Sources: FAO/GOK (2018); Sehmi (1993)

1.2 Other foods

According to the Food and Agricultural Organization of the United Nations (FAO, 2009), indigenous food systems and farming practices encompass fishing, pastoralism, foraging and forestry, as they all depend on existing knowledge and practices that help to ensure food and agricultural diversity, valuable landscape and seascape features, livelihoods and food security. About 7,000 species of plants have been cultivated since humans adopted farming, out of which only 30 crops provide dietary needs (FAO, 2009). They include wheat, rice and maize, while out of 15,000 identified species of mammals and birds, only 30 to 40 have been domesticated for food production. These include cattle, goats, sheep, buffalo and chickens. Indigenous food system puts emphasis on crop diversity, and there is nothing like authentic human foods; what constitutes food to one indigenous tribe could be a taboo in another tribe or used as a pet for some or an object of worship to others (Demi, 2014).

Kenya experiences a 20-30% deficit in staple foods every year (Government of Kenya, 2017b), a mismatch with the increase in population growth. Indigenous foods, particularly vegetables, contain adequate nutrients that have medicinal and nutritional benefits and are culturally acceptable to most communities. However, their diversity is declining due to modern farming systems, yet their commercial value is evident, while their frequent intake prevents communities from malnutrition and chronic diseases. Waitthaka (2011) asserted that one of the challenges

facing Kenya is the reliance by many farmers on indigenous knowledge to achieve food security for her growing population and the reduction in numbers of those holding indigenous knowledge due to death. This statement supports the African proverb, “When an old man dies, a library burns to the ground”. IK has largely remained fragmented alongside the unique nature of the settings where the knowledge is being applied (Chanza & Musakwa, 2022). Thus, there is a need for increased dietary awareness and sharing of wisdom and experience that ensures increased growth and use of indigenous foods in enhancing food security in Kenya towards achieving agendas 1 and 2 of the sustainable development goals (SDGs).

2 Literature review

Studies have shown that people learn their culture by consuming traditional foods. Efforts by the Government of Kenya through local institutions to revitalise indigenous food production and use have been ongoing for the last 25 years. Kenya Resource Centre for Indigenous Knowledge, based at the National Museums of Kenya, has been involved in the revitalisation of traditional foods through the Indigenous Foods Programme and the African leafy vegetables Programme. However, diverse factors that impede the production and use of these foods include negative attitudes, inaccessibility, old-fashioned habits, and poor man’s food (Mbhenyane, 2017). Kenya’s population, which stood at 47,564,300 people in November 2019, faces food insecurity due to climate change and diverse societies, leading to the abandonment of traditional methods of conserving food species and their habitats, resulting in genetic erosion. Indigenous knowledge transfers and use are weak owing to the rate at which knowledge holders are dying, the negative attitude of the young generation towards the consumption of indigenous foods

2.1 Role of indigenous knowledge in the identification and use of indigenous foods

Ngugi (1999) asserts that indigenous knowledge is the basis for natural resource management and use by local communities, which has helped them in the selection of food, medicine, clothing, shelter and other necessities in their lives. Communities use IK at their local level as the basis of decision-making about vital activities in which food security is included (Oniang’o et al., 2004). Indigenous foods form the basis of survival of the rural community (Ibnouf, 2012). UNESCO World Forum (2019) asserts that food has created, formed and shaped the relationship between man and his environment. The knowledge and experiences of indigenous communities in food security systems deserve some attention (Chanza & Musakwa, 2022). Indigenous people and local communities depend on natural resources such as plants for their welfare and survival (Kariuki et al., 2018). They use intuitive indigenous knowledge to identify processes and use plants as food. Their environment has influenced their knowledge of food plants as they adapt to use what is available for dietary diversity. The continued use of wild and cultivated plants is essential to food security and varied diets as they enhance dietary diversity. Nutritional status improves food flavour and increases their consumption, primarily by children who are prone to malnutrition. Kariuki (2018) asserts that throughout the year, many traditional and rural societies rely heavily on edible wild plants for energy and micronutrients. IK helps in the understanding of indigenous food systems and culture.

2.2 Food and culture

Indigenous foods are those associated with people’s cultures and have existed for centuries. Mbhenyane (2017) affirms that they grow spontaneously in natural ecosystems or are cultivated

and have served humanity as food and medicine for generations. Additionally, these foods are an important cultural heritage that must be preserved, as the food crops are crucial contributors to the diet by providing essential micronutrients and health benefits. They comprise a variety of crops from cultivated lands or wild habitats such as forests. They encompass vegetables, fruits, roots and tubers, cereals, edible insects (termites, crickets, caterpillars and locusts), birds, and mushrooms. Forest foods include wild fruits, wild vegetables, honey, wild roots and tubers. Chanza and Musakwa (2022) assert that most households collect indigenous fruits as a coping strategy to deal with drought and avert household food insecurity. They help maintain household nutrition during lean seasons to complement seasonal staple crops in low agricultural production during periods of climate change, induced vulnerability and when food availability gaps occur (Vinceti et al., 2013). In addition, indigenous people have developed knowledge systems, practices, and decision-making skills for identifying, preparing, and sustainably managing wild foods in forests and farms. The knowledge of foods includes established processes of food gathering and collection, preparation and ways of service as part of different communities' cultural heritage. Traditional foods and food systems are part of indigenous knowledge. They include identification, varieties, food taboos and customs, feeding regimes, recipes and food preservation methods. Demi (2016) affirms that indigenous food culture describes the mode of food production, distribution, consumption and re-use of by-products of foods by indigenous people. It emphasises food as an ethnic marker and the construction of identities and cultures. In the process of people learning to consume their traditional foods, they also learn their cultural identity.

2.3 Factors which impede the use of indigenous dietary foods in Kenya

Dietary deficiencies and food insecurity are partially a result of decreasing diversity in traditional foods (diets). Food culture can solve the overlapping challenges of population growth and climate change. It provides inspiration to tackle challenges related to sustainable agricultural and fishery practices, education for behavioural changes, and food security.

There is a dearth of literature on the role of indigenous knowledge in enhancing food security. Thus, this study focused on using indigenous foods to improve health through the consumption of various traditional foods, enhancing food security and sustainable development in Kenya.

3 Methodology

The study was designed as exploratory research to investigate the role of indigenous knowledge of dietary foods in enhancing food security in Kenya. This study was based on a population of 28 women aged 60 years and above, comprising 26 who retired from NMK and two women research scientists still working because, as scientists, they retire at age 70. The women were chosen to participate in this study because they were assumed to have sourced indigenous foods from their home gardens, market, or demonstration garden at KENRIK based at NMK when this research was conducted. They also participated because of their role in using indigenous foods, including production, gathering, processing, preservation, and storage at their homes. The targeted population of active vegetable harvesters was 30, although only 28 participated in the research, with one of them being a former staff member at KENRIK. The objectives of the study were to establish the role of indigenous knowledge in the identification and use of indigenous foods in enhancing food security in Kenya towards achieving SDG 1 and 2, examine factors which impede the use of indigenous

dietary foods in Kenya, and make recommendations. The study purposefully selected 28 active women consumers of such foods as cereals, roots, tubers, fruits and vegetables. Data was collected through telephone interviews with 28 key informants and documentary analysis of primary sources (mainly reports and conference proceedings) and secondary sources (KENRIK website and other published works) for sharing results of previous related studies on indigenous foods with the audience. Qualitative interview data was thematically analysed and integrated with findings from the literature review.

4 Findings and discussions

The findings of this study, as they are discussed, are based on the study's objectives and results from the literature review and telephone interviews conducted.

4.1 Role of indigenous knowledge in the identification of indigenous dietary foods

The study established that knowledge transfer in most Kenyan communities is done according to gender type. For example, the girl child interacts with the mother, while the boy interacts with the father. The knowledge on identification and preparation of indigenous foods was learned from mothers, grandmothers, and female relatives, as well as from the experience of eating them at home over time while growing up. One respondent eluded their knowledge of identification due to working at KENRIK. Their long experience and observation of what was collected and how it was prepared ensured that the respondent learnt how to identify and collect indigenous foods from their farms or markets. The following are the excerpts from the majority of the respondents:

"My mother taught me which foodstuff to collect and also how to prepare it" [Indknow 3]

"I have been eating these indigenous foods since my childhood for substance" [Indknow 13]

"It is staple food in my community" [Indknow 15]

"I observed what the researchers did when I was working at KENRIK and accompanied the researchers to the field" [Indknow 25]

A study on wild and medicinal food plants in Loita, Narok County by Kariuki et al. (2018) found that local communities use their intuitive indigenous knowledge to identify, collect, process and use food plants. Communities identified and set aside some traditional conservation cultural sites in areas where vital wild and medicinal food plant species naturally cropped up. Such areas are considered sacred, and communities encourage sustainable harvesting of wild plant resources as part of biodiversity conservation, as this ensures food security.

4.2 Use of indigenous foods in enhancing food security in Kenya

The study established that food found in the wild could make supplementary, seasonal and emergency contributions to household food supplies, particularly during the drifting periods of either too much rain accompanied by floods that sweep away crops or drought that leaves households with nothing but the sun to bath. Wild plants provide essential sources of food and fodder for domestic animals during hunger or peak planting seasons when people have less time for food preparation. Only two of the ten respondents said they had used wild amaranths (terere) and vine spinach (nderema). According to the Government of South Africa (2014), dietary diversity is vital to food and nutrition security. Thus, indigenous food is an important cultural heritage that must be preserved. In Kenya, dietary diversity is

critical to achieving human development goals, and it is essential to ensure the availability of diverse, wholesome, and nutritious foods for meaningful contribution to socio-economic development (Government of Kenya, 2017a). However, the Kenya Food Security Act does not mention the role of indigenous knowledge in dietary foods towards achieving food and nutritional security.

In terms of socio-economic sustainability, grains of wild food plants such as maize, millet and sorghum were found to provide other products like flour, which can be gathered and sold. The study established that these grains are also used because of their nutritional benefits and sustenance staple foods, including for medicinal purposes. Indigenous foods in the category of roots, including tubers, starchy fruits, cassava, sweet potatoes, bananas, and yams (*Dioscorea* spp.), are used due to their medicinal value and as sustenance staple and famine foods. They can withstand harsh climate conditions, mainly when other foods are scarce or unavailable.

The study found that leafy and fruity vegetables such as amaranth (*Amaranthus* spp.), cowpeas (*Vigna unguiculata*), spider plant (*Cleome gynandra*), African nightshade (*Solanum* species), and jute mallow (*Corchorus olitorius*) among others can be used as sauce or vegetable. This study established that the primary sources of these vegetables were home farms and markets. In the rural setup, these vegetables are planted on their home farms. Amaranthus and vine spinach (*basella alba*) or 'nderema' as commonly known, are also obtainable from the wild. A minority of the respondents got some of the vegetables from the Kenya Resource Centre for Indigenous Knowledge demonstration garden based at the National Museums of Kenya. In contrast, five respondents attested to getting them from friends. When asked to state reasons for the consumption of these indigenous vegetables, all the respondents said that they consume them for:

"sustenance staple food" [Indknow 17]

"Nutritional benefit and medicinal value" [Indknow 9]

In addition, two respondents said they also plant them because of:

"economic gains they get from selling them" [Indknow 28]

Traditional plants such as chilli pepper (*Capsicum annum*) and lemon grass (*Cymbopogon citratus*) have been used as flavouring and additives for food tastes in the oil category.

Seeds from shea butternut (*Butyrospermum paradoxum*) and sim sim (sesame), among others, can be used to produce oil, food and drink. Traditionally, potash is used as a substitute for salt or to soften and shorten cooking time for leafy vegetables. Although products of all these wild foods can be sold for economic benefits, the study found that only two respondents cultivated them for economic gains.

Mbhenyane (2017) asserts that indigenous foods and dietary diversity are better for health since they are potent sources of nutrients which play a significant role in enhancing quality diets, improving food and nutrition security and that Kenya is among the African countries that use 800 species at community level, thus demonstrating the global use of indigenous edible wild plant species. In their study on food security on indigenous vegetables, Kabede and Bokelmann (2017) found that the common indigenous vegetables include cowpeas (*Vigna unguiculata*), *Amaranthus*, Spider plant (*Cleome gynandra*), African nightshade (*Solanum* species) and Ethiopian kale (*Brassica carinata*) and mushroom among others. The production of these vegetables was sustainable and could ease food security since most products used local seeds, which they intercropped with Maize without the requirement of irrigation.

This study found that African indigenous vegetables (AIVs) provide energy and protein for both children and the elderly, including the sick. Kabede and Bokelmann (2017) indicated that they are essential micronutrient sources, including vitamins A and C, iron, calcium, magnesium, proteins, and antioxidants required for average growth and health. The leading producers of African indigenous vegetables are women who use them as sources of income by selling them in nearby markets, thus enhancing their purchasing power and food production capacity, which directly impacts household nutrition, health and food security (Kabede & Bokelmann, 2017).

Indigenous starchy foods include sweet potatoes, finger millet, sorghum, green bananas, maize and cassava, among others, which are energy foods. They are mainly used as thin 'uji' or thick stiff porridge 'ugali' (cornmeal).

4.3 Factors which impede the use of dietary foods

The study established that consumer attitude accounts for the underutilisation of indigenous foods and the notion of being born and bred in the town. It is the strongest predictor of consumer intention to buy African foods in Kenya (Mbhenyane, 2017). Additionally, most indigenous foods are planted on small scales and intercropped with other crops, thus causing limited harvests. This portrays the limited plots or size of land set aside for the production or farming of indigenous foods, including vegetables, which play a significant role not only in the health of communities from both rural and urban settings but they are also a source of income for the farmers and an avenue for overall food security. There is optical cultivation and production of indigenous vegetables as more land is converted into commercial agricultural production and real estate. For example, the case of sugarcane farming in Mumias at the expense of indigenous vegetables has eroded due to environmental, political and socio-economic factors, which include increased population. This not only erodes the indigenous knowledge of their cultivation but also means the insufficient supply of indigenous foods during crop development, reduced cultivation, processing and consumption of indigenous foods, while poverty levels are not reducing. Thus, the role of indigenous foods in food security among local and urban households is diminishing.

The adoption of highly improved varieties of commercial crops due to globalisation threatens indigenous vegetables, whose loss is associated with the loss of indigenous knowledge on their cultivation, use and conservation of indigenous vegetables.

The study found that using language for local names also creates a barrier to utilising dietary foods, particularly for those who do not understand and speak the language. Using local names for different or the same food can also confuse the younger generation, particularly those in urban areas.

This study provides insights into beneficial indigenous foods that help improve health through the consumption of a variety of traditional foods and the use of indigenous knowledge in the identification and selection of indigenous dietary foods by communities to enhance food security and sustainable development in Kenya.

5 Conclusions

Indigenous foods are expensive in urban areas where they are bought from markets, compared to cabbage and other related vegetables, which are safe, nutritious foods all year round, thus contributing to the diversification of diets for rural and urban populations. The use of IK is crucial to survival, especially in identifying and preparing indigenous foods, and enhances food

security during lean seasons. It is an effective way of solving food shortages, supply and food security. In most African communities, indigenous knowledge was imparted according to gender roles. Thus, indigenous knowledge of dietary foods, particularly plant foods, was mainly acquired from mothers, partially through grandmothers and relatives. Indigenous foods are consumed for sustenance and improved livelihoods from the nutrients and reduced poverty levels resulting from income from small-scale sales. Promoting indigenous foods can encourage behaviour change towards sustainable consumption, waste reduction and lifestyle practices as part of the global strategies to achieve the SDGs. The findings add new insights to the existing body of knowledge.

6 Recommendations

This study recommends that:

- The government should put more recognition on the role of indigenous knowledge on indigenous foods, particularly in reviewing and developing national policies to promote their diversity, growth and consumption, including commercialisation as a means towards preservation of Kenya's intangible cultural heritage and income generation for sustainable development and the achievement of agendas 1 and 2 of the sustainable development goals.
- The government should promote indigenous food diversity to raise awareness and encourage behavioural change through education and workshops to ensure sustainable consumption, waste reduction, and lifestyle practices as part of the global strategies to achieve the SDGs.

References

- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Chanza, N., & Musakwa, W. (2022). Revitalising indigenous ways of maintaining food security in a changing climate: a review of the evidence base from Africa. *International Journal of Climate Change Strategies and Management*, 14(3), 252-271. DOI 10.1108/IJCCSM-06-2021-0065
- Demi, S. (2016). Indigenous Food Cultures: Pedagogical Implication for Environmental Education. In *Global governance/politics, climate justice & agrarian/social justice: linkages and challenges, an international colloquium 4* □ 5 February 2016 Colloquium, Paper No. 2.
- Demi, S. M. (2014). African indigenous food crops: their roles in combating chronic diseases in Ghana. (Unpublished Thesis). Toronto, Ontario: University of Toronto.
- FAO (2009). FAO and traditional knowledge: the linkages with sustainability, food security and climate change impacts. <http://www.fao.org/docrep/011/i0841e/i0841e00.htm>
- FAO/Government of Kenya (2018). Kenya Food Composition Tables. <http://www.fao.org/3/19120EN/19120en.pdf>
- Gido, E. O., Bett, H. K., & Bokelmann, W. (2016). Importance of African Indigenous Vegetables in Food Systems. *African Journal of Horticultural Science*, 10, 34-41.
- Government of Kenya. (2010). The Constitution of Kenya 2010. National Council for Law Reporting
- Government of Kenya. (2017a). The Food Security Act, 2017: Kenya Gazette Supplement, Special Issue No.197.

- Government of Kenya. (2017b). The National Food and Nutrition Security Policy Implementation Framework 2017-2022. Ministry of Agriculture, Livestock and Fisheries
- Government of South Africa. (2014). The National Policy on Food Nutrition Security for the Republic of South Africa (No.637). Government Gazette No.37915. Johannesburg, Department of Agriculture, Forestry and Fisheries.
- Ibnouf, F. O. (2012). The Value of Women's Indigenous Knowledge in Food Processing and Preservation for Achieving Household Food Security in Rural Sudan. *Journal of Food Research*, 1(1), 238-253.
- Kabede, S. W., & Bokelmann, W. (2017). African indigenous vegetables and their production practices: evidence from HOTINLEA survey in Kenya. *Grotechnology*, 6(3), 170. Doi: 104172/2168-9881.1000170
- Kariuki, P. M. (2018). Use and conservation of wild medicinal food plants in Loita, Narok County, Kenya. (Unpublished PhD Thesis), University of Nairobi.
- Kariuki, P. M., Onyango, C., Lukhoba, C. W., & Njoka, J. T. (2018). The role of indigenous knowledge on using and conserving wild medicinal food plants in Loita Sub-county, Narok County, Kenya. *Asian Journal of Agricultural Extension, Economics and Sociology*, 28(2), 1-9.
- Kenya National Bureau of Statistics (2019). Kenya population and housing census. Vol.1.
- Kibe, L. (2016). The Role of Indigenous Knowledge in Attaining Kenya's Vision 2030: a Literature review. *Regional Journal of Information and Knowledge Management*, 6(2), 110–124.
- Maundu, P. (1994). The role played by indigenous food plants among the Ng'ikebootok of Southern Turkana, Kenya. In J.H. Seyani and A. Chikuni (Eds.). *Proceedings of the 13th Plenary Meeting AETFEAT held in April 1991, Zambia, Malawi*, 1,137-146.
- Maundu, P. (2010). Secondary schools in Nzambani embrace traditional vegetables and food. *Dietary Newsletter*, (2), pp. 1–1.
- Mbhenyane, X. G. (2017). Indigenous foods and their contribution to nutrient requirements. *South African Journal of Clinical Nutrition*, 30(4), 5-7.
- Ngugi, G. (1999). Indigenous knowledge and the preservation of plant resources: the challenges ahead. *NMK Horizons*, 3(3), 16–19.
- Oniang'o, R., Allotey, J., & Malaba, S. J. (2004). Contribution of indigenous knowledge and practices in food technology to the attainment of food security in Africa. *Journal of Food Science CRH89*, 69(3). <https://doi.org/10.1111/j.1365-2621.2004.tb13346.x>
- Sehmi, J. R. (1993). National food composition tables and the planning of satisfactory diets in Kenya. Nairobi, Government Printer.
- Vinceti, B. Ickowitz, A., Powell, B., Kehlenbeck, K., Termote, C., Cogil, B., & Hunter, D. (2013). The contribution of forest foods to sustainable diets. *Unasylva*, 241(64), 54-64.
- Waithaka, M. (2011). The role of indigenous knowledge in sustainable food production: a case of post-harvest practices in maize preservation in Mua Hill Location, Eastern Kenya. (MSC Thesis). Van Hall Larenstein University of Applied Science, Wageningen: The Netherlands.

SECTION SIX:
INDIGENOUS
KNOWLEDGE,
ENVIRONMENTAL
CONSERVATION
AND CLIMATE
CHANGE

24. Application of Indigenous Knowledge in Climate Change Mitigation by Small-Scale Farmers in Nyeri County, Kenya

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Abstract

The purpose of the study was to investigate the application of indigenous knowledge in the mitigation of climate change by small-scale farmers in Nyeri County, Kenya. The objectives were to identify indigenous knowledge and practices, to examine how farmers apply indigenous knowledge and practices, and to assess challenges faced by farmers. The study employed a descriptive design to collect data, both quantitative and qualitative, and the structured questionnaire was the primary tool for data collection. Purposive random sampling was applied, and a sample size of 50 was identified out of a population of 10,000. The data collected was thematically analysed. The study found that agroforestry using windbreaks and shelterbelts and the use of organic manure were primary indigenous farming practices (100% response) applied in farms. The observation was mainly used for weather forecasts, which were done by observing the speed and direction of wind and the behaviour of different animals. Indigenous knowledge was majorly (100%) transferred using word of mouth. Challenges included a lack of genuine indigenous seeds and the long maturity of indigenous plants. By integrating indigenous knowledge into their farming practices, small-scale farmers in Kiamathaga and similar locations can enhance their resilience to climate change and contribute to sustainable agricultural development as well as fighting poverty. This paper makes an important contribution to the understanding of the application of indigenous knowledge in climate change and food security in the Kiamathaga location and surrounding environs. The study also creates awareness among small-scale farmers of the potential of blending traditional and scientific approaches to fighting poverty.

Keywords: *Traditional knowledge, knowledge sharing, knowledge transfer, Kiamathaga location*

1 Introduction

Climate change is a pressing global issue that poses significant challenges to agricultural systems, particularly in arid and semi-arid lands (ASALs) such as those found in Kenya. ASALs are characterised by low and erratic rainfall, high temperatures, and fragile ecosystems, making them highly vulnerable to the impacts of climate change. In these regions, small-scale farmers rely heavily on agriculture for their livelihoods, making them particularly susceptible to the adverse effects of changing weather patterns.

Indigenous knowledge refers to the traditional knowledge and practices that have been developed over generations by a particular community or culture. It is the knowledge and expertise unique to a given society or culture that encompasses the cultural traditions, values, beliefs, and worldviews of local people (Mistry et al., 2020). Over time, local knowledge is

passed from generation to generation through word of mouth and cultural rituals (Agada et al., 2022). Indigenous knowledge is marginalised in favour of high-tech modern farming knowledge. It is easy for farmers to practice indigenous methods of farming in order to control the adversity of climate change (Kwanya, 2013). However, they have no clearly defined channels through which they can share their lived indigenous knowledge, experiences and practice. In Kenya's arid and semi-arid lands (ASALs), indigenous knowledge has been crucial in enabling farmers to cope with the harsh climatic conditions.

Kenya has 47 counties, 23 of which are arid and semi-arid (ASAL), constituting approximately 88% of the country's land mass (Njogu, 2022). The 23 counties are further divided into nine arid and 14 semi-arid counties, including Nyeri County. The semi-arid counties are prone to droughts due to infrequent, unpredictable, and irregular low rainfall. Nyuma and Churu (2022) opine that these counties are characterised by 50mm-850mm of rain, high temperatures, and high rates of evapotranspiration throughout the year.

Indigenous knowledge and farming systems are 'generated through a systematic process of observing local conditions, experimenting with solutions and readapting previously identified solutions to modified environmental, socio-economic and technological situations'. In recent years, with the effects of climate change becoming increasingly apparent, farmers in these regions have had to adapt their traditional practices to mitigate the impacts of climate change. Kiamathaga Location falls in the Kieni sub-county in Nyeri County. According to Maina (2020), the Kieni sub-county receives annual precipitation of 500mm and is therefore classified as a semi-arid region.

2 Literature review

Climate change is a significant challenge facing farmers in Kenya's arid and semi-arid lands (ASALs). These regions are characterised by low and erratic rainfall, high temperatures, and frequent droughts, which have adversely affected agricultural productivity and the livelihoods of the people living in these areas. Indigenous knowledge has been recognised as an essential resource for climate change adaptation in ASALs.

According to Adger et al. (2003) and Petzold et al. (2020), indigenous knowledge refers to the traditional knowledge and practices developed by local communities over generations. These practices are adapted to local conditions and used to manage natural resources sustainably. In the context of climate change, indigenous knowledge provides local communities with the tools and techniques to cope with the changing climate and protect their livelihoods.

Over time, people all over the globe have developed sustainable farming practices with the aim of nourishing communities and future generations. Such practices promote health in many different forms, such as soil health, crop nutrient content and community physical health (McDonald, 2022). Studies have shown that farmers in ASALs in Kenya have developed a range of indigenous knowledge and practices for coping with the effects of climate change (Apraku et al., 2021; Mugi-Ngenga et al., 2021). These include soil and water conservation techniques, such as terracing, mulching, and water harvesting, which help to conserve soil moisture and prevent soil erosion. Farmers have also developed crop diversification strategies, including intercropping and agroforestry, which help to reduce the risks associated with crop failure due to drought or pests and diseases.

Additionally, farmers have developed traditional weather forecasting methods based on local observations of natural phenomena (Balehegn et al., 2019), such as the behaviour of animals

and the appearance of the moon and stars. These methods have been found to be reliable in predicting the onset of rainfall and have helped farmers to plan their farming activities accordingly.

Despite the potential of indigenous knowledge in climate change adaptation, farmers in ASALs in Kenya face several challenges in applying this knowledge. These include the erosion of traditional knowledge due to cultural changes and the influence of modern technologies, the modern education system, urbanisation, lack of access to information and resources and limited institutional support for the use of indigenous knowledge in climate change adaptation (Apraku et al., 2021). Furthermore, the elderly and uneducated cannot document indigenous knowledge, which leads to the loss of such rich indigenous knowledge in the event of the death of bearers of this indigenous knowledge in farming practices.

Several opportunities exist to enhance the application of indigenous knowledge in climate change adaptation. These include promoting traditional knowledge through education and awareness campaigns, integrating indigenous knowledge into formal research and development programs, and establishing policies and programs that recognise and support the role of indigenous knowledge in climate change adaptation.

The extant literature exemplifies the need to undertake more research on indigenous knowledge's application in mitigating climate change and enhancing food security in ASAL areas in Kenya. The significance of traditional knowledge has not been clarified and adequately studied in ASAL areas.

3 Methodology

The study targeted small-scale farmers in the Kiamathaga location in Kieni Constituency in Nyeri County. Kiamathaga has a population of 10,000 persons, with four sublocations, namely Murichu, Tigithi, Gikamba and Kabendera. A sample frame consisting of smallholder farmers from the study area was developed using random sampling. A sample size of 50 smallholder farmers was randomly selected, where in Murichu 13, Tigithi 13, Gikamba 12, and Kabendera 12. The data was collected by using questionnaires (open and closed-ended). The data collected was analysed using a thematic analysis approach, which involves identifying patterns and themes in the data.

4 Results and discussion

The response rate was 50 (100 %) questionnaires used for data collection. This was achieved because the farmer who was selected was given the questionnaire, filled out, and handed back to the researcher.

Respondents indicated owning different forms of land, including individual ownership, renting and letting out. The findings of the study show that the majority (58%) had ownership of 0-1-acre piece of land, 29% owned 2-3 acres of land, 8% owned 4-5 acres, while the minority (4%) owned 5-10 acres. On the other hand, 2 % of the respondents had rented 2-3 acres of land. Additionally, there was no let-out mode of land acquisition. This is well shown in Figure 1. The findings of the study, therefore, show that respondents were small-scale farmers who owned 0-1 acres of land for practising indigenous farming practices.

How large is your farming land?

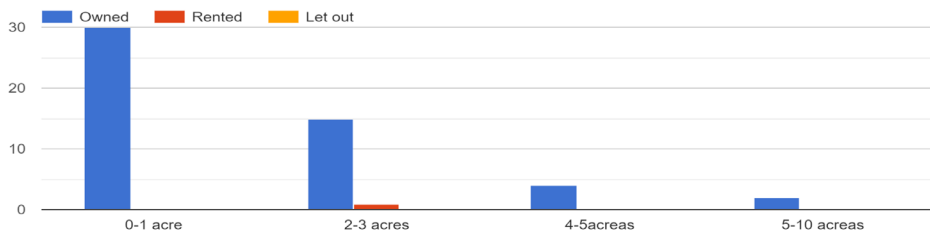


Figure 1: Size of land for respondents

Respondents identified different indigenous farming practices that they applied to their farms. The findings of the study showed agroforestry and use of organic manure as the major practices with 100% response each, crop diversification followed with 79 %, then mulching at 77%, water harvesting with 73%, use of ash for treating seed at 35%, locally made pesticides were at 19%, terracing at 8%. The least was the use of manure and ash mixture at 1.9 %. This implies that respondents are well conversant with indigenous farming practices and that they apply them in their farming to help mitigate the effects of climate change.

The findings of the study reviewed that the application of windbreaks and shelterbelts was majorly applied at 98.1 % response, alley cropping followed by silvopasture at 15.4%, forest farming at 11.5%, and the least was home gardens at 5.8%. This implies that respondents apply agroforestry practices which help in mitigating the effects of climate change on their farming, as illustrated in Figure 2. The findings of the study are in line with Masinde (2019) that agroforestry is vital to alleviate microclimate deregulation, conserve soil moisture, and improve soil fertility. This method promotes sustainable land use by incorporating nitrogen-fixing plants for nitrogen release, thereby refurbishing soil fertility for improved productivity.

Which agro-forestry practices do you apply?

52 responses

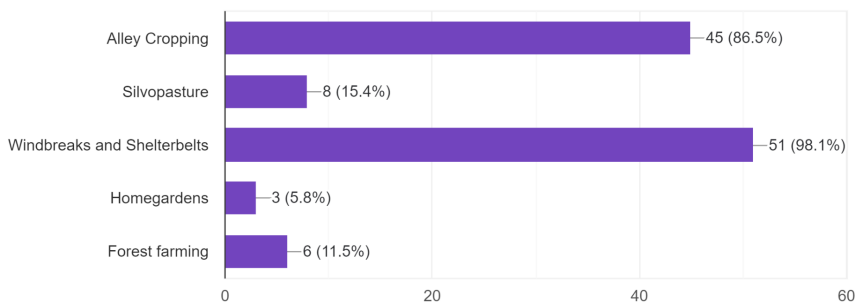


Figure 2: Agroforestry practices

The study reviewed that respondent actively diversified their crops, majorly maize and beans at 100%, and potatoes were second with 92%. Drought-resistant fruits at 73%, aloe vera at 50%, millet at 33%, cowpeas at 17%, sorghum, avocado, oranges and tomatoes at 6% each, and pigeon

peace at 4%. On the other hand, mango and lemon were the least diversified at 4% each. The findings of the study conquerors with Baldwin-Kordick et al. (2022) show that diversification of crops enhances soil resilience and health. Crops are rotated in a specific sequence over time to improve soil fertility, control pests and diseases, and reduce water requirements.

The study's findings showed that respondents made great efforts to conserve both soil and water. Natural slope land was majorly used, at 87%, for water conservation and 83% for soil conservation. Bench-traced farmland was followed by 6 % for both soil and water conservation. The least used method was sloping terraces, with 2 % each for both water and soil conservation. This showed adequate application of indigenous methods of terracing to try and improve yields despite the challenges of climate change.

Respondents identified different materials applied during mulching for diverse reasons, as shown in Figure 3. The most commonly used material was fresh cut (71%), which helped reduce soil erosion; grain straw 27% used to suppress the growth of weeds; tea leaves followed at 22% to help reduce soil erosion; chipped brush 21% helped in moisture retention, fresh or old hay was 17% and helped in reducing soil moisture. The least used materials during mulching were wood shavings, which were used 15% to reduce soil erosion. This provides critical evidence of the importance of mulching to conserve water and avert the severe effects of climate change on farming.

What materials do you use for mulching?



Figure 3: Materials used for mulching

The findings of the study reviewed that the commonly used method to harvest water was the use of direct storage at 63% applied during dry seasons, harvesting rooftop rainwater followed by 58% applied during short rains and 56% during long rains. Harvesting surface runoff was rated at 37% in both long and short rains. Recharge of groundwater aquifer and provision of plant nutrients during decomposition of materials rated 4% each applied during dry seasons. On the other hand, recharge pits were 2% during long rains; tank percolation was 2% during both short and long rains. Further to that, both filling up of dig wells and use of trenches for recharge was at 2% in all seasons. The findings of the study clearly show that water harvesting greatly assists in the management of farms in the event of changes in climate. This is in line with the findings of (Shiferaw et al., 2014; and Tabari & Willems, 2023) that changes in climate increase the severity of droughts, which calls for proper management practices water since water is very critical to all farming practices without which there can be no yields.

The findings of the study reviewed the great merits of plant intercropping: In creating overall plant health 63 % strongly agreed while 37% agreed; greater yield 50% strongly agreed while 48% agreed; reduction of fertiliser application, 50 % strongly agreed, 45% agreed while 2% remained neutral; maintenance of soil fertility, 56% strongly agreed while 40% agreed; provision of plant nutrient, 58% strongly agreed while 35% agreed; optimal utilisation of resources 58% strongly agreed, 33% agreed while 4% were neutral; control of pest, 58% strongly agreed,

33 % agreed while 6% remained neutral; maximum utilisation of nutrients in the soil, 58 % strongly agreed, 33% agreed while 4 % remained neutral. It was interesting to note that all the respondents concurred on the enormous benefits of intercropping, and there was none in contrast to this. Intercropping is vital since each member of the crop helps the others to thrive.

Which of these statements are true, in your own opinion?

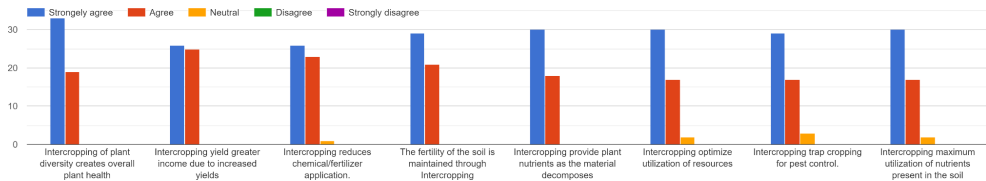


Figure 4: Crop intercropping

The findings of the study identified moringa as the major (75.9 %) tree used in alley cropping, Leuciana (44.8%) followed, then acacia (41.4%), calliandra (24.1%), cassia, prosopis, and mukinduri rated 3.4% each. The least used tree was sesbania at 0 %. This implies that respondents clearly apply indigenous practices in their farms, which is important when managing climate change.

Respondents majorly applied observation of various aspects as an indigenous method of weather forecast, namely: observation of the direction and speed of wind 96%, observation of animal behaviour such as ants, goats, birds, sparrows, butterflies, dragonflies 89%, observation of trees and plants 14% and observation of stars and moon, Mt. Kenya cloud, 2 %. The findings of the study show that indigenous knowledge is still applied in foretelling weather even today. These findings are in line with observations made by Kalele et al. (2021) that environmental indicators guide farmers on optimal planting and harvesting time, water reservation seasons, and mitigating risks associated with extreme weather conditions.

The findings of the study identified word of mouth as the major (100%) method used to transfer knowledge on indigenous farming. Community gathering was second (92.3 %), followed by family heredity (32.7 %), and the least (25 %) was on-farm demonstration. This implies that word of mouth is an excellent tool in the transfer of indigenous knowledge.

How is indigenous farming knowledge passed from generation to generation?

52 responses

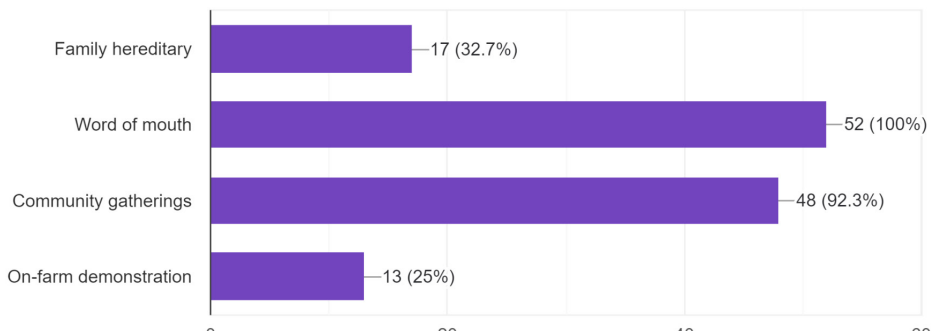


Figure 5: Methods of knowledge transfer

According to the findings of the study, there were various challenges in applying indigenous farming practices. The primary (100 %) challenge was climate change, long duration of maturity (85%), hard labour (81%), unavailability of seeds (39 %), and loss of crops 2%. It was exciting to note that, despite encountering challenges in applying indigenous practices in farming, crop loss was the lowest at 2 %. This implies that indigenous practices can still be applied in farming despite the existence of modern farming methods.

5 Conclusion

The findings of the study reviewed that the small-scale farmers in the study were aware of indigenous practices that they applied on the farms. The most common method applied was agroforestry, which uses windbreaks and shelterbelts. Other indigenous practices applied include diversification of crops, majorly maize and beans; terracing to conserve both water and soil nutrients; mulching, which was also applied, using fresh cut materials; and water harvesting and intercropping. The observation was mainly used for weather forecasts, which were done by observing the speed and direction of wind and the behaviour of different animals. Indigenous knowledge was transferred using word of mouth, community gatherings, heredity and demonstrations on farms. The challenges of climate change, long duration of maturity, hard labour, unavailability of seeds, and loss of crops have affected farmers' application of indigenous farming practices.

6 Recommendations

This study recommends the integration of Indigenous knowledge into formal climate change adaptation and mitigation strategies in order to provide farmers with sustainable farming strategies that are contextually and culturally rich. Second, the farmers need to plant more draught-resistant fodder crops like sesbania, which is less planted; third, there is a need for financial support for farmers to access sustainable technologies such as seeds for planting drought-resistant crops. Thirdly farm

References

- Adger, W. N., Huq, S., Brown, K., Conway, D., & Hulme, M. (2003). Adaptation to climate change in the developing world. *Progress in Development Studies*, 3(3), 179–195. <https://doi.org/10.1191/1464993403ps060oa>
- Agada, G., Ojobo, A. E., & Okpanachi, A. S. (2022). *INDIGENOUS KNOWLEDGE IN THE CONTEXT OF KNOWLEDGE SOCIETIES AS A TOOL FOR SUSTAINABLE DEVELOPMENT IN NIGERIA* - *ProQuest*. <https://www.proquest.com/openview/2a41ef6f04bc3279806e82da18e075bf/1?pq-origsite=gscholar&cbl=54903>
- Apraku, A., Morton, J. F., & Apraku Gyampoh, B. (2021). Climate change and small-scale agriculture in Africa: Does indigenous knowledge matter? Insights from Kenya and South Africa. *Scientific African*, 12, e00821. <https://doi.org/10.1016/j.sciaf.2021.e00821>
- Baldwin-Kordick, R., De, M., Lopez, M. D., Liebman, M., Lauter, N., Marino, J., & McDaniel, M. D. (2022). Comprehensive impacts of diversified cropping on soil health and sustainability. *Agroecology and Sustainable Food Systems*, 46(3), 331–363. <https://doi.org/10.1080/21683565.2021.2019167>

- Balehegn, M., Balehey, S., Fu, C., & Liang, W. (2019). Indigenous weather and climate forecasting knowledge among Afar pastoralists of northeastern Ethiopia: Role in adaptation to weather and climate variability. *Pastoralism*, 9(1), 8. <https://doi.org/10.1186/s13570-019-0143-y>
- Kalele, D. N., Ogara, W. O., Oludhe, C., & Onono, J. O. (2021). Climate change impacts and relevance of smallholder farmers' response in arid and semi-arid lands in Kenya. *Scientific African*, 12, e00814. <https://doi.org/10.1016/j.sciaf.2021.e00814>
- Kwanya, T. (2013, September). Mainstreaming indigenous knowledge in climate change response: traditional 'rainmaking' in Kenya. In *The 8th International Conference on Knowledge Management in Organizations: Social and big data computing for knowledge management* (pp. 603-615). Dordrecht: Springer Netherlands.
- Maina, J. (2020). Analysis of Average Annual Rainfall and Average Maximum Annual Temperature for a Period of 30 years to Establish Trends in Kieni, Central Kenya. *Journal of Pollution*, 0(0), 1-4.
- McDonald, K. (2022). *Four Indigenous Farming Practices for a Sustainable Future Today*. Population Education. <https://populationeducation.org/four-indigenous-farming-practices-for-a-sustainable-future-today/>
- Mistry, J., Jafferally, D., Ingwall-King, L., & Mendonca, S. (2020). Indigenous Knowledge. In A. Kobayashi (Ed.), *International Encyclopedia of Human Geography (Second Edition)* (pp. 211-215). Elsevier. <https://doi.org/10.1016/B978-0-08-102295-5.10830-3>
- Mugi-Ngenga, E. W., Kiboi, M. N., Mucheru-Muna, M. W., Mugwe, J. N., Mairura, F. S., Mugendi, D. N., & Ngetich, F. K. (2021). Indigenous and conventional climate-knowledge for enhanced farmers' adaptation to climate variability in the semi-arid agro-ecologies of Kenya. *Environmental Challenges*, 5, 100355. <https://doi.org/10.1016/j.envc.2021.100355>
- Njogu, H. W. (2022). Effects of droughts on the delivery of infrastructure services in Kenya. *Natural Resources Forum*, 46(2), 221-244. <https://doi.org/10.1111/1477-8947.12251>
- Nyuma, H., & Churu, H. (2022). A Review on Challenges and Opportunities in Management of Soils of Arid and Semi-Arid Regions of Kenya. *East African Journal of Environment and Natural Resources*, 5, 303-317. <https://doi.org/10.37284/eajenr.5.1.840>
- Petzold, J., Andrews, N., Ford, J. D., Hedemann, C., & Postigo, J. C. (2020). Indigenous knowledge on climate change adaptation: A global evidence map of academic literature. *Environmental Research Letters*, 15(11), 113007. <https://doi.org/10.1088/1748-9326/abb330>
- Shiferaw, B., Tesfaye, K., Kassie, M., Abate, T., Prasanna, B. M., & Menkir, A. (2014). Managing vulnerability to drought and enhancing livelihood resilience in sub-Saharan Africa: Technological, institutional and policy options. *Weather and Climate Extremes*, 3, 67-79. <https://doi.org/10.1016/j.wace.2014.04.004>
- Tabari, H., & Willems, P. (2023). Sustainable development substantially reduces the risk of future drought impacts. *Communications Earth & Environment*, 4(1), Article 1. <https://doi.org/10.1038/s43247-023-00840-3>

25. Indigenous Rainmaking Practices and Their Impact on Climate Change in Western Kenya

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Abstract

This paper aims to explore the indigenous rainmaking practices in Western Kenya. The specific objectives of the paper are to analyse the prevalence, evidence, seriousness, and effects of climate change in Western Kenya; the local community's response to the effects of climate change in Western Kenya; how the indigenous rainmaking practices can be used to mitigate the consequences of climate change; and strategies which can be used to mainstream indigenous rainmaking practices in building climate change resilience in line with the Sustainable Development Goals (SDGs), Vision 2030 and the "Big 4" Agenda in Kenya. The study used a qualitative research approach. Data was collected using interviews with indigenous rainmakers and scientific weather experts in Western Kenya. Data was analysed qualitatively using ATLAS.ti. The study revealed that the climate of Western Kenya has drastically changed. This has affected the rainy seasons. The locals have responded by planting drought-resistant crops that can withstand the changes and planting trees to boost rainfall. Indigenous rainmaking practices such as making rain, preventing rain, and predicting rain are used by rainmakers to enhance climate change adaptation and mitigation in the region. It is evident from the findings that traditional rainmaking practices can contribute to food security, improved manufacturing by providing raw materials, healthy livelihoods, social security, and increased employment through sustainable agriculture. To maximise this potential, there is a need to mainstream traditional rainmaking practices in the national response to climate change through documenting, popularising and validating the practice.

Keywords: *Indigenous knowledge, traditional ecological knowledge, Nganyi clan, global warming, traditions*

1 Introduction

Climate is the average atmospheric conditions observed over an extended timeframe (Brazzola et al., 2022). Weather, on the other hand, can be defined as the atmospheric conditions of an area in a shorter duration, like one month (Iyakaremye et al., 2022). These atmospheric conditions include sunshine, rain, wind, cloud cover, flooding, hailstorms, and thunderstorms, which can change hourly, daily or seasonally. The climate and its changes can determine the weather of a region. Weather is the state of the atmosphere in a particular place and at a specific time, and climate is the prevailing condition of the atmosphere deduced from long periods of observation. Despite the distinction between the two concepts, climate and weather are interrelated (Finney et al., 2020). Changes in them affect human activities either positively or negatively. Climate change is an occurrence that is directly or indirectly associated with human activities, which reorients the composition of the global atmosphere in addition to natural climate inconsistency observed over comparable periods (Lovejoy, 2013). Climate change is further described as any alteration in atmospheric conditions over time due to natural variability or human activity (Kummu et al., 2021). The crisis caused by climate change has proven to be an environmental and human hazard

that partially undermines the attainment of Sustainable Development Goals (SDGs) targets on zero hunger and the efforts of the international community to reduce extreme poverty (Chepchirchir et al., 2018). Climate change predominantly affects developing countries due to their vulnerability to extremes of normal climatic variability (Kwanya, 2014).

The ability of indigenous communities to respond to climate change using traditional ecological knowledge (TEK) has been the subject of many studies (Sillitoe, 2007). Through these studies, indigenous knowledge has been confirmed as possessing the potential to assist communities in adapting to and mitigating climate change (Kwanya, 2014). However, combining it with modern weather science was of concern, especially at the policy and planning level. Integrating IK in climate policy would facilitate effective mitigation and adaptation development programmes that are cost-effective, participatory and sustainable (McGregor, 2021). Although the Government of Kenya, through its National Climate Change Response Strategy (NCCRS), which was developed in 2012, recognised the potential role of indigenous knowledge in bolstering the national response to climate change, the extent to which this potential has been harnessed is unclear. IK generally remains on the fringes of Kenya's decision-making processes. Therefore, its potential value in local-level decision-making in agriculture, healthcare, food preparation, education, natural resource management and other activities is hardly exploited (Chepchirchir et al., 2018; Kwanya, 2015).

2 Context and background of the study

This paper focuses on the experience of the Nganyi, a rainmaking clan in Kenya. The Nganyi are a sub-clan of Abasiekwe who belong to the Banyore clan of the Abaluhya tribe in Kenya. Their traditional home is in Vihiga County of Western Kenya. According to Ottichilo (2016), the Banyore are descendants of Marimba. Muhimba, the son of Marimba, became the father of Anyole, who was said to have been killed in a war. Onyango (2019) explains that Anyole's widow bore a son named Anyole II. The Nganyi community are descendants of Anyole II. They settled in Ebusiekwe, a dry, hilly area with flora and fauna conducive to their IK. The clan is best known for the indigenous knowledge practice of traditional rainmaking (Ottichilo, 2016). Even though narratives have confirmed that their skills in rainmaking originated from a woman, the more prominent clan disregarded women in the rainmaking practice.

Ottichilo (2016) narrated how rainmaking was a source of dignity and desecration to Nganyi in 1919. The extended drought that year was blamed on Etemesi and Nganyi, members of the clan, who were arrested and taken to Kodiaga Prison in Kisumu by colonial rulers. There, they were forced to make rain. They obliged and made rain outside the shrines. This was against the Banyore tradition, which stipulated that rainmaking activities should be performed only at the official rainmaking shrine in the Lela area. As a result of this grave cultural mistake, it is believed that the two rainmakers died mysteriously. Ottichilo (2016) stated that rain prediction among rainmakers was made through observation of natural phenomena by traditional older men. Conditions of the atmosphere were the indicators primarily relied upon to predict rain. A few selected elders performed the other mechanism for rainfall prediction through divination, visions and dreams. The rainmakers derived their forecasts by observing the behaviour of plants, animals and stars.

Many other communities in Kenya practice traditional rainmaking. These include the Akamba, Maasai, Meru and Kikuyu. However, the Nganyi's practice is the most documented (Kwanya, 2014). There are efforts to validate the practice by partnering traditional rainmakers with regional scientific meteorologists. Researchers from Maseno University and the University of

Nairobi, as well as a team from the IGAD Climate Prediction and Application Centre, have also been trying to validate the practice (Gumo, 2017; Guto, 2020).

3 Research problem statement

The consequences of climate change are far diverse, biting through man and the environment equally. For instance, forest cover plays a role in determining the climate pattern vital for animal, plant and human growth. However, out of the selfish desires of humans to expand territory, the activities to create solutions to problems such as settlement and industrialisation are becoming more hazardous than previously thought (Lecina & Diaz et al., 2021). The Government of Kenya and other stakeholders have tried many options to deal with climate change, but these efforts have borne minimal results (Kwanya & Kiplang'at, 2016). In the past, indigenous knowledge in the context of traditional rainmaking was used to counter cruel climatic occurrences. For example, during cultural ceremonies such as weddings, naming of children, and burials, a rainmaker would perform miraculous chants to forbid rain (Akong'a, 1987). Currently, the indigenous knowledge of traditional rainmaking among the Nganyi clan in Western Kenya is not being used optimally to contribute to the Government's and other stakeholders' efforts to respond to the effects of climate change (Guto, 2020).

The situation is exacerbated by the fact that the custodians of the traditional rainmaking knowledge, just like the other indigenous knowledge, are the community elders who are rapidly decreasing (Akong'a, 1987). The younger generation is less interested in the traditional rainmaking knowledge, often referring to it as a myth. Additionally, the spread of Western social structures and institutionalised forms of cultural transmission has restricted the indigenous views of the world and approaches to education (Kwanya, 2020). Consequently, essential aspects of indigenous knowledge, such as the flowering pattern of trees and the position of the moon, stars and sun, have yet to be formally documented anywhere (Masinde, 2015). Scholars (Ratima, 2019; Reyes-García & Fernández-Llamazares, 2019) have explained that the so-called civilisation was proving to be a threat to the practices of indigenous people. Therefore, the traditional rainmaking practice of the Nganyi clan is in danger of getting lost. This is because it is tacit knowledge which is contained in the brains of the clan elders. Therefore, there was a need for a conversation on how to mainstream traditional rainmaking in confronting climate change in Kenya, hence this study. The specific objectives of the study were to investigate the prevalence, evidence, seriousness and effects of climate change in Western Kenya; analyse the local community's response to the effects of climate change in Western Kenya; analyse how the traditional rainmaking practices can be used to confront the consequences of climate change in Western Kenya; and explore strategies which can be used to mainstream traditional rainmaking in building climate change resilience in line with the Sustainable Development Goals (SDGs), Vision 2030 and the "Big 4 Agenda" in Kenya.

4 Literature review

Africa is experiencing severe climatic challenges that have resulted in disasters such as the destruction of roads, houses and farms. The resultant scarcity of rainfall has also led to famine and food insecurity, negatively affecting livelihoods, especially for poor households. Climate change has also led to very high temperatures, high levels of rainfall and high frequency of floods. High heat levels also affect the distribution of disease vectors, which are forced to migrate or move to areas of higher altitudes. For instance, migrating mosquitoes to higher altitudes exposes a larger population of the local communities in the densely populated East

African highlands to infections such as highland malaria (Ototo et al., 2022; Schindler et al., 2018). The other consequences of climate change in Kenya include increased cases of mental illnesses as a result of psychological trauma (Njeru et al., 2022), increased animal diseases leading to low production levels (Kimani, 2022); reduced hydro-electricity production triggering high energy costs (Pappis et al., 2022); low crop production (Ngure et al., 2021) and conflicts over diminishing natural resources (Ngaruiya & Scheffran, 2016).

The local communities across the region are responding to climate change by managing the dangers that global warming brings to their lives. The vulnerability of developing countries to climate change needs to be reduced by adapting the capacity raised to implement national adaptation plans (Sherman et al., 2016). Otherwise, the community risks graver consequences in terms of health, food security, physical comfort, flooding, mudslides, soil erosion and resource conflicts (Raburu et al., 2012; Simane et al., 2016). The frequency and severity of climate change hazards are rising globally, and the effects are seriously felt in local communities. It is, therefore, uncertain or not easy to enhance the understanding of the available response options selected by the communities (Thornton et al., 2014). Local communities are reporting the consequences of climate variations in their areas and responding to the new conditions as best as possible using solutions specific to the locality (McIver et al., 2016). Some of the measures to reduce the adverse effects of climate change include increased sea defences, coming up with houses or homes on stilts that are flood-proof, reducing the amount of water used during periods of drought, and using insecticide-sprayed mosquito nets (Adedeji, 2014).

According to Shilenje and Ogwang (2015), early warning in weather forecasting provides practical and timely weather information that enables communities, organisations and individuals exposed to likely weather hazards to act. Despite the application of meteorological scientific intervention, some African communities still practise the traditional knowledge of making rain (Enock, 2013). Traditional knowledge characterising rainmaking can offer a valuable understanding of environmental changes, complementing broader-scale scientific research with local precision and variation (Ombati, 2017).

It is evident that climate change is real and continues to have severe and diverse effects on communities. It is also clear that communities in developing countries bear the most significant burden of the consequences of climate change. Therefore, they are more vulnerable to the consequences than the rest. Several strategies have been employed to enhance the capacity to mitigate or adapt to climate change. However, literature on the potential or actual application of indigenous knowledge, specifically traditional rainmaking, to bolster efforts to confront climate change in local communities in Kenya is inadequate. This gap motivated this study.

5 Research methodology

This study employed a qualitative research approach because it enabled a limited number of cases to be studied in-depth. Additionally, the researchers could understand the rainmakers' personal experiences with traditional rainmaking. Scholars (Lewis, 2015; Maxwell, 2012; Roller & Lavrakas, 2015) perceive qualitative research designs to include narrative, phenomenology, grounded theory, action research, case study, ethnography, historical research, and content analysis. This study used a case study design because it enabled the researchers to explore the issues in-depth. Case studies use open-ended questions through which interviewees freely share their experiences (Gammelgaard, 2017). The population of this study comprised rainmakers from the Nganyi clan and expert weather forecasters from the Kenya Meteorological Department (KMD). The researchers identified the respondents using a non-probability sampling approach.

Specifically, snowball sampling was used to identify the rainmakers while all the scientists based at the Vihiga Meteorological Department office were selected. The collected data was analysed using ATLAS.ti, a qualitative data analysis (QDA) package (Rooney et al., 2016).

6 Findings of the study

As indicated earlier, the researchers used the snowballing method to identify the respondents from the rainmakers. A saturation point was reached at 37 rainmakers. The participating rainmakers estimated that about 50 rainmakers were in the Nganyi clan. Therefore, the response rate translates to 74 per cent. Of the 37 rainmakers interviewed, only 12 of them shared their age. The youngest respondent among the rainmakers was 65, while the oldest respondent was 85. The majority, 7 (19%) of the respondents, have been involved in rainmaking for at least 30 years, followed by 20 years at 11%. Those who had 50 years' experience were 8%.

Additionally, 5% of the respondents had experience spanning 10, 15, and 25 years. The researchers sought more information about the respondent, who was 85 years of age and had 70 years of experience, implying that the respondent had started rainmaking at 15. It emerged that the respondent used to assist his grandfather and father in collecting the herbs and mixing them for rainmaking. Thus, he was inducted into rainmaking at a tender age. The researchers sought to know the clans of the rainmakers. It was established that all 37 respondents were from the Nganyi clan. It also emerged that most of the respondents inherited rainmaking skills from their fathers. Others said they inherited the skills from their grandfathers, while the rest said it was inborn. Generally, the practice was inherited from ancestors.

6.1 Nature and effects of climate change

The study sought to know the nature of climate change in Western Kenya, as observed by the KMD respondents. It was established that there has been a change in the climate of the region over the years. Some of the responses recorded included:

“The climate has changed drastically over time due to the changes in the atmosphere in the region.”
[Respondent 1]

“There has been a drastic change in the region's climate, and I can attribute this to global warming. This has, in turn, affected the rainy seasons.” [Respondent 11]

“There has been an evident change in the rainfall patterns. The rains come earlier than expected or sometimes very late.” [Respondent 15]

“There has been a change in the weather patterns, and I can attribute this to pollution, the cutting of trees, and the rise of industries that affect the rain seasons.” [Respondent 33]

When asked about the effects of climate change in the region, the respondents from the KMD cited unpredictable farming seasons, negative impact on rainfall patterns, recurrent droughts in the region, low crop yields, delays in planting, increased cost of living, and lack of food for the animals. The following are some of the responses from the respondents:

“Effects of climate change include delay in land preparation and planting change of season, and drought cause animals and humans not to have food; cost of living also goes high.” [Respondent 21]

“Droughts come unexpectedly affecting livestock and farmers as they are unable to plant their crops; low yields due to lack of rain; as well as a negative effect on their lifestyle.” [Respondent 37]

On their part, the rainmakers summed up the effects of climate change in the following selected verbatim statements:

"Lack of rains leads to starvation due to drought in the land." [Respondent 6]

"When the rains do not come, there is starvation, diseases, hunger, and sometimes we even have deaths associated with the same." [Respondent 15]

"We have experienced many droughts due to the effects of climate change over the years." [Respondent 23]

"Food shortage has been a major effect of climate change in this area. We used to have much food, but nowadays, we hardly have enough for ourselves." [Respondent 37]

6.2 Local community's response to climate change

The researchers sought to establish the local community's response to the problem of climate change. Some of the responses included planting drought-resistant crops that can withstand the changes, planting trees to attract rainfall, and relying on the KMD weather reports. Some of the responses given included:

"The community is relying on the KMD weather reports to plan their activities." [Respondent 10]

"The community is slowly accepting the negative changes in climate, which have affected the productivity of crops." [Respondent 21]

"Communities are responding by planting trees to cope with the changing climate." [Respondent 22]

"Planting of trees has helped in dealing with the adverse effects of climate change but has not completely solved the issue of climate change" [Respondent 27]

The respondents were asked about the effectiveness of these responses employed by the locals to counter climate change. Among the responses noted from the respondents included:

"Climate change is so unpredictable, and it is hard to tell whether the locals are doing the right thing, thus making it hard to predict effectiveness." [Respondent 3]

"Sometimes we respond in a certain way, but things turn out differently, for example, preparing the land in anticipation of the rains only to realise the rains are not here yet. This renders the efforts ineffective." [Respondent 7]

"People are buying food in bulk in anticipation of a shortage. Purchasing during plenty so that it can be used during drought is effective and normally goes a long way in helping the community to have enough food." [Respondent 37]

6.3 Traditional rainmaking practices among the Nganyi clan in Kenya

The findings revealed that the Nganyi could predict, stop or make rain. The respondents explained that predicting rain involves using plants, insects, and animals, which are complemented by observation. The following are some of the respondents' responses about how they predicted rain:

"Observation of plants, insects, the behaviour of birds, trees, checking if the water in the pot at the shrine is hot or cold." [Respondent 3]

"Miracle from God to Nganyi clan. When rains come with too much wind, black rain, or hailstorm, they pray to God at the shrine to help them control the rain the way their forefathers taught them." [Respondent 37]

"Using reptiles such as frogs, special plants, insects such as safari ants, movement of wind, cloud observation and moon appearance." [Respondent 17]

"Observation of trees shedding leaves, the croaking of frogs, movement of wind, clouds in the sky, behaviour of birds." [Respondent 29]

“Observation of insects, moon, the behaviour of animals, birds, morning dew, movement of the wind.”
[Respondent 7]

The researchers sought to establish from the rainmaker respondents whether the government is aware of their rainmaking practices and the possibility of using them to benefit the larger community by involving the government. All 37 respondents indicated that the government is aware of the rainmaking activities in the area. The respondents were probed further on how and why the government became aware of the activities. Multiple or different responses were recorded and are represented by the following verbatim statement:

“Through the KMD in 2009, researchers from IGAD, Prof. Mary Anyango & Patricia, Prof. Ouma & the late Prof. Ogallo Laban visited the shrine.” [Respondent 1]

“Mzee Kenyatta [Kenya’s founding president] invited elders to Nairobi to make rain during a drought.”
[Respondent 12]

“During the colonial era, Nganyi was arrested by the colonialists. He was first arrested in 1916 and again in 1919 when he was severely tortured and taken to Kodiaga Prison. Upon his arrest, there was heavy rainfall in the area. Before his arrest, it was believed that he used to send people to make rain in Bondo, Homa Bay, and Kakamega, and that is why the colonialists mistreated him.” [Respondent 37]

6.4 Mainstreaming traditional rainmaking practices in building climate change resilience

The researchers inquired how traditional rainmaking can be mainstreamed to build climate change resilience in Kenya to enhance the country’s capacity to attain Sustainable Development Goals, Kenya Vision 2030 and the “Big 4 Agenda”. The following are some of the recorded responses:

“By setting up common objectives for Kenya Vision 2030 and the ‘Big 4 Agenda’, and to protect and manage climate change, the government should protect all forests in Kenya and plant millions of indigenous trees in Western Kenya.” [Respondent 38]

“By strengthening the collaboration between KMD and traditional rainmakers to set common goals and empower the traditional rainmakers by conserving the shrines and planting indigenous trees.”
[Respondent 39]

“Strategies include joint workshops and seminars between Nganyi rainmakers and KMD to exchange ideas.” [Respondent 42]

7 Discussion of the findings

It is evident from the study findings that climate change is real in Kenya and has created immense concerns for the citizens and the government. In Western Kenya, climate change has affected rainfall patterns; rain now falls either earlier or later than expected. Thus, there is more rain in January when the locals have not prepared the farms and more again during harvest time when they want the maize to dry in the fields. The rain then disappears immediately when the farmers plant the crops. This results in massive losses because, without rain, the planted seeds do not germinate, but they either rot or shrivel. During harvest time, rain is not required because the crops need sunlight to dry. Thus, the unpredictable rainfall affects crop production, resulting in food insecurity. These findings echoed Masinde and Bagula (2011), who explained that changes in rainfall patterns have greatly affected agriculture in Western Kenya. The changes have also led to the disappearance of primary forests due to uncontrolled logging, farming, and oil exploration and exploitation. The current study has established that

the situation has not improved because the population is growing larger and the land is small. Human activities to cope with population pressure further exacerbate the situation.

This study also revealed that the local community has responded to the consequences of climate change by planting drought-resistant crops that can withstand the changes, planting trees to improve rainfall, and relying on the KMD's weather reports to get information on weather changes. The study further established that even though planting trees and drought-resistant crops has assisted the community in coping with the adverse effects of climate change, it has not completely eradicated the challenges. The frequency and severity of the hazards emanating from climate change are increasingly rising. Therefore, there is a need for more strategies to cope with or reduce the consequences of climate change. Given the variability of the consequences of climate change, Thornton et al. (2014) suggested localised interventions specific to local contexts. This is where indigenous knowledge, such as traditional rainmaking practices, comes in handy. Indeed, the American Association for the Advancement of Science (2019) suggested that governments, businesses, community members, scientists, and non-profits should utilise local knowledge to respond to climate change. According to Shilenje and Ogwang (2015), traditional rainmaking knowledge can be used to issue early warnings of changes in weather patterns, thereby strengthening the community's capacity to respond appropriately to the consequences of the change and avoid associated losses.

Traditional rainmakers and weather forecasters from the KMD can collaborate and utilise their collective knowledge to understand and predict weather patterns, make rain when needed, and stop it when it is unnecessary. Similarly, traditional environmental conservation practices such as sanctions on cutting down indigenous trees can be scaled up to improve the forest cover and reduce the pace of climate change. To maximise the potential of traditional rainmaking practice, there is a need to document and popularise the practice. This can be done through public awareness campaigns via the mass media such as Anyole Radio, publications, and meeting forums such as weddings and funerals. Such campaigns will help to demystify and popularise traditional rainmaking practices in the community. These suggestions echo Ifejika Speranza et al. (2010), who argued that creating awareness is essential regarding rainmaking, as the case has been in countries such as Zimbabwe, where communities appreciate traditional rainmakers.

8 Conclusion

The study established that climate change is as real in Western Kenya as it is in the rest of the world. However, its consequences are more severe in the Global South due to resource constraints that prevent it from being mitigated or adapted to. In Western Kenya, the consequences have mainly been evidenced by unpredictable rainfall patterns, which have affected agriculture and food production. The study also revealed that the local community is responding to climate change by planting drought-resistant crops that can withstand harsh climatic conditions, building dykes both to harvest rainwater and prevent soil erosion, and planting trees to enhance rainfall in the region. However, these efforts have not been entirely successful. Vulnerability to the effects of climate change persists. Traditional rainmaking practices of predicting, making or stopping rain can strengthen the community's capacity to confront the consequences of climate change. This will contribute to better food security, health, industrialisation and livelihoods, which are developmental targets captured in the SDGs and Vision 2030 and Kenya's "Big 4" agenda. These benefits can be maximised by mainstreaming traditional rainmaking in the country's response to climate change.

9 Recommendations

The study recommends strengthening the community's response to climate change by mainstreaming traditional rainmaking.

- The government should appreciate indigenous knowledge and motivate traditional rainmakers for their efforts in rainmaking. The government, particularly at the county level, should recognise the practice and seek strategies to motivate them to contribute actively to the national climate change response.
- The government should encourage traditional rainmakers and KMD experts to collaborate to enrich weather forecasting and enhance its reliability. This can be achieved through collaborative projects. Relevant policy and legal frameworks facilitating this collaboration should be explored and pursued.
- Through the Ministry of Environment, the government should collaborate with the rainmakers to increase the preservation of natural ecosystems and conserve the environment. Recognising that traditional rainmakers prohibit the cutting of indigenous trees, the Ministry should maximise this to promote tree planting and reforestation.
- The government should sensitise traditional rainmakers to how they can contribute to realising short—and long-term development blueprints such as the “Big 4 Agenda” and Vision 2030. They can also be educated on the critical targets of these blueprints, which are relevant to or depend on their practice.
- The government should recognise and enlist the traditional rainmakers as community champions of information-based agriculture planning. This would include the use of accurate weather forecasts as well as planting drought-resistant crops and raising appropriate animal breeds.

References

- Adedeji, O. (2014). Global climate change. *Journal of Geoscience and Environment Protection*, 2(02), 114.
- Akong'a, J. (1987). Rainmaking rituals: A comparative study of two Kenyan societies. *African Study Monographs*, 8(2):71–85.
- American Association for the Advancement of Science. (2019). *How we respond: Community responses to climate change*.
- Brazzola, N., Patt, A., & Wohland, J. (2022). Definitions and implications of climate-neutral aviation. *Nature Climate Change*, 12(8), 761–767.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2018). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*.
- Enock, C. M. (2013). Indigenous knowledge systems and modern weather forecasting: Exploring the linkages. *Journal of Agriculture and Sustainability*, 2(2).
- Finney, D. L., Marsham, J. H., Walker, D. P., Birch, C. E., Woodhams, B. J., Jackson, L. S., & Hardy, S. (2020). The effect of westerlies on East African rainfall and the associated role of tropical cyclones and the Madden–Julian Oscillation. *Quarterly Journal of the Royal Meteorological Society*, 146(727), 647–664.
- Gammelgaard, B. (2017). The qualitative case study. *The International Journal of Logistics Management*, 28(4), 910–913.

- Gumo, S. (2017). Praying for rain: indigenous systems of rainmaking in Kenya. *The Ecumenical Review*, 69(3), 386–397.
- Guto, R. (2020). A Meta-Analytical Review of the Role of Indigenous Knowledge on Environmental Conservation and Climate Change in Kenya. *Regional Journal of Information and Knowledge Management*, 5(2), 65–84.
- Ifejika Speranza, C., Kiteme, B., Ambenje, P., Wiesmann, U., & Makali, S. (2010). Indigenous knowledge related to climate variability and change: insights from droughts in semi-arid former Makueni District, Kenya. *Climatic change*, 100(2), 295-315. Ifejika, Speranza, C. (2010). Resilient adaptation to climate change in African Agriculture (No. 54). Studies. United Nations Framework Convention on Climate Change, 1992.
- Iyakaremye, V., Zeng, G., Ullah, I., Gahigi, A., Mumo, R., & Ayugi, B. (2022). Recent observed changes in extreme high temperature events and associated meteorological conditions over Africa. *International journal of climatology*, 42(9), 4522-4537.
- Kimani, J. (2022). Effects of Climate Change and Variability on Cattle Farming in Kenya. A Critical Literature Review. *American Journal of Livestock Policy*, 1(1), 45–56.
- Kummu, M., Heino, M., Taka, M., Varis, O., & Viroli, D. (2021). Climate change risks pushing one-third of global food production outside the safe climatic space. *One Earth*, 4(5), 720-729.
- Kwanya, T. (2014). Mainstreaming indigenous knowledge in climate change response: traditional ‘rainmaking’ in Kenya. In *The 8th International Conference on Knowledge Management in Organizations* (pp. 603–615). Springer, Dordrecht.
- Kwanya, T. (2015, August). Indigenous knowledge and socioeconomic development: Indigenous tourism in Kenya. In *International conference on organisational knowledge management* (pp. 342-352). Springer, Cham.
- Kwanya, T. (2020). Stigmatisation of indigenous knowledge: The case of night-running in western Kenya. *Journal of Religion in Africa*, 48(4), 376–392.
- Kwanya, T., & Kiplang’at, J. (2016, July). Indigenous knowledge research in Kenya: a bibliometric analysis. In *Proceedings of the 11th International Knowledge Management in Organizations Conference on The Changing Face of Knowledge Management Impacting Society* (pp. 1-7).
- Lecina Diaz, J., Martínez Vilalta, J., Alvarez, A., Banqué, M., Birkmann, J., Feldmeyer, D., ... & Retana, J. (2021). Characterising forest vulnerability and risk to climate change hazards. *Frontiers in Ecology and the Environment*, 19(2), 126-133.
- Lewis, S. (2015). Qualitative inquiry and research design: Choosing among five approaches. *Health promotion practice*, 16(4), 473–475.
- Lovejoy, S. (2013). What is climate? *Eos, Transactions American Geophysical Union*, 94(1), 1–2.
- Masinde, M. (2015). An innovative drought early warning system for sub-Saharan Africa: Integrating modern and indigenous approaches. *African Journal of Science, Technology, Innovation and Development*, 7(1), 8–25.
- Masinde, M., & Bagula, A. (2011). ITIKI: bridge between African indigenous knowledge and modern science of drought prediction. *Knowledge Management for Development Journal*, 7(3), 274-290.
- Maxwell, J. A. (2012). *Qualitative research design: An interactive approach*. Sage publications.
- McGregor, D. (2021). Indigenous knowledge systems in environmental governance in Canada. *KULA*, 5(1), 1–10.
- McIver, L., Kim, R., Woodward, A., Hales, S., Spickett, J., Katscherian, D., ... & Ebi, K. L. (2016). Health impacts of climate change in Pacific Island countries: a regional assessment of vulnerabilities and adaptation priorities. *Environmental health perspectives*, 124(11), 1707-1714.
- Ngaruiya, G. W., & Scheffran, J. (2016). Actors and networks in resource conflict resolution under climate change in rural Kenya. *Earth System Dynamics*, 7(2), 441-452.

- Ngure, M. W., Wandiga, S. O., Olago, D. O., & Oriaso, S. O. (2021). Climate change stressors affecting household food security among Kimandi-Wanyaga smallholder farmers in Murang'a County, Kenya. *Open Agriculture*, 6(1), 587-608.
- Njeru, M. W., Arasa, J. N., Musau, J. N., & Kihara, M. (2022). The Effects of Climate Change on the Mental Health of Smallholder Crop Farmers in Embu and Meru Counties of Kenya. *African Journal of Climate Change and Resource Sustainability*, 1(1), 1-12.
- Ombati, M. (2017). Rainmaking rituals: Song and dance for climate change in making livelihoods in Africa. *International Journal of Modern Anthropology*, 1(10), 74-96.
- Onyango, M. (2019). Reconstruction of agricultural calendar lessons from Western Kenya: crops, cultural events, astronomy and recurrent climate events. *Les Cahiers d'Afrique de l'Est/The East African Review*, (52), 127-150.
- Ototo, E. N., Ogutu, J. O., Githeko, A., Said, M. Y., Kamau, L., Namanya, D., ... & Mutimba, S. (2022). Forecasting the Potential Effects of Climate Change on Malaria in the Lake Victoria Basin Using Regionalised Climate Projections. *Acta Parasitologica*, 1-29.
- Ottichilo, W. K. (2016). *History of Abanyole of Emubaya and Luanda sub-counties in Vihiga County*, unpublished. *Research Journal of Applied Sciences* 3 (3), 167-173.
- Pappis, I., Sridharan, V., Howells, M., Medarac, H., Kougias, I., Sánchez, R. G., ... & Usher, W. (2022). The effects of climate change mitigation strategies on the energy system of Africa and its associated water footprint. *Environmental Research Letters*, 17(4), 044048.
- Raburu, P. O., Okeyo-Owuo, J. B., & Kwena, F. (2012). Community based approach to the management of Nyando Wetland, Lake Victoria Basin. Kenya
- Ratima, M. (2019). Leadership for planetary health and sustainable development: health promotion community capacities for working with Indigenous peoples in applying Indigenous knowledge. *Global Health Promotion*, 26(4), 3-5.
- Reyes-García, V., & Fernández-Llamazares, Á. (2019). Sing to learn: The role of songs in the transmission of indigenous knowledge among the Tsimane' of Bolivian Amazonia. *Journal of Ethnobiology*, 39(3), 460-477.
- Roller, M. R., & Lavrakas, P. J. (2015). *Applied qualitative research design: A total quality framework approach*. Guilford Publications.
- Rooney, T., Lawlor, K., & Rohan, E. (2016, May). Telling tales: Storytelling as a methodological approach in research. In *ECRM2016 – Proceedings of the 15th European Conference on Research Methodology for Business Management: ECRM 2016* (p. 225). Academic Conferences and Publishing Limited.
- Schindler, S., Rabitsch, W., & Essl, F. (2018). Climate change and increase of impacts on human health by alien species. *Invasive Species and Human Health; CABI: Wallingford, UK*, 151-166.
- Sherman, M., Berrang-Ford, L., Lwasa, S., Ford, J., Namanya, D. B., Llanos-Cuentas, A., ... & IHACC Research Team. (2016). Drawing the line between adaptation and development: a systematic literature review of planned adaptation in developing countries. *Wiley Interdisciplinary Reviews: Climate Change*, 7(5), 707-726.
- Shilenje, Z. W., & Ogwang, B. A. (2015). The role of Kenya Meteorological Service in weather early warning in Kenya. *International Journal of Atmospheric Sciences*, 2015, 1-8.
- Sillitoe, P. (2007). Local science vs. global science: An overview. *Local science vs. global science: Approaches to indigenous knowledge in international development*, pp. 1-22.
- Simane, B., Beyene, H., Deressa, W., Kumie, A., Berhane, K., & Samet, J. (2016). Review of climate change and health in Ethiopia: Status and gap analysis. *Ethiopian Journal of Health Development*, 30(1), 28-41
- Thornton, P. K., Ericksen, P. J., Herrero, M., & Challinor, A. J. (2014). Climate variability and vulnerability to climate change: A review. *Global Change Biology*, 20(11), 3313-3328.

26. Integrating Indigenous Knowledge in Climate Change Adaptation Strategies: A Literature Review

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Abstract

Climate change poses a significant and unprecedented challenge to ecosystems, societies, and economies worldwide. Amidst this complex issue, indigenous communities possess a wealth of traditional knowledge and practices that offer valuable insights for climate change adaptation. This paper critically examines the intersection of climate change and indigenous knowledge, focusing on the potential for integrating traditional wisdom into contemporary strategies for climate change adaptation, particularly in areas where indigenous communities are particularly vulnerable to climate change impacts. This review systematically analyses a diverse range of scholarly works. It thematically synthesises the findings that underscore the importance of incorporating indigenous knowledge into climate change adaptation frameworks. The focus is on how indigenous people around the world are using their traditional knowledge to address the challenges posed by climate change while highlighting limitations and proposing solutions to enhance adaptation and mitigation of climate change. The paper highlights the unique perspectives indigenous communities hold regarding their environments and also underscores the need for respectful collaboration and knowledge exchange between indigenous and scientific communities. The study significantly adds to scholarly discourse by elucidating the pivotal role of indigenous knowledge in bolstering societal resilience against climate change impacts. Additionally, it underscores the importance of preserving cultural diversity and promoting sustainability in adaptation strategies, thus offering valuable insights for both policy formulation and practical implementation.

Keywords: *Traditional wisdom, vulnerable communities, sustainability, collaboration, knowledge exchange*

1 Introduction

Experiences and norms shape individual knowledge, with Indigenous knowledge increasingly acknowledged as a valuable resource for understanding and adapting to climate change impacts Nakashima et al., (2018). Climate change, a global reality, is a pressing 21st-century challenge that is altering ecosystems, weather patterns, and livelihoods. The urgency of the situation requires a comprehensive, collaborative response utilising diverse knowledge systems for effective adaptation and mitigation.

Communities globally face prolonged dry seasons, erratic weather, and undeniable impacts of climate change. The years 2015-2021 were the warmest on record, with a 1.17 ± 0.13 °C global mean temperature increase from 1850-1900 averages. These rising temperatures result in severe consequences such as high sea levels, droughts, floods, hurricanes, and the extinction of plants and animals. Oceans experiencing the highest heat content from 2018-2022 witnessed coral bleaching threatening ecosystems and the Great Barrier Reef experienced its fourth mass coral bleaching event in 2022 (World Meteorological Organization report, 2022; Australian environment report, 2022).

Glaciers, sensitive to temperature changes, suffer mass loss. Western Canada's warm and dry summer in 2021 exacerbated glacier loss, and famous sites like Kilimanjaro and the Himalayas face significant melting and retreat. Arctic sea ice thins and Antarctic ice reaches record-low extents. Scientists project accelerated ice melt, potentially causing rising seas and threatening coastal cities worldwide (National Geographic article, 2022; World Meteorological Organization report, 2022).

Indigenous communities, heavily reliant on weather conditions, possess knowledge passed down through generations, offering nature-based solutions for adaptation. Despite consistent challenges and marginalisation, Indigenous peoples have been warned about climate change for decades. Their traditional practices prioritise balance, respect, and minimal environmental impact (International Indigenous Peoples' Forum on Climate Change and Centre for International Environmental Law, 2020). Climate change and human-induced changes impact the natural and cultural resources of Indigenous people globally.

This paper emphasises integrating Indigenous peoples' traditional knowledge into addressing climate change challenges. Recognising their insights as valuable, the focus is on identifying adaptive and mitigation strategies for both Indigenous and non-Indigenous communities globally. This approach underscores the importance of collaborative efforts in developing practical solutions to the complex and interconnected effects of climate change.

2 Statement of the problem

In the past, concerns centred around the imminent threat of a bomb and the infamous red button. However, in the context of global warming, the actions required are more subtle, involving everyday activities such as stepping on the gas pedals and light switches (Johansen, 2017). These seemingly natural and convenient actions, essential to most individuals (Onyango et al., 2020), are intricately linked to our quality of life and contribute significantly to observed climate shifts. The rapidly changing climate necessitates novel and inclusive adaptation strategies, particularly urgent for indigenous communities disproportionately affected despite not being primary contributors.

Despite their valuable insights into climate change's effects on their livelihoods, environments, and cultural heritage, indigenous warnings often receive insufficient attention. This is evident in the inadequacy of mitigation commitments under the Paris Climate Accord, which is influenced by political and economic considerations (Droge, 2016). While international instruments acknowledge the value of indigenous knowledge in climate matters, these insights are inconsistently integrated into existing adaptation efforts (United Nations Department of Economic and Social Affairs Social Inclusion, 2021).

Indigenous communities, with rich traditional ecological knowledge, have emerged as vital contributors to holistic climate change adaptation. Their insights, rooted in centuries of harmonious coexistence with the natural world, enhance the cultural appropriateness of adaptation initiatives. This paper explores the integration of indigenous knowledge into climate change strategies, focusing on the interplay between traditional knowledge systems, cultural approaches, and transformations in societies, institutions, technologies, and the climate. It aims to highlight how indigenous communities worldwide can leverage their traditional knowledge for adaptive and mitigation strategies benefiting both indigenous and non-indigenous populations (International Labour Organisation, 2019). The following objectives guided the study: to determine the interplay of indigenous knowledge and scientific

climate change understanding; to establish indigenous practices in climate change adaptation and mitigation; to assess power dynamics and collaborative approaches between indigenous communities, policymakers, researchers, and other stakeholders in climate change initiatives.

3 Methodology

This article uses a systematic literature review and analytical method to present several thematic areas on indigenous knowledge and climate change.

The search was conducted across various databases, including Sage, Emerald Insight, Scopus, EBSCO, Project Muse, Research Gate, Springer, Wiley, Semantic Scholar, Google Scholar, Science Direct, and Code4lib Journal. The materials reviewed spanned literature published between 2015 and 2023, comprising books, peer-reviewed journal articles, and reports on indigenous knowledge and climate change globally. The literature reviewed assumes that knowledge accumulates and that people learn from and build on what others have done (Musembe, 2019). The review further assumes knowledge accumulation and iterative learning. Utilising search terms like authors, subjects, titles, and keywords such as “Knowledge,” “Indigenous people,” “Climate change,” and more, the researchers employed Boolean search methods to refine the literature search.

Literature was included if it meets the following criteria

- a) Focus on indigenous knowledge of climate change
- b) Indigenous communities, people, traditions,
- c) Empirical study, regardless of the research methods,
- d) Be in the English language and full-text
- e) Published in peer reviewed scientific journals
- f) Reports from climate change recognised bodies

Studies were excluded based on the following exclusion criteria

- a) Literature published before 2015
- b) Literature not focusing on indigenous knowledge and climate change

4 Study findings

Based on the research methodology, a comprehensive review of twenty-eight scholarly articles referencing authors (Birgani et al., 2022; Onyango et al. 2020; Mbow et al., 2019; Brulle and Dunlap, 2015; Nakashima et al, 2018; Filho et al. 2021; Shaffril et al., 2020) was conducted. The synthesis of findings highlights the critical significance of acknowledging and incorporating indigenous knowledge into climate strategies to facilitate efficacious and equitable climate action, as elucidated herein.

4.1 Intersection of indigenous knowledge and scientific climate change understanding

Indigenous knowledge, specific to communities, peoples, and nations of indigenous origin, is a subset of traditional knowledge, representing the accumulated wisdom of indigenous peoples (International Labour Organisation, 2019). Conversely, climate change is a global challenge, manifesting as long-term alterations, usually over 30 years, with diverse impacts on human life. Its repercussions extend to settlement patterns, food production, infrastructure,

and ecosystems, driven by climate drivers such as modal and seasonal changes, extreme events, and atmospheric conditions (Birgani et al., 2022; Onyango et al., 2020; Mbow et al., 2019). Climate change has been associated with natural disasters, shifting weather patterns, threats to resources, and ecosystem destabilisation, disproportionately affecting socially vulnerable communities globally (Brulle & Dunlap, 2015). Despite considerable efforts by governments, academic institutions, and NGOs to address climate change, there is often a crucial omission in recognising and incorporating indigenous knowledge into strategies (Nakashima et al., 2018).

Indigenous knowledge encompasses practices honed through generations, guiding agricultural decisions, hunting, weather predictions, and other aspects crucial for community sustenance. However, climate change and other factors pose a threat to indigenous knowledge systems, eroding their resilience (International Work Group for Indigenous Affairs, 2023). Although global causes drive climate change, indigenous peoples bear a disproportionate burden of its adverse impacts, experiencing heightened vulnerabilities due to economic, political, and cultural marginalisation (Filho et al., 2021). Approximately 370 million indigenous people globally face negative impacts, including extreme weather events, as a consequence of climate change (Nakashima et al., 2018). Vulnerable communities, often living low-carbon lifestyles, face challenges due to historical marginalisation and limited consideration in climate change mitigation strategies. Nonetheless, many indigenous communities employ Indigenous and Local Knowledge (ILK) to cope, passing down adaptive mechanisms through generations (Shaffril et al., 2020).

Traditional practices in the United States, the Amazon Rainforest, Canada, and regions in Asia and South America are jeopardised by climate change, affecting food supply, ecosystems, and cultural practices. Melting sea ice and permafrost contribute to global climate change, impacting indigenous peoples in Northeastern Siberia and southern Africa. Specific African communities like Afar, Borana, Endorois, Fulani, and Hadza face challenges such as drought, flooding, resource-based conflicts, and loss of land and food shortages (Filho et al., 2021). Consequently, the integration of indigenous knowledge into climate change strategies is crucial for effective adaptation and mitigation. Recognising the diversity among indigenous peoples and respecting their distinct positions as collective rights holders is imperative in addressing the challenges they face. Collaborative efforts that consider and incorporate indigenous knowledge are essential for developing sustainable solutions to the multifaceted impacts of climate change on these communities.

4.2 Indigenous practices in climate change adaptation and mitigation

Indigenous knowledge, spanning agriculture, resource utilisation, biodiversity, and weather forecasting, serves as a foundation for effective climate adaptation and mitigation measures. Despite representing only 6% of the global population, indigenous peoples safeguard 80% of the world's biodiversity, demonstrating their pivotal role in sustainable resource management and climate resilience (Audefroy & Sanche, 2017). Acknowledging the limitations of solely relying on Western knowledge, numerous authors advocate for embracing diverse knowledge systems for context-specific climate adaptation planning (Filho et al., 2023; Trippel et al., 2018; Mantyka-Pringle et al., 2017).

The Intergovernmental Panel on Climate Change (IPCC), responsible for assessing climate change science, recognises the importance of indigenous practices in both adaptation and mitigation. As emphasised by reports from the IPCC, UNEP, and the International Work Group for Indigenous Affairs, indigenous peoples significantly contribute to global climate action (Venturini et al., 2022; UNEP, 2021; International Work Group for Indigenous Affairs, 2023).

COP26, the twenty-sixth United Nations Climate Change Conference of the Parties, underscores the urgency of accelerating global efforts in both mitigation and adaptation (UNEP, 2021). Notably, indigenous contributions, such as native tree plantations in Nepal and community-driven initiatives in Bangladesh, actively enrich climate action by promoting carbon storage, cultural values, and sustainable resource management (UN Climate Change Report, 2022).

Despite international commitments like the 2030 Agenda for Sustainable Development and the Paris Agreement, a report by UNEP (2021) suggests that climate action has fallen short of promises, with updated NDCs providing only a 7.5% reduction in predicted 2030 emissions. Meeting the least-cost pathways for 2°C and 1.5°C requires reductions of 30% and 55%, respectively, highlighting the need for more ambitious efforts (UNEP, 2021). Indigenous peoples, with their traditional knowledge spanning weather forecasting, agricultural practices, and natural resource management, play a crucial role in achieving the ambitious goals of global frameworks. Combining old and new knowledge and techniques enhances community resilience to climate change, showcasing the potential of integrating scientific and traditional knowledge for success. The international recognition of indigenous knowledge underscores its significance as a pathway forward in the collective fight against climate change.

4.3 Power dynamics and collaborative approaches between indigenous communities, policymakers, researchers, and other stakeholders in climate change initiatives

The International Labour Organization (ILO) report on the state of the world's indigenous peoples' education (2017) highlights six consistent characteristics of indigenous communities that pose unique risks in the context of climate policies and impacts. These characteristics include being among the poorest, dependence on renewable natural resources vulnerable to climate change, residing in regions most exposed to climate impacts, facing gender inequality exacerbated by climate change, experiencing forced migration, and enduring exclusion from decision-making processes. This emphasises the fact that despite playing significant roles in environmental sustainability, indigenous communities are adversely affected by these characteristics.

Etchart (2017) highlights that indigenous people, particularly those in forested areas like the Huaorani, Sápara, and Sarayaku Kichwa in the eastern Amazonian region of Ecuador, bear a dual responsibility in addressing climate change. They resist deforestation and territorial occupation while also recognising their duty to protect forests as a means of combating climate change. However, global efforts, including policies like the Kyoto Protocol and the Paris Agreement, have often sidelined indigenous voices, considering them as victims rather than active contributors (Etchart, 2017).

The Paris Agreement, adopted in 2015, aimed to limit global warming and minimise climate risks. While indigenous people are referenced in the agreement, a report by the International Work Group for Indigenous Affairs (2023) on the Indigenous World 2023 criticises the decreasing references to indigenous people in the implementation plan, signalling a step backwards. Indigenous Peoples' involvement is crucial, yet their priorities face limitations in critical articles of the agreement (International Work Group for Indigenous Affairs, 2023).

The United Nations Framework Convention on Climate Change (UNFCCC) underscores the active participation of all sectors of society. The Indigenous Peoples' constituency, organised under the International Indigenous Peoples' Forum on Climate Change (IIPFCC), advocates for indigenous rights and knowledge in UNFCCC meetings (International Work Group for

Indigenous Affairs, 2023). However, despite some success in COP26, indigenous priorities face challenges, with insufficient references in critical articles (International Work Group for Indigenous Affairs, 2023). The Intergovernmental Panel on Climate Change (IPCC) also plays a crucial role in assessing climate science. Reports from WGI, WGII, and WGIII of the IPCC during the sixth assessment cycle recognise the importance of indigenous knowledge in complementing scientific evidence, addressing climate risks, and promoting climate action. However, uneven treatment and insufficient consideration of indigenous perspectives across the reports are noted, emphasising the vulnerability of indigenous peoples and the weakening of their knowledge (International Work Group for Indigenous Affairs, 2023). The IPCC acknowledges the ethical requirement of indigenous people's participation in climate governance due to their vulnerability and historical marginalisation. Collaboration with indigenous communities is seen as crucial for sustainable adaptation and resilient climate development. However, indigenous people bear a disproportionate burden in mitigation efforts, especially concerning projects like REDD+ (Reducing Emissions from Deforestation and Forest Degradation) (International Work Group for Indigenous Affairs, 2023).

Despite their contributions to biodiversity conservation, forest governance, and mitigation measures, indigenous peoples face challenges in the face of large-scale resource extraction, renewable energy development, and inadequate land tenure. The lack of consistent treatment and consideration of indigenous perspectives across IPCC reports, especially regarding their rights, challenges, and contributions, remains a concern (International Work Group for Indigenous Affairs, 2023). It is, therefore, noteworthy that indigenous communities, despite their crucial role in environmental sustainability, face unique risks and challenges in the context of climate change policies and impacts. The recognition and inclusion of indigenous knowledge and rights in global frameworks, such as the Paris Agreement and IPCC assessments, are essential for effective and equitable climate action. Indigenous voices should be elevated and integrated into decision-making processes to ensure a more inclusive and sustainable approach to climate governance.

This paper significantly contributes to the literature by elucidating the pivotal role of indigenous knowledge in bolstering societal resilience against climate change impacts. By advocating for the integration of traditional wisdom into climate strategies, it promotes cultural diversity, sustainability, and inclusivity in adaptation initiatives. This original contribution enriches both scholarly discourse and practical implementation, offering valuable insights for addressing the complex and interconnected challenges posed by climate change.

5 Conclusion

The pressing concern of climate change is evident in a UNEP report (2021), emphasising the immediate need for action. In response, the paper conducts a comprehensive examination of the intersection between climate change and indigenous knowledge, emphasising the importance of integrating traditional knowledge into contemporary adaptation strategies. By systematically analysing a wide range of scholarly works, the paper underscores the significance of incorporating indigenous knowledge into climate change frameworks. This approach fosters a nuanced understanding of ecosystems and climate dynamics, providing a foundation for more effective adaptation efforts. Recognising indigenous communities' unique perspectives is essential for policymakers in developing inclusive and resilient approaches to climate challenges. The findings stress that blending indigenous knowledge with scientific approaches leads to holistic, sustainable, and culturally attuned adaptation measures. Through respectful

collaboration and knowledge exchange between indigenous and scientific communities, the paper advocates for promoting cultural diversity and sustainability in adaptation strategies. By observing the recommendations of this paper, society can move closer to a path that recognises Indigenous knowledge as a vital cornerstone in shaping resilient climate change adaptation strategies. The fusion of diverse knowledge systems offers valuable insights for both policy formulation and practical implementation, advancing towards a more equitable and effective approach to safeguarding our planet's future.

6 Recommendations

Drawing from the insights gleaned from this literature review, there is an urgent need to make a difference, not a difference. There is an urgency to confront the imminent peril facing us as a species. Being firm, fast and acting now should be the focus (Andersen, 2021). Thus, the following recommendations are put forth to guide the seamless incorporation of Indigenous knowledge into climate change adaptation strategies:

- a) **Collaborative Partnerships:** Indigenous communities, while not significant contributors to climate change, disproportionately suffer its impacts. Their profound understanding often goes unrecognised, as seen in insufficient mitigation pledges. To address this, authentic collaborative partnerships with governments, NGOs, and researchers, as suggested by Andersen (2021), resonate with the paper's emphasis on respectful collaboration and knowledge exchange between indigenous and scientific communities. The paper underscores the need for inclusive approaches and joint decision-making processes to develop adaptation strategies collectively,
- b) **Local Contextualisation:** The literature reviewed further advocates for local contextualisation of adaptation strategies, recognising the diversity of Indigenous knowledge across communities and regions. This aligns with the paper's emphasis on tailoring adaptation strategies to specific local contexts and appreciating the unique traditional practices, beliefs, and ecological observations of indigenous communities. Both the paper and Andersen (2021) highlight the importance of recognising and respecting the diversity within indigenous communities and leveraging internal and associative relationships for collaborative ventures. Collaborative ventures led by the International Indigenous Peoples' Forum on Climate Change and the International Work Group for Indigenous Affairs can capitalise on internal and associative relationships to share experiences and ideas. Appreciating the diversity within the seven socio-cultural regions of the world further strengthens relationships through resource sharing.
- c) **Knowledge Integration:** Integrating indigenous knowledge into existing climate science frameworks, policy guidelines, and adaptation plans. Avoid treating it as an isolated component but mainstream it into broader climate science and policy discussions. This corresponds to the paper's emphasis on mainstreaming Indigenous knowledge into broader climate science and policy discussions. Encourage a two-way learning process between Indigenous knowledge holders and conventional scientists through forums for intercultural dialogue and interdisciplinary collaboration. These forums, facilitated by international Indigenous organisations like the Indigenous Peoples' Forum, can blend diverse perspectives to foster meaningful integration (Andersen, 2021). This approach fosters meaningful integration of diverse perspectives.
- d) **Capacity Building:** Invest in educational programs promoting Indigenous knowledge and climate literacy. Fear of irreparable damage to Indigenous languages and knowledge

systems necessitates training programs for Indigenous youth and community members. Capacity-building for non-Indigenous professionals is essential to support initiatives within Indigenous communities. Digital tools, oral history projects, mentorship, and community-based educational platforms should facilitate intergenerational knowledge transfer. The creation of comprehensive databases or repositories accessible to researchers, policymakers, and future generations is crucial (Andersen, 2021).

- e) **Legal and Ethical Considerations:** Countries and states must establish, adopt, and implement policies upholding the rule of law and ethical standards regarding Indigenous knowledge. Legal frameworks and ethical guidelines respecting Indigenous intellectual property rights and cultural heritage, including mechanisms for obtaining free, prior, and informed consent, are essential. This addresses the challenges Indigenous communities face, including repression and violence (Tahu & John, 2016).
- f) **Monitoring and Evaluation:** Implement robust monitoring and evaluation mechanisms involving global leaders, scientists, Indigenous representatives, and professionals. Regular feedback loops with Indigenous communities will help refine and improve adaptation strategies, ensuring their effectiveness. Learning from past shortcomings includes integrating Indigenous knowledge into climate adaptation strategies to avoid repeating failures (Andersen, 2021).
- g) **Incorporating Traditional Practices:** Recognising Indigenous peoples as guardians of biodiversity, countries and states should collaborate with international Indigenous forums to incorporate traditional practices into mainstream adaptation efforts. Sustainable land management, agroforestry, and water conservation practices, with their proven track record of resilience and sustainability, should be integrated (Andersen, 2021).
- h) **Education and Awareness:** The lack of appreciation for Indigenous people's knowledge and their sovereignty over their systems requires action. Substantive organisations, including the United Nations and the World Meteorological Organization, should foster global education and awareness. During the United Nations Climate Change Conference of Parties, awareness campaigns can promote cross-cultural appreciation and understanding of traditional perspectives (Whyte, 2018).
- i) **Research Funding:** Allocate research funding to support projects at the intersection of Indigenous knowledge and climate adaptation. Governments, research institutions, and funding agencies should establish dedicated funding streams accessible to both Indigenous and non-Indigenous researchers. Empowering Indigenous groups to lead research agendas aligning with their needs and priorities is essential for meaningful collaboration (Andersen, 2021).
- j) **Flexibility and Adaptability:** Acknowledge the dynamic nature of Indigenous knowledge evolving with changing ecological circumstances. Adaptation strategies should embody flexibility to incorporate emerging insights and adaptations. Maintaining an ongoing dialogue with Indigenous knowledge holders and communities is imperative. Regular discussions and exchanges of information can identify changes and adaptations observed by Indigenous peoples, respecting the cyclical nature of this knowledge (Andersen, 2021)

References

- Audefroy F. J. & Sanche N. C. (2017). Integrating local knowledge for climate change adaptation in Yucata'n, Mexico. *International journal of sustainable built environment*, Vol. 6, pp. 228–237.
- Australian environment report (2022).
- Birgani, R., Kianirad, A., Shab-Bidar, S., Djazayeri, A., Pouraram, H. and Takian, A. (2022). Climate Change and Food Price: A Systematic Review and Meta-Analysis of Observational Studies, 1990-2021. *American Journal of Climate Change*, 11, 103-132. <https://doi.org/10.4236/ajcc.2022.112006>
- Brulle R. J., & Dunlap R. E. (2015). *Sociology and Global Climate Change. Pp 1-21 in Dunlap R. E and Brulle R. J. (eds) 2015. Climate change and Society Sociological Perspectives*. New York: Oxford University Press
- Center for International Environmental Law (2021). Indigenous peoples and Traditional knowledge in the context of the UN framework. Convention on climate change Compilation of Decisions and Conclusions Adopted by the Parties to the Convention - 2020 Update. <https://www.ciel.org/wp-content/uploads/2021/06/Indigenous-Peoples-Traditional-Knowledge-Compilation-2020-Update.pdf>.
- Climate change and Food Price: A Systematic Review and Meta-Analysis of Observational Studies, 1990-2021. *American Journal of Climate change*, 11, 103-132. doi: 10.4236/ajcc.2022.112006.
- Dröge S. (2016). The Paris Agreement 2015, Turning Point for the International Climate Regime. *Stiftung Wissenschaft und Politik, ISSN 1863-1053*
- Etchart, L.(2017). The role of indigenous peoples in combating climate change. *Palgrave Commun* 3, 17085 <https://doi.org/10.1057/palcomms.2017.85>
- Filho W. L., Wolf F., Totin E., Zvobgo L., Simpson N. P., Musiyiwa K., Kalangu W. J., Sanni M., Adelekan I., Efitre J., Donkor K F, Balogun A.L., Mucova S. A., Ayal D.Y. (2023). Indigenous knowledge serving climate adaptation. Evidence from various African regions. *Development Policy Review*, 41, e12664. <https://doi.org/10.1111/dpr.12664>Ban et al., 2017;
- Filho, W. L., Matandirotya, N. R., Lütz, J. M., Alemu, E. A., Brearley, F. Q., Baidoo, A. A., Kateka, A., Ogendi, G. M., Adane, G. B., Emiru, N., & Mbih, R. A. (2021). Impacts of climate change on African indigenous communities and examples of adaptation responses. *Nature Communications*, Vol 12(1), pp 1–4. <https://doi.org/10.1038/s41467-021-26540-0>
- Ford, J. D., Stephenson, E., Cunsolo Willox, A., Edge, V., Farahbakhsh, K., Furgal, C., Harper, S., Chatwood, S., Mauro, I., Pearce, T., Austin, S., Bunce, A., Bussalleu, D., & J., Finner, K., Gordon, A., Huet, C., Kitching, K., Lardeau, M.-P., ... Sherman, M. (2016b). Community-based adaptation research in the Canadian Arctic. *Wiley Interdisciplinary Reviews: Climate Change*,7(2), 175–191. <https://doi.org/10.1002/wcc.376>
- Glick, D. (2023). The Big Thaw. <https://www.nationalgeographic.com/environment/article/big-thaw>
- International Indigenous Peoples' Forum on Climate Change & Center for International Environmental Law (2021). Indigenous peoples and Traditional knowledge in the context of the UN framework. Convention on climate change Compilation of Decisions and Conclusions Adopted by the Parties to the Convention - 2020 Update. <https://www.ciel.org/wp-content/uploads/2021/06/Indigenous-Peoples-Traditional-Knowledge-Compilation-2020-Update.pdf>.
- International Work Group for Indigenous Affairs (2023), Indigenous World 2023: UN Framework Convention on Climate change. <https://www.iwgia.org/en/un-framework-convention-on-climate-change-unfccc/5158-iw-2023-unfccc.html>

- Johansen, B. E. Ed. (2017). Climate change is an encyclopedia of science, society, and solutions. ABC-CLIO, LLC,
- Mantyka-Pringle, C. S., Jardine, T. D., Bradford, L., Bharadwaj, L., Kythreotis, A. P., Fresque-Baxter, J., Kelly, E., Somers, G., Doig, L. E., Jones, P. D., Lindenschmidt, K. E., River, S., & Partnership, D. (2017). Bridging science and traditional knowledge to assess cumulative impacts of stressors on ecosystem health. *Environment International*, Vol 102, pp125–137. <https://doi.org/10.1016/j.envint.2017.02.008>
- Mbow, C., C. Rosenzweig, L.G. Barioni, T.G. Benton, M. Herrero, M. Krishnapillai, E. Liwenga, P. Pradhan, M.G. Rivera-Ferre, T. Sapkota, F.N. Tubiello, and Y. Xu, (2019): Food security. In Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems.
- Musembe, C.N. (2019). E-records security management at Moi University, Kenya. PhD Thesis [Doctor of Philosophy]. Pietermaritzburg: University of KwaZulu- Natal. School of Sociology and Social Studies. Information Studies programme. Available at: <https://researchspace.ukzn.ac.za/handle/10413/12067>
- Nakashima, D., Krupnik, I. and Rubis, J.T. (2018). *Indigenous Knowledge for Climate Change Assessment and Adaptation. Local & Indigenous Knowledge*. Cambridge University Press and UNESCO
- Onyango, J., Kiano, E., & Saina, E. (2020). Macroeconomic Variables and Carbon Dioxide Emissions Nexus in Kenya. *Africa Environmental Review Journal*, 4(1), 111-122.
- Republic of Kenya (2016). Kenya National Adaptation Plan 2015-2030. Enhanced climate resilience towards the attainment of Vision 2030 and beyond. Republic of Kenya. https://www4.unfccc.int/sites/NAPC/Documents%20NAP/Kenya_NAP_Final.pdf
- Shaffril H. M. A, Ahmad N., Samsuddin F.S., Samah A. A., Hamdan M. E. (2020). Systematic literature review on adaptation towards climate change impacts among indigenous people in the Asia Pacific regions. *Journal of Cleaner Production*. Vol 258
- Tahu, K. John T. (2016). *Indigenous Data Sovereignty: Toward an Agenda*. ANU Press.
- Trippl, M., Grillitsch, M., & Isaksen, A. (2018). Exogenous sources of regional industrial change: Attraction and absorption of non-local knowledge for new path development. *Progress in Human Geography*, 42(5), 687–705. <https://doi.org/10.1177/0309132517700982>
- United Nations Climate Change Report (2022). How Indigenous Peoples Enrich Climate Action. <https://unfccc.int/news/how-indigenous-peoples-enrich-climate-action#:~:text=UNFCCC%20Nav&text=UN%20Climate%20Change%20News%2C%209,and%20scale%20Dup%20climate%20action>.
- United Nations Department of (Economic and Social Affairs Social Inclusion, 2021). UNDESA World Social Report 2021. <https://www.un.org/development/desa/dspd/world-social-report/2021-2.html>
- Whyte, K. P. (2018). Indigenous science (fiction) for the Anthropocene: Ancestral dystopias and fantasies of climate change crises. *Environment and Planning E: Nature and Space*, 1(1-2), pp. 224–242.
- World Meteorological Organization report (2022). State of the global climate 2022. World Meteorological Organization, WMO-No. 1316. ISBN 978-92-63-11316-0. https://library.wmo.int/doc_num.php?explnum_id=11593#:~:text=The%20year%202022%20was%20the,in%20the%20past%2050%20years.

27. The Role of Indigenous Knowledge on Plastic Waste Management in Nigeria

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Abstract

Indigenous environmental knowledge plays a vital role in shaping people's attitudes towards addressing waste, pollution, and other environmental challenges in order to create a cleaner and greener environment. To this end, this study explores the relevance of indigenous knowledge in waste disposal and management and the role it plays in environmental conservation and green practice. An exploratory research design is applied to this study since the purpose of this study is to develop a deeper understanding of the role of indigenous knowledge in waste management and the green environment. The selection of data was made first by using the key terms of the study (indigenous knowledge, pollution, plastic waste, green marketing, waste management) to search for the relevant texts from physical and online sources by applying a non-probability sampling technique on the basis of convenience. Thus, the paper is literature-based. Relevant and related contents of some textbooks, journals, periodicals, and online sources were selected, reviewed, analysed, and synthesised using descriptive content analysis with the aim of drawing valuable conclusions. The outcome of this work reveals that landfilling, incineration, composting, recycling and sweeping are some of the traditional techniques of waste disposal and management. Together, they play a pivotal role in serving as preventive and curative mechanisms against environmental pollution. Consequently, it is recommended that it should not be ignored, but rather, it should be utilised by engaging and empowering local people to apply this knowledge to reduce plastic waste in Nigeria.

Keywords: *Traditional knowledge, waste, cleanliness, plastic containers, waste disposal*

1 Introduction

Human beings need four fundamental things to survive: air to breathe, water to drink, food to eat and land to live on. The existence of plastic waste can threaten these four basic needs, which make the need for waste management inevitable. From the Stone Age period to date, people have developed certain ways of doing things related to their culture, experiences, geographical location and environment. This traditional system is known as the Indigenous Knowledge System (IKS) (Ajibade, 2007). Indigenous knowledge refers to understandings, skills, and philosophies developed by local communities with long histories and experiences of interaction with their natural surroundings, according to UNESCO's programme on local and indigenous knowledge systems. It is a knowledge used by local people to make a living in a particular environment (Chepchirchir et al., 2019). Similarly, Kwanya (2020) defines it as a cumulative body of knowledge generated and evolved, representing generations of creative thought and actions within individual societies in an ecosystem of continuous residence with an effort to cope with the ever-changing agro-ecological and socioeconomic environment.

Indigenous knowledge encompasses spiritual relationships, relationships with the natural environment, the use of natural resources, and relationships between people. It is reflected

in language, social organisation, values, institutions, and laws (Chikaire et al., 2012). These knowledge systems are usually embedded in naturalistic epistemology and belief systems, which differ radically from those of scientific systems (IUCN, 1997). Over the decades and centuries, indigenous people around the world have developed their locality-specific knowledge and practice, which is an integral part of the lives of the people. It is a people-derived science, and it represents people's creativity, innovations and skills.

Plastic waste is used to denote all used plastic containers discarded indiscriminately by consumers in a given area, leading to land pollution. In other words, plastic pollution is the increase of plastic bottles and much more in the earth's environment that adversely affects wildlife, wildlife habitat, and humans (Chauhan & Wani, 2019). Green marketing, also known as Environmental marketing, consists of all activities designed to generate and facilitate any exchanges intended to satisfy human needs and wants, such that the satisfaction of these needs and wants occurs with minimal detrimental impact on the natural environment (Rani et al., 2014). It is the marketing of products that are presumed to be environmentally safe. For this to happen, the packaging materials should be bio-degradable rather than those that are not, like plastic and PET packages.

2 Statement of problem

Yalwaji et al. (2022) opine that from the available literature, plastic pollution in Nigeria has not been studied extensively. Only 13 studies that reported microplastic contamination in either surface water, sediment, biota, food and/or land were documented. This shows that research on microplastic pollution in Northern Nigeria is very scant. Similarly, the role of IK in waste management has not been studied adequately despite the fact that in some major cities in Nigeria like Kano, Lagos, Enugu, Portharcourt and even Abuja, there are ugly scenes mountains of refuse and garbage, mostly filled with plastics.

The problem of plastic waste in Nigeria is a cause for serious concern all over the country. This is because, according to a United Nations Industrial Development Organisation (UNIDO) report, Nigeria generates over 32 million tonnes of waste annually, with plastic accounting for 2.5 million tonnes, making Nigeria ninth globally among countries with the highest contributions to plastic pollution and over 88% of the plastic waste generated in Nigeria is not recycled (Anyagou, 2022). Moreover, the indiscriminate disposal of plastic waste blocks gutters, drainages and other water channel systems, which, in turn, causes flooding during the rainy season, sometimes with severe human and material losses. Similarly, studies have shown that water sachets and shopping bags are the major constituents of plastic waste in Nigeria, with households, markets and educational institutions as the primary sources of plastic waste (Sogbanmu, 2022). Consequently, this study addresses the dearth of studies in this area in order to fill part of the identified wide gap.

3 Literature review

It should be noted that the number one reason for the pollution of our planet is, therefore, excessive use of plastics. According to Greenpeace, 8.3 billion tonnes of plastic have been produced since the 1950s, while only around 9% have been recycled (Okpoko, 2022). Also, Lagos, Nigeria's megacity of about 16 million people, produces between 13,000 and 15,000 tons of waste per day, including 2,250 tonnes of plastic (Akindele, 2022). In the same vein, plastic and climate reports indicate that in 2019, plastic will contribute greenhouse gases, the equivalent of 850 million tons of carbon dioxide (CO₂), to the atmosphere (Chauhan &

Wani, 2019). However, the Waste Management Society of Nigeria (WAMASON) estimates that nearly 65 million metric tonnes of waste are generated in Nigeria per annum, with Lagos generating about 20 per cent of the total plastic waste. This shows that vast amounts of plastic waste exist in Nigeria, and it is a serious problem that needs to be addressed squarely in order to have a clean and green environment, hence the need for green marketing practices. This is because it is widely believed that green marketing has emerged as a viable solution to address environmental challenges, especially those caused by plastic waste.

Green marketing, as a means of creating a positive impact on the environment and reducing the negative impact, has become an essential aspect of marketing (Trott & Sople, 2016). According to Kumar et al. (2011), green marketing mainly focuses on four issues: the need to appreciate the importance of green marketing, understanding the impact of green marketing on a firm's competitiveness and performance, getting consumers recognition and improving the effectiveness of green marketing. From the above classification, the focus should be on appreciating the importance of green marketing in Nigeria. The first consideration here is to create awareness of the concept of green marketing and how it brings about a clean and green environment. To achieve this, Nigerians have to be ready to change their attitude toward the indiscriminate disposal of plastic, glass, and food waste.

Furthermore, it is argued that the development of green marketing practice consists of a 3-step phase. The first step is ecological green marketing, which focuses on defining certain environmental problems, such as environmental pollution and depletion of energy resources and how marketing activities can be directed towards preventing these problems through available technologies. The second step is environmentalist green marketing, which is geared towards designing, developing and marketing new green products. In contrast, the third step is aimed at achieving a sustainable green marketing operation using both micro and macro marketing activities of a company.

In general, the environment in major Nigerian cities is filled with emerging environmental pollutants (EEPs) (Yalwaji et al., 2022) in the form of plastic or polymeric materials that determine the quality of support for the life of fauna and flora. The polymers used to make plastic materials are diverse, comprising seven (7) different polymer resins namely Poly Ethylene Terephthalate (PET), High Density Polyethylene (HDPE), Polyvinyl Chloride (PVC), Low Density Polyethylene (LDPE), Polypropylene (PP), Polystyrene (PS) and Polycarbonate (PC) (Yalwaji et al., 2022). Most plastics are discarded after use, and they tend to be more harmful to the environment due to their low degradability. The increase in plastic use and consequent waste generation is of greater concern due to its consequent adverse environmental impact. Although Africa is reported to be **leading in the global war against plastic**, Nigeria is lagging. Rwanda, Kenya, Tanzania, and South Africa are among the 34 African countries that are already regulating plastic with bans or taxes (Yekeen, 2019)

4 Theoretical framework

The primary purpose of theorising is to achieve a better understanding of a human enterprise in terms of its empirical and definite aspects (Mwinzi, 2015). Kombo and Tromp (2006) hold that a theory is a reasoned statement or group of statements supported by evidence to explain an event or a phenomenon. The term theory refers to the general and abstract principles of facts (Mwinzi, 2012). A theory may consist of a hypothesis that has been verified by observation or experiment or systematic thinking defined by coherence in thoughts (Randolph, 2009). An interaction with theories or ideological constructs enables philosophers

to evaluate the impact of human enterprises such as education practice. In this study, four theories related to indigenous knowledge, as proposed by Mkandwire (2019), were reviewed, after which two were adopted to guide the research work. They are briefly discussed below.

4.1.1 Communalism

Communalism usually refers to a system that integrates communal ownership of highly localised communities (Bookchin, 2006). In an African indigenous society, communalism is an important element of existence and is part of the indigenous belief in the indivisibility of reality (Shroff, 2011). Mji (2013) posits that the spirit of the African worldview includes wholeness, community, and harmony, which are deeply embedded in cultural values.

4.1.2 Perennialism

Perennialism is a theory that postulates that teachers should teach the things that are of everlasting relevance to all people everywhere. According to Hutchins (1954), the objective of education is to prepare the young to educate themselves throughout their lives. For indigenous people, the role of perennials is to ensure the continuity of cultural heritage (Kwanya, 2020). Indigenous African societies may use perennial education as an essential tool for preserving the status quo of their ethnic groups. Thus, perennial education has a conservative nature. Maira and Kauka (2018) explain that there are some content areas in learning (knowledge, values and skills) that are independent of time and place. They were equally relevant in the past as they are relevant today and will be so in future (Mkandwire, 2019).

4.1.3 Vitalism

The difference between indigenous and modern or Western knowledge is the epistemology the two use. While Western science commits to empirical testing and theory building, indigenous knowledge concerns itself with vitalism, the idea that life is not explainable solely by the laws of physics and chemistry but also by the presence of a vital life force (Kwanya, 2020). Vitalism as a school of science dates from Aristotle, but Lazzaro Spallanzani (1729-1799), an Italian physiologist, is known to have made significant contributions to the development of holism (Mkandwire, 2019). Traditionally, African indigenous people believe in the existence of a universe which consists of both the physical and the spiritual (metaphysical). They practice diverse spiritual traditions in the way they exercise their indigenous religions, beliefs, and rites that relate to themselves and all other living beings, an indication that they believe in the presence of a vital life force. This theory helps in providing an alternative explanation and understanding of the life force.

4.1.4 Indigenous standpoint theory

The indigenous standpoint theory (IST) holds that, when working or researching in a community, there is a need to involve and respect the ethos of the local people culturally, socially, spiritually, and morally, and that indigenous people should do actions for their benefit. It explores the actualities of people's everyday lives rather than deploying predetermined concepts and

categories to explain experiences (Kwaymullina, 2017). In IST, it is expected that the ontology and epistemology of the work or research must reflect the ethos of the local people who should benefit from such indigenous knowledge as it is their resource and therefore, no person should claim ownership. The theories of vitalism and IST have been adopted in this study as the guiding theoretical framework.

4.2 The indigenous waste management practices

Non-biodegradable manufactured solid wastes have not been generated in the past. However, with the current change from a traditional to a modern society, the composition of SW produced has changed from predominately biodegradable to some composition of non-biodegradable in the developing world (SPREP 2009; Panta, 2014). This transition has significantly impacted the quantity of plastic waste being generated in both rural and urban areas. The three common types of non-biodegradable solid waste that households produce are plastic bottles, plastic packages or bags, and empty tin cans.

The indigenous solid waste management model is a process that begins with the generation and separation of solid waste. This solid waste is usually separated into four major categories: disposable, burnable, compostable, and reusable (Panta, 2014). The disposable solid waste, which is, in nature, both biodegradable and non-biodegradable, is disposed of permanently by households at three different types of disposal sites. The other three categories of solid waste are waste reduction and resource recovery categories and are mainly for biodegradable solid waste. Therefore, the solid waste in these four categories is further managed through solid waste reduction and resource recovery activities such as composting, burning, reusing and giving away.

4.3 Indigenous solid waste segregation, storage, collection, disposal and reduction

Panta (2014) posits that indigenous waste management involves applying different solid waste management techniques or practices that exist in the respective indigenous knowledge system.

i. Sorting

Indigenous people classify their domestic solid waste into five different categories, both inside and outside their houses. These categories of segregated solid waste are listed below and are part of the overall indigenous solid waste management process.

- a) Disposable waste
- b) Burnable waste
- c) Compostable waste
- d) Reusable waste
- e) And give away waste

ii. Storage

The waste that is stored and later collected for disposal by the households after sorting is mainly non-biodegradable solid waste such as empty tin fish cans, oil bottles and plastic packaging from manufactured goods purchased from the shops. Proper storage of solid waste before collection and disposal is crucial for any solid waste producer to prevent environmental and public health issues. Domestic solid waste is stored in two different ways: biodegradable and non-biodegradable solid waste.

iii. Collection of solid waste

The collection of solid waste from its point of generation to the disposal sites is a vital process that needs resources and effective systems to be put in place for it to be functional (Panta, 2014). Traditionally, the responsibility for domestic solid waste collection falls mainly

on the housewife, who manages the day-to-day operations. However, generally, all households maintain ownership of the management of solid waste from generation to disposal. This practice is an advantage for the younger members who would acquire this vital knowledge and practices of indigenous solid waste management.

iv. Solid Waste Disposal

This practice of disposing of solid waste is healthy and effective. If the solid waste is stored for long periods, it rots, emanating a stench that attracts disease-carrying pests and insects that could make household members sick. Waste classified as disposable is disposed of in four different ways, as stated below.

- a) Dug-up pits, especially for the disposal of solid waste
- b) Pit toilets where households sometimes dispose of empty tin cans
- c) In the River during the floods
- d) Underneath bamboo trees and tall, tough grasses

The dug-up pit and pit toilet are the common types of disposal sites used by households to dispose of non-biodegradable solid waste. According to the majority of views, the main objective here is to keep their households safe and healthy from illnesses.

4.4 Resource recovery methods

Solid waste reduction activities are carried out by the households through (i) composting, (ii) reusing, (iii) and burning. It is through these resource recovery methods that households reduce solid waste that ends up in the disposal site and recover crucial resources, maintaining the health of the environment and that of the households and immediate community.

The burning or incineration of solid waste to remove or retrieve energy is a standard local resource recovery method. Even though there are advantages of burning, which include the removal of solid waste from households and recovering energy needed for the households' use, it also presents environmental and public health threats of hazardous chemical emissions. People generally burn biodegradable solid waste from gardens and yards, such as leaves, grass, branches and roots. Farmers also clear land and burn organic solid waste before the land is dug up to plant crops.

The burning of biodegradable (organic) solid waste was practised by our ancestors in the past, and this IK has been transferred from generation to generation. However, most households now have plastic solid waste. These plastics can burn quickly; therefore, households burn them to remove the plastics when they are not reusing them. The purposes for burning solid waste include, among others, retrieving energy for cooking food and warmth, removing solid waste, and using it for gardening and as torches at night.

5 Research methodology

An exploratory research design is applied to this study since the purpose of this study is to develop a deeper understanding of the role of indigenous knowledge in waste management and the green environment. A qualitative exploration is chosen. The qualitative method is believed to bring, necessary for this study, an in-depth understanding of the topic (Alvesson & Sköldbberg, 1994). Qualitative research is a type of social science research that collects and works with non-numerical data and seeks to interpret meaning from these data that help us understand social life through the study of targeted populations or places (Punch, 2013). It focuses on words

rather than numbers; this type of research observes the world in its natural setting, interpreting situations to understand the meanings that people make from day-to-day life (Walia, 2015).

The selection of data was made first by using the key terms of the study (indigenous knowledge, pollution, plastic waste, green marketing, waste management) to search for the relevant literature from physical and online sources by applying a non-probability sampling technique. It was chosen to apply convenience sampling of available documents over thirty days. This implies that the selected respondents are chosen on the basis of convenience. Relevant and related contents of some texts, books, journals, periodicals and online sources were selected, reviewed, analysed and discussed with a view to drawing useful conclusions to see how plastic waste causes environmental pollution and how green marketing activities can be used to solve or mitigate the negative impact of plastic waste in the environment.

6 Research results

The study reveals that Indigenous knowledge systems serve as a precursor of modern waste management thinking as traditional people possess a wealth of knowledge about their local ecosystems, sustainable resource management practices, and unique cultural perspectives that play a pivotal role in shaping effective conservation strategies. Similarly, It shows that Indigenous knowledge encompasses a deep understanding of local ecosystems, the behaviour of wildlife, the medicinal properties of plants, weather patterns, and the complex interconnections between nature and human society.

Furthermore, the study has shown that right from the Stone Age period, there was an established reuse culture in our societies based on the belief that every item used can be kept for reuse or recycling. Today, for instance, sachets of pure water are used by gardeners to plant flower nurseries for commercial purposes. The roadsides can see them in every major city of Nigeria. Therefore, apart from saving money, the reuse culture is greatly helping us in waste management.

Moreover, the traditional way of sweeping (*shara*), refuse collection (*bola*), burning of waste to produce ashes used in making manure and the religious teaching of cleanliness all combined to show the relevance of indigenous knowledge in waste disposal and management as well as ensuring a greener environment.

Another finding is that indigenous communities possess a deep understanding of weather patterns and climate-related events, which enables them to adapt to and mitigate the impacts of climate change. Traditional practices such as controlled burning and forest management, as well as the knowledge of culture and spirituality, assist in building stronger connections between humans and nature, fostering a more profound commitment to environmental management.

7 Discussion

The preceding discussion shows that indigenous knowledge plays a vital role in proper waste management in our society through the positive culture and attitude of cleanliness that has been passed from our forefathers. This was discussed earlier in relation to the application of indigenous knowledge in solid waste management. The indigenous solid waste management model is often applied to generate, sort and dispose of solid waste appropriately. The teachings and culture of *shara* (sweeping), collection of refuse (*bola*) and processing of waste into local manure are all traditional values and practices that we inherited from our forefathers that we are still using today to have a greener environment.

8 Conclusion

Indigenous knowledge is a force to be reckoned with in environmental conservation because it serves as a prelude to modern waste management concepts and practices. Also, there is apparent interest among consumers, companies and governments in Nigeria regarding the need to protect the environment and mitigate climate change. The need to utilise traditional teachings and practices to have recyclable, non-toxic and environment-friendly packaging is manifesting itself by the day. To this end, the study has shown that there is a significant relationship between indigenous knowledge and the fight against environmental pollution. Thus, it can be confidently concluded that indigenous peoples possess a wealth of knowledge and experiences about their local ecosystems, sustainable resource management practices, and unique cultural perspectives that can play a significant role in shaping effective waste management and environmental conservation.

9 Recommendation

Based on the above-listed findings, the following measures are recommended to combat plastic pollution and its effects in Nigeria. The first step will be to address poor waste management practices prevalent in the country by enacting a comprehensive plastic pollution prohibition and management bill to regulate all matters relating to solid waste in Nigeria. Under this law, there should be a clear waste disposal rule that will describe how people can dispose of waste by using colours such that all iron and metal wastes should be in red bins, plastics in green and all paper and solid food should be in blue bins. Awareness should be created on traditional means of waste disposal because they are cheaper and within the reach of the masses. This can be achieved by incorporating the concept of indigenous waste management into environmental education.

In the same vein, companies and individual traders should be encouraged to consider how their solid wastes could be reused and recycled by linking them with markets and processing facilities. To this end, there is a need to establish a Solid Waste Marketing Board that will collect, assemble and prepare solid waste for reuse and recycling. Also, local waste collectors, popularly known as (*baban bola*), should be given soft loans to empower them economically, thereby reducing the rate of unemployment. Also, the Federal Government should, as a matter of urgency, ban the production and use of all non-biodegradable plastic bottles, containers, bags and other single-use plastic products. Instead, the use of paper bags should be encouraged. In the same vein, the public will need to be educated on the importance of the three Rs: reduce, reuse and recycle plastic materials through effective capacity building geared towards reducing waste volume and saving many recyclable items before they enter the waste stream.

Furthermore, there is a need for intensive public awareness and environmental education campaigns aimed at behavioural changes and sustainable environmental waste management best practices. People should be educated on the health hazards of burning plastic waste and the negative impact of indiscriminate disposal of refuse. The need for total attitudinal change towards proper handling and disposal of waste materials should be emphasised so that people will realise that refuse or waste grows with the increase in human population. Thus, refuse/waste should be treated as a “living” thing anywhere the human population exists. Therefore, indigenous knowledge of waste management should be propagated to non-formal education systems in communities at the local and national levels through training, advocacy and public awareness.

References

- Ajibade, L. T. (2007). Indigenous Knowledge System of Waste Management in Nigeria, *Indian Journal of Traditional Knowledge*, 6(2017), 642-647.
- Akindele, E.O. (2022). *Nigeria's Plastic Pollution is Harming the Environment: Steps to Combat it are Overdue*. The Conversation. Retrieved 12 October 2023 from <https://theconversation.com>
- Alvesson, M. & Skoldberg, K. (1994). *Tolkning och Reflektion: Vetenskapsfilosofi Och kvalitativa Metod* Lund: Studentlitteratur
- Anyaogu, M. (2022). *Nigeria's 32m-ton Annual Solid Waste Ripe for Investments*. Retrieved 12 November, 2023 from <https://businessday.ng>.
- Bookchin, M. (2006). What is Communalism? The Democratic Dimension of Anarchism. Dward-mac.pitzer.edu.
- Chauhan, G.S. & Wani, S. (2019). Plastic Pollution: A Major Environmental Threat. *International Journal of Innovative Research in Technology*, 6(6), 43-46.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Chikaire, J., Osuagwu, C. O., Ihenacho, R.A., Oguegbuchulam, M. N., Ejiogu-Okereke, N., & Obi, K.U (2012). Indigenous Knowledge System: The Need for Reform and the Way Forward, *Global Advanced Research Journal of Agricultural Science*, 1(8), 201-
- Hutchins, R. M. (1954). *Great Books: The Foundation of a Liberal Education*. Simon & Schuster
- Kombo, D., & Tromp, L. (2006). *Proposal and Thesis Writing: An Introduction*. Africa: Pauline Publications.
- Kumar, D., Kumar, I., Rahman, Z., Yadav, Y., & Goyal, P. (2011). *Green Marketing Mix: Rethinking Competitive Advantage during Climate Change*. The First International Conference on Interdisciplinary Research and Development, 31 May - 1 June 2011, Thailand.
- Kwanya, T. (2020). Stigmatisation of indigenous knowledge: The case of night-running in western Kenya. *Journal of Religion in Africa*, 48(4), 376-392.
- Kwaymullina, A. (2017). *Indigenous Standpoint, Indigenous Stories, Indigenous Futures: Narrative from an Indigenous Standpoint in the Twenty-First Century and Beyond*. PhD Thesis. University of Western Australia
- Maira, J. M., & Kauka, E. O. (2018). Analysis of Ecopedagogy: Lessons from African Indigenous Education, *International Journal of Social Sciences and Humanities Research* 6 (2):108-114.
- Mji, G. G. (2013). African indigenous knowledge and research, *African Journal of Disability*, 2(1): 30-41.
- Mkandwire, S. B. (2019). *Indigenous Knowledge Theories*. Retrieved 23 November 2023 from <https://sitwe.wordpress.com>
- Mwinzi, J. (2012). Integrating Philosophy of Education and the Goals of Education in Education Practice at Kenyan High Schools. Unpublished Doctoral Thesis. University of South Africa.
- Mwinzi, J. M. (2015). *Theoretical Frameworks and Indigenous Knowledge Systems*, *International Journal of Education and Research*, 3(2), 2201-6740
- Okpoko, M. (2022). *The Negative Impact of Plastic in Nigeria: The Need for a Legal Framework*. Retrieved 12 October 2023 from <https://www.greenpeace.org/africa/en/blogs/50697/>
- Panta, D. A. (2014). *The Role of Indigenous Solid Waste Management Practices (ISWMP) in Management of Solid Waste in Urban Centres in Papua New Guinea*, Thesis Submitted in Fulfilment of the Requirement for the Degree of Doctor of Philosophy, School of the Environment, Faculty

of Science and Engineering, Flinders University

- Punch, K. F. (2013). *Introduction to Social Research: Quantitative and Qualitative Approaches*. London: SAGE
- Randolph, J. (2009). *A Guide to Writing the Dissertation Literature Review*. Practical Assessment, Research & Evaluation, 14(13).
- Rani, A. K. N., Aravind, J., & Prasad, T. (2014). Green Marketing and its Impact. *British Journal of Marketing Studies*, 2(8), 45-48.
- Shroff, F. (2011). We are all one: Holistic Thought-forms within Indigenous Societies Indignity and Holism. *Indigenous Philosophies and Critical Education: A READER*, pp. 379, 53-67
- Sogbanmu, T. O. (2022). *Plastic Pollution in Nigeria is Poorly Studied, but Enough is Known to Urge Action*. Retrieved 12 September 2023 from <https://theconversation.com>
- SPREP (2009, *Solid Waste*. Retrieved 12 October 2023 from http://www.sprep.org/solid_waste/solid.htm,
- Trott, S. & Sople, V.V., 2016. *Brand Equity: An Indian Perspective*. PHI Learning Pvt. Ltd., United Nations Educational, Scientific and Cultural Organization (UNESCO) 2000, *The EFA 2000 ASSESSMENT Country Report Papua New Guinea*. Retrieved 19 October 2023 from <http://www.unesco.org/education>
- Walia, R. (2015). A Saga of Qualitative Research. *Social Crimonol*, 5(2), 124.
- Yalwaji, B. John-Nwagwu, H.O., & Sogbanmu, T.O. (2022). *Plastic Pollution in the Environment in Nigeria: A Rapid Systematic Review of the Sources, Distribution, Research Gaps and Policy Needs*. Retrieved 12 October 2023 from <https://www.sciencedirect.com/science/article/pii/S2468227622001272>
- Yekeen, A. (2019). Plastic Wastes: The Silent Killer Nigerians Love. Investigation Supported by Ford Foundation and the International Centre for Investigative Reporting, ICIR. Retrieved 4 July 2023 from <https://www.icirnigeria.org/>

SECTION SEVEN:
INDIGENOUS
KNOWLEDGE,
AGRICULTURE
AND SUSTAINABLE
DEVELOPMENT

28. Akan Indigenous Farming and Sustainable Development Goals

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Abstract

The Indigenous Akan of West Africa are expert farmers in local and export crops. Some of their products, such as cocoa, cashew, pineapple, and yam, are in high demand internationally. Using indigenous methods, they produce quality products that meet demand and preserve the land. What can these farmers contribute to the sustainable development goals? The study interviewed Akan Indigenous farmers about their social background, indigenous education, business operations and practices. The study also interviewed Akan indigenous knowledge keepers from the Royal House of Ashanti. Manuscripts of early European researchers were also sourced. The study found a holistic approach to living on the land that contributed to the sustainable development goals. Farmers earned a good income, had zero debt, used natural pest control, diversified crops, provided year-round food, good training and job opportunities for males and females, and preserved land. The United Nations has included zero hunger (goal #2) and life on the land (goal #15) as part of their sustainable development goals (SDGs) for all member nations. Increasing the number of Akan indigenous farmers can contribute towards meeting SDGs 2 and 15. The Akan indigenous farmer contributes to feeding the nation by utilising sustainable farming practices.

Keywords: *Akan, indigenous farmers, sustainable, knowledge, food security, feeding the nation*

1 Introduction

This introductory chapter provides an overview of the investigation, covering the context of the investigation, statement of the problem, scope, objectives, and significance of the study. The title of the research paper is “Akan indigenous farming and sustainable development goals”.

The Akan of West Africa straddle across Ghana and Cote D’Ivoire. By location, they occupy southern Ghana and the southeastern section of Cote D’Ivoire. The Akan consist of various ethnic groups including Asante, Fantse, Akuapem, Akyem, Okwawu, Bono, Wassa, Agona, Assin, Denkyira, Adansi, Nsima, Ahanta, Aowin, Sefwi and Baoule. By land mass, they occupy approximately 45% of Ghana. Common to this group of people is a 40-day calendar (adaduanan), shared religious beliefs, marriage institutions, naming ceremonies, matrilineal inheritance, clan systems, and a common language across most ethnic groups. The earliest formation of the Akan is believed to go back to AD1300 (Arthur, 2017; Boahen, 1966; Boahen, 1977). From a feminist perspective, the Akan are exciting as one of the few matrilineal populations in the world.

The Akan are internationally renowned for agricultural products such as cocoa, cashew, yam, and pineapple, textiles such as kente, culinary skills, and hospitality. They hold bodies of indigenous knowledge (IK) passed from generation to generation, providing sustainable alternatives to solving many modern challenges. This study focuses on such knowledge, particularly Akan indigenous farming.

The health of a nation is essential for every booming economy, including adequate and healthy food sources. The United Nations has included SDG2 to “end hunger, achieve food security and improved nutrition and promote sustainable agriculture” and SDG15 to “protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss” for all member nations. Achieving these goals requires a skilled workforce not only in farming but also in sustainable farming practices. In tropical countries where high temperatures and heavy rain can drain the soil and cause desertification, western farming methods of destroying land cover and using heavy machinery are not sustainable. In contrast, indigenous farmers use methods that preserve the fertility of land, water bodies and local food crops. What lessons can be learnt from Akan indigenous farmers to meet SDGs 2 and 15?

The study is limited to Ghana. Participants are indigenous farmers from the Akan tribe. The farmers grow tree crops such as cashews, mangoes, oranges and many other vegetables for cash and consumption. Some of the farmers also maintain livestock. The study covers the indigenous farming practices of the Akan. The economic objective is to identify indigenous farming methods used by the Akan and their contribution to SDGs 2 and 15. The theoretical objective is to challenge some of the limitations of IK by current theory and highlight its sustainable qualities. The study will contribute towards Akan IK, sustainable farming, community knowledge, informal education, and SDGs 2 and 15.

2 Literature review

‘Knowledge is anything known by somebody else’ (Machlup, 1980). Hess and Ostrom (2007) define knowledge as ‘All intelligible ideas, information, and data in whatever form it is expressed or obtained’. Dictionary.com defines indigene or indigenous as ‘originating in and characteristic of a particular region or country’. It originates from the Latin word *indigen(a)*, meaning native. When the two words are put together as ‘indigenous knowledge,’ it means ‘anything that is known by the native’ or ‘all intelligible ideas, information and data in whatever form in which it is expressed or obtained, originating in and characteristic of a particular region or country’.

Early and recent researchers have expanded on this basic definition. Flavier et al. (1995) provide the best definition to date. IK is a society’s information base, facilitating communication and decision-making. Indigenous information systems are dynamic and continually influenced by internal creativity and experimentation and by contact with external systems (Flavier et al., 1995).

In recent years, many non-European researchers have weighed into investigating the topic of IK, expanding the understanding of IK from a non-European perspective. Soh and Omar (2012) define IK as ‘a holistic approach of management of natural resources with conservation and sustainability as the core values.’ In this research context, IK is a composite but holistic set of know-how, expertise, and skills derived from different sources, such as the parents, indigenous experts (elders), empirical trials and even scientific information. IK appears as encoded messages and is value-laden, while scientific knowledge depends on tests (Soh & Omar, 2012). Distinct from their European counterparts, Soh and Omar (2012) identify the ‘holistic’ nature of IK. They also use descriptive value-laden scientific information, encoded messages, expertise, skills, and words that earlier European researchers did not use to describe IK.

Acharya and Shrivastava (2008) define IK as a source of intellectual capital, and identifying IK as intellectual capital imputes financial value and acknowledges individual contribution in

creating, preserving, and transferring knowledge within and across borders. This intellectual capital encompasses the wisdom, knowledge, belief, and teachings of regional, indigenous, or local communities. In most situations, the knowledge has been orally passed on for generations from person to person. Some forms are expressed through stories, legends, folklore, rituals, songs and even laws (Acharya & Shrivastava, 2008).

The rich savanna and tropical lands of West Africa, occupied by the Akan, have been cultivated for centuries with the successful introduction of various crops from other continents (Havinden, 1970). A study by Ozainne et al. (2014) traces agricultural production in West Africa back to 2200 BC. Dawoe et al. (2012) explored farmers' knowledge of soil fertility in the Ashanti Region of Ghana. They found that farmers have a rich knowledge of soil fertility using various indicators such as colour, texture, water retention and plant types to ascertain the fertility level. Scientific tests produced similar results.

Bowdich (1819) provides insights into the Akan farmer of 200 years ago. Their plantations were extensive, neat, and methodically organised in rows, well-fenced, and gated with broad walkways and a hut for workers. The only equipment used was a hoe. Two crops of corn were grown each year; yams were cultivated in December and harvested in September. Bowdich, 1819, also describes various food items that were sold in the Kumasi market, including beef, mutton, chicken, yams, plantains, corn, sugar cane, groundnuts, rice, okra, peppers, shea butter, oranges, papaws, pineapples, bananas, eggs, dried fish, snails, and palm wine. Many other crops were abundant in the forests and harvested for consumption or sale locally and internationally. These included coconut, oil palm, shea butter, cocoa, kola nuts, cotton, and tobacco.

The Akan farmer is a master of sustainability, utilising simple methods that protect the soil's fertility and make maximum use of crops. According to Arthur (2017), the oil palm tree was formerly a major industry of the Akan. The industry initially consisted of picking the fruit and extracting the red oil, which was principally used for cooking, soap making, and lamps. However, over time, the Akan developed a use for every part of the oil palm tree, ensuring that nothing was wasted. The oil from the kernel was also extracted and used for the skin and cooking, while the shell of the kernels was used for fuel by blacksmiths and for making gunpowder. The palm branches were used as building materials for making baskets, drying mats, storage barns, and brooms for the home. Palm wine tapping was an important occupation for many; even the rotten tree provided mushrooms for consumption and fertiliser for the land. The industry expanded to feed the growing demand for Europe's soap and margarine industries.

The Akan farmer's skill and ability to create sustainable growth are also evident in the cocoa and cashew industries. According to Clarence-Smith (2000), in 1892, Ghana exported no cocoa beans. However, nineteen years later, Ghana exported 40,000 tons annually and overtook Brazil as the world's largest exporter. In 1923, output reached 200,000 tons per year; in 1936, output exceeded 300,000 tons per year. The cocoa growing belt of Ghana primarily exists in Akan land, so the Akan indigenous farmer has been instrumental in the growth of the cocoa industry. According to the United Nations Development Program, in 2023, Ghana will be the second largest cocoa producer in the world, contributing 25% of world production. Coupled with Cote D'Ivoire as the leading producer, the Akan of West Africa make an impressive contribution to cocoa production in the world. Unfortunately, recent methods of production that have veered away from indigenous methods are creating concerns about land conservation and fertility.

According to Danso-Abbeam et al. (2021), cashew production in Ghana has increased from 3,571 tons in 1997 to 232,834 in 2015. According to the African Cashew Alliance (2023),

Ghana currently produces 200,000 tons of raw cashew nuts and is one of the most promising producers in Africa. Again, the cashew-producing belt lies within the Akan lands of Ghana.

Quality products ensure sustainability and the Akan are adept at producing the highest quality cocoa and cashews worldwide. It takes proper soil and product management skills to produce world-class products. The quality of Ghanaian produce is in increasing demand in the international market, especially cocoa, pineapple and yam (Kleemann, 2016; GhanaWeb, 2017; Wessel & Quist-Wessel, 2015; Ghana Export Promotion Authority, 2020). The former Gold Coast's rich soils produce high-quality, sweet, juicy pineapples (Kleemann, 2016). Ghana's cocoa fruits are of the highest quality and the critical ingredient of Cadbury chocolate and many confectionaries. 25% of cocoa used by Cadbury is sourced in Ghana (GhanaWeb, 2017). The West African countries have dominated the production of cocoa for many decades. Smallholder farmers in West Africa produce 70% of the world's cocoa. Côte D'Ivoire and Ghana are the largest producers, followed by Nigeria and Cameroon (Wessel & Quist-Wessel, 2015). Ghana also exports yam to Europe, the USA and Africa and is the third largest producer in the world. Consumers prefer the sweeter taste of Ghanaian yam, especially the Puna variety, which is often difficult to find during certain seasons because of high demand. In 2020, Ghana exported 44,000 metric tons of yam (Ghana Export Promotion Authority, 2020).

The examples of oil palm, cocoa and cashew, yam and pineapple production support the exceptional skills of Akan farmers, their ability to sustain growth, sustain quality, sustain land fertility, and land ownership practices that ensure the availability of land for farming. According to the Ghana Living Standards Survey (7), 2019, 44.1% of households in Ghana own or operate a farm; of this number, 49.1% are women. The thriving Akan farmers in the modern Ghanaian economy evidence this. The survey also indicates that most households consume a large proportion of their food, particularly in rural localities, from their farms.

The literature review indicates that the Akan have been expert farmers for centuries. The research shows that for over 200 years, they have demonstrated their expertise on the world market in producing cash crops and food crops for home consumption. However, there is a gap in the knowledge systems utilised by the Akan, and the transfer of that knowledge or the training of the farmers from generation to generation enables the preservation of such knowledge. The research aims to fill that gap by investigating the indigenous knowledge systems and knowledge transfer methods. How can such knowledge be used to support the achievement of SDGs 2 and 15?

3 Methodology

Akan knowledge systems are transferred from generation to generation primarily through oral traditions. Knowledge is transferred through many modes, including informal conversations, storytelling, proverbs, prose, music, fashion and textiles, traditional symbols such as adinkra, arts and crafts, festivals, and rites of passage. Akan indigenous education is primarily immersive, where students learn through participation in actual activities with parents, family, and community members. In line with the Akan's oral traditions, the research method was selected to align with the participants' best mode of communication. For this reason, qualitative interviews were selected as the best research method.

Each participant was interviewed in the Akan language of Twi. Permission was requested to record each interview so it could be transcribed into English. Since the researcher speaks Twi

fluently, it facilitated communication with the participants and the transcription. The context of the interview supported the transcription. Each interview lasted for approximately two hours. When a question was asked, a story was told to answer the question. This is a typical practice in oral traditions. Information is transmitted amid these stories. Extending the time for each interview ensured that questions were answered thoroughly.

The interview questions were divided into two sections. The first sections provided short questions about the participant's social, economic, and religious backgrounds. The second section of the interview was more detailed and focussed on the participants as entrepreneurs. Questions explored their education and training, entrepreneurial journey, farming practices, financial capital, business operations, challenges, successes, and the future. Visits were made to the farms, accompanied by the farmers, which provided further insights into farming practices and product sampling. This research paper is based on a subsection of a more extensive study covering various industries.

4 Results and discussion

A thematic analysis was applied to the data. Data was transcribed from Twi to English using Microsoft Teams, two computers and headphones. Computer one would play the interview in Twi, and the researcher would verbally translate it into English, recording and transcribing in TEAMS. The transcription was downloaded, saved, and cleaned. The process worked well and was relatively fast. The transcribed data needed significant cleaning due to pronunciations of Akan words that were not recognisable by TEAMS. However, the re-reading of the narrative and corrections also deepened impressions. Using Excel, the transcriptions were placed side by side, and through careful comparative re-reading of each interview, the major common themes were identified.

Their parents trained all the farmers with other family and community support. The farmers have continued this trend of ancestral knowledge transfer. The training and education were immersive, beginning as early as six years old by accompanying parents to the farm. The training continued throughout primary and secondary school, with children being given greater responsibilities in their early teen years. All the farmers indicated that they were adding to the knowledge transferred to them by their ancestors through research, observation, testing, and application. For example, experimenting with boundary trees and cashew seedlings. The farmers were gifted land by their families to begin their farming careers. For three farmers, a small piece of land was gifted during their teen years to farm and maintain the proceeds. The families later gifted or rented further land for expansion. The land was also leased or purchased for further expansion.

All farmers indicated their business was built gradually over many years, using vital strategic steps for growth. They started small, which is in line with their capacity to manage without borrowing financial capital. They used lucrative, seasonal cash crops such as corn, tomatoes, cassava, pawpaw, plantain, yam, and cocoyam. These can be grown and harvested at least twice per year. They are in high demand with reasonable pricing, and the farmers were able to build up financial capital quickly. The farmers grew most or all their foodstuffs and lived mainly off the land, minimising outgoings and rapidly increasing savings. The diversity of crops also maintains the fertility of the land. With the savings, the farmers could expand their farms to tree crops such as cashews, oranges, and mangoes, which take at least four years to produce and generate revenue. The trees are planted in rows, leaving sufficient space for

cultivating seasonal crops for food and sale. This step-by-step process ensures that farmers can support their families and expand their farms simultaneously. Diversification went beyond farming to secure even more significant financial security. One farmer diversified into pharmaceuticals by training and running a local drug store. A second farmer diversified into transportation, providing regular income and cash crops. Future development considerations included supplying water to communities and the hospitality business.

Regarding pest control and fertilisation, all the farmers except one were committed to minimal use of chemical pest control. They had experienced the destruction of valuable local food crops that grow naturally because of using chemical sprays. Instead, they were using a pest control method based on a balance between crop combinations and small animals. Organic fertilisation, where needed, came from animal droppings, particularly cows and chickens. Labour requirements are a significant cost for any business. The farmers operated various strategies to minimise costs. These included flexible arrangements from part-time, seasonal, permanent, and daily rates and work and share options, enabling the farmers to hire labour at minimal costs. Farmers also supported each other through skills sharing and working on each other's farms according to need.

Peprah (2022) indicates that food insecurity is concentrated in the five regions in the Northern part of Ghana due to adverse weather conditions such as droughts and flooding (Peprah, 2022). The World Bank Global Alliance for Food Security dashboard, 2023, supports this finding. While Ghana has success in food production, postharvest loss costs are estimated at \$68 billion annually (Wansi, 2022). Contributing factors include a lack of proper transport links to farming communities, food storage, processing and preservation facilities, market access, and fluctuating prices (Darfour & Rosentrater, 2022; Nyo, 2016). Farmers also indicated a disturbing trend in government agricultural representatives pushing for chemical fertilisers and pesticides. Ghana has committed to reducing food loss to 10% by 2028 (Global Nutrition Report, 2021).

The farming strategies outlined above compare closely with what Western knowledge systems call regenerative farming, an emerging philosophy that is increasingly popular to meet environmental challenges. LaCanne and Lundgren (2018), as cited in Newton et al. (2020), defined regenerative farming systems as aiming “to increase soil quality and biodiversity in farmland while producing nourishing farm products profitably. Principles include abandoning tillage, eliminating spatio-temporal events of bare soil, fostering plant diversity on the farm, and integrating livestock and cropping operations on the land” (Newton et al., 2020). The indigenous farming knowledge of the Akan can be used to support the achievement of SDGs 2 and 15. The literature indicates that for over 200 years, the Akan have successfully maintained their farming practices and knowledge transfer, ensuring success on the world market and food security in Akan territories (Bowdich, 1819; Arthur, 2017; Ghana Living Standards Survey, 2019). Akan lands form part of the major food-producing areas of Ghana, and investment in reducing food waste can contribute mainly to food security in the Northern region to achieve SDG 2 in Ghana (Ghana Living Standards Survey, 2019). The Akan knowledge on diversification of food crops (trees and vegetables), animal husbandry and non-farm products, if practised in the northern regions, can also support life on the land and curtail desertification, thus contributing to SDG 15.

5 Implications

Akan indigenous farming offers sustainable solutions for achieving SDG 2, zero hunger and SDG 15, life on the land. It offers sustainability in optimising the use of crops, such as the palm oil tree. It utilises crop diversification and combinations of tree crops, seasonal crops, and animals to support land fertility, pest control, prevent erosion, and minimise chemical usage. It builds holistic knowledge of the environmental ecosystem (Dawoe et al., 2012) and maintains Akan land ownership laws protecting family lands. It provides food and income for the family and preserves the fertility of the land (SDGs 2 and 15).

Through maintaining and expanding indigenous practices, Ghana can ensure that land and knowledge are available for future generations of farmers. By encouraging such indigenous practices and reducing chemical usage, the government can prevent desertification and the menace of destruction to water bodies across the country. The farmers acknowledge receiving good support from government agencies, which has undoubtedly contributed to Ghana's agricultural production success. However, high food loss in the value chain is undermining this success (Wansi, 2022). The government must invest in modern technology, transportation systems, storage and processing facilities and create more access to national and international markets for farmers. While the indigenous farmers have the expertise and capacity to produce the food, the government must take responsibility for its preservation and distribution throughout the country. Particular attention should be paid to the Northern territories in terms of food distribution and the implementation of indigenous farming practices. Such a partnership can contribute to achieving SDG 2 and 15 throughout Ghana.

6 Conclusion

This study has considered the use of Akan indigenous farming in supporting the achievement of SDG 2 and 15, achieving zero hunger and life on the land for Ghana. The Akan were introduced as an ethnic group existing mainly in Ghana and Cote D'Ivoire, comprising of various cultural groups with common practices (Arthur, 2017). Unique to the Akan are their tremendous farming skills that have made them internationally renowned for products such as cocoa, cashew, yam, pineapple, and kente, culinary skills and hospitality (Clarence-Smith, 2000; Kleemann, 2016; GhanaWeb, 2017; Wessel & Quist-Wessel, 2015; Ghana Export Promotion Authority, 2020). The Akan have used indigenous knowledge to achieve such success. The literature review explored the definition of indigenous knowledge and the farming achievements of the Akan over the past 200 years on the world market (Bowdich, 1819). The review identified a gap in the knowledge systems utilised and the training of the farmers from generation to generation.

The research utilised qualitative interviews to study the background, education, training, and farming practices of the entrepreneurs. Results indicated an immersive training approach provided by parents and community members, beginning as early as six years old. In terms of operations, the entrepreneurs used zero or minimal borrowing and diversification methods for both crops and labour to achieve growth, financial stability, soil fertility and sustainability. The farmers lived mainly off the land with minimal expenditure, ensuring food security across all Akan territories. Using Akan indigenous knowledge, Akan territories have food security (SDG2) and life on the land (SDG15).

Finally, the study considered the implications of the findings, recommending the implementation of indigenous practices in northern territories, as well as proper preservation

and distribution of Akan products to the north. Such changes can contribute to achieving SDGs 2 and 15 in Ghana.

References

- Acharya, D., & Shrivastava, A. (2008). *Indigenous Herbal Medicines: Tribal Formulations and Traditional Herbal Practices*. Aavishkar Publishers, Distributors. <https://books.google.ca/books?id=ONZdPgAACAAJ>
- African Cashew Alliance. (2023, April 14). Developing Ghana's Cashew sector: USDA PRO-Cashew project influencing positively. <https://www.africancashewalliance.com/en/news-and-info/blog/developing-ghanas-cashew-sector-usda-pro-cashew-project-influencing-positively>
- Arthur, K. (2017). *Cloth as a Metaphor: (Re)reading the Adinkra Cloth Symbols of the Akan of Ghana* (2nd ed.). iUniverse.
- Boahen, A. A. (1966). The Origins of the Akan. *Ghana Notes and Queries*, pp. 9, 3–10.
- Boahen, A. A. (1977). Ghana before the coming of Europeans. *Ghana Social Science Journal*, 4(2), 93–106.
- Bowdich, T. E. (1819). *Mission from Cape Coast to Ashantee*. London: John Murray.
- Clarence-Smith, W. G. (2000). *cocoa and chocolate, 1765-1914*. New York: Routledge.
- Danso-Abbeam, G., Fosu, S., & Ogundeji, A. A. (2021). Technical and resource-use efficiencies of cashew production in Ghana: implications on achieving sustainable development goals. *Scientific African*, 14, e01003. <https://doi.org/https://doi.org/10.1016/j.sciaf.2021.e01003>
- Darfour, B., & Rosentrater, K. A. (2022). Pre-harvest and postharvest farmer experiences and practices in five maize growing regions in Ghana. *Frontiers in Nutrition*, 9.
- Dawoe, E. K., Quashie-Sam, J., Isaac, M. E., & Oppong, S. K. (2012). Exploring farmers' local knowledge and perceptions of soil fertility and management in the Ashanti Region of Ghana. *Geoderma*, 179-180, 96-103.
- Flavier, J. M., Navarro, C. S., & Warren, D. M. (1995). The regional program for the promotion of indigenous knowledge in Asia. In Warren, D.M., Slikkerveer, L.J., & Brokensha, D. (Eds.), *The cultural dimension of development: Indigenous knowledge systems* (pp. 479–487). London: Intermediate Technology Publications.
- Ghana Export Promotion Authority. (2020). Sector Capabilities – Yams from Ghana <https://www.gepaghana.org/import/ghana-product/yams-from-ghana/>.
- Ghana Living Standards Survey. (2019). Ghana Statistical Survey. https://www.statsghana.gov.gh/gssmain/fileUpload/pressrelease/GLSS7%20MAIN%20REPORT_FINAL.pdf
- Ghana Web. (2017, October 22). 'Cocoa is a key ingredient for Cadbury Chocolate' - Cadbury Manager. <https://www.ghanaweb.com/GhanaHomePage/business/Cocoa-is-key-ingredient-for-Cadbury-Chocolate-Cadbury-Manager-593074>
- Global Nutrition Report. (2021, December 8). By 2028, the government of Ghana will reduce food losses from 20% to 10%. <https://globalnutritionreport.org/resources/naf/tracker/goal/commitment-7-by-2028-the-government-of-ghana-will-/>.
- Havinden, M. A. (1970). The History of Crop Cultivation in West Africa: A Bibliographical Guide. *Economic History Review*, 23(3), 532-555. <https://ideas.repec.org/a/bla/ehsrev/v23y-1970i3p532-555.html>
- Hess, C., & Ostrom, E. (2007). *Understanding knowledge as a commons: From theory to practice*. Cambridge, MA: MIT Press. <https://doi.org/10.7551/mitpress/6980.001.0001>

- Kleemann, L. (2016). Organic Pineapple Farming in Ghana - A Good Choice for Smallholders? *The Journal of Developing Areas* 50(3), 109–130.
- LaCanne C. E., & Lundgren J. G. (2018). Regenerative agriculture: merging farming and natural resource conservation profitably. *PeerJ* 6:e4428 8
- Machlup, F. (1980). *Knowledge: Its Creation, Distribution and Economic Significance, Volume I*. Princeton University Press.
- Newton, P., Civita, N., Frankel-Goldwater, L., Bartel, K., & Johns, C. (2020, October 26). “What Is Regenerative Agriculture? A Review of Scholar and Practitioner Definitions Based on Processes and Outcomes”, *Frontiers in Sustainable Food Systems*. <https://doi.org/10.3389/fsufs.2020.577723>
- Nyo, A. K. (2016). Inadequate Infrastructure: The Bane behind Food Loss and Food Security in the Savannah Zone of Ghana. *Journal of Developments in Sustainable Agriculture*, 11(1), 43–47.
- Ozainne, S., Lespez, L., Garnier, A., Ballouche, A., Neumann, K., Pays, O., & Huysecom, E. (2014). A Question of Timing: Spatio-Temporal Structure and Mechanisms of Early Agriculture Expansion in West Africa. *Journal of Archaeological Science*, 50, 359-368.
- Peprah, P. T. ((2022, March 6)). Food Insecurity is Concentrated in the Five Regions in the Northern part of Ghana. Ghana Statistical Service. <https://statsghana.gov.gh/infobankdetails.php?infobank=MTg3Mzc5MDg0Ni43MzE1/infodesk/20q928qr2p>.
- Soh, M., & Omar, S. (2012). Small is Big: The Charms of Indigenous Knowledge for Sustainable Livelihood. *Procedia – Social and Behavioural Sciences*, 36, 602-610. <https://doi.org/10.1016/j.sbspro.2012.03.066>
- United Nations Development Program (UNDP). (2023). <https://www.undp.org/facs/ghana-sustainable-cocoa>
- Wansi, B. (2022, October 21). GHANA: food waste costs \$65 billion a year. *Afrik21.Africa*. <https://www.afrik21.africa/en/ghana-food-waste-costs-65-billion-a-year>.
- Wessel, M., & Quist-Wessel, P. M. F. (2015). Cocoa production in West Africa, a review and analysis of recent developments. *NJAS - Wageningen Journal of Life Sciences*, 74–75, 1-7.

29. The Role of Indigenous Knowledge in Agriculture: A Case Study of Kesses Sub County, Uasin Gishu County

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Abstract

Kenya has a rich diversity of indigenous knowledge systems, which have been passed down from generation to generation. This knowledge includes traditional agricultural practices, crop and livestock management, soil and water conservation, pest and disease management and seed saving and selection, amongst others. The rationale of the study was to investigate the role of indigenous knowledge in agriculture, with a case study of Kesses Sub County situated in Uasin Gishu County. This area was selected due to its rich soils and ideal climatic conditions, which makes it a conducive agricultural centre within the county. The objectives are to identify indigenous knowledge practices of farmers in agricultural production for food society, investigate the use of indigenous knowledge by farmers, and identify the benefits and limitations of indigenous knowledge to sustainable agriculture. A mixed method approach was adopted using interviews and structured questionnaires to collect data. The sample consisted of 71 farmers randomly sampled from 100 farmers. Three agricultural officers were purposively sampled. Qualitative data was collected from agricultural officers, while quantitative data was collected from farmers. Qualitative data were analysed using content analysis, while quantitative data were analysed using tabulation methods. Findings indicate that despite the introduction of modern farming techniques, the majority of farmers still rely on indigenous knowledge. Practices include mulching, organic manure usage, non-tillage pest control, soil fertility management, weed control, and traditional methods of planting, harvesting, and storing crops and livestock. The study concludes that while indigenous knowledge remains prevalent, much of it is not documented. Therefore, it recommends the recording and further research of indigenous practices for preservation and dissemination.

Keywords: *Indigenous knowledge, Agriculture, Farming, Kesses, Kenya*

1 Introduction

Agriculture has always been a vital aspect of human civilisation, playing a crucial role in sustaining communities and ensuring food security. In many parts of the world, traditional agricultural practices have been deeply intertwined with the cultural heritage and indigenous knowledge of local communities (Koochafkan & Altieri, 2011).

Masekoameng and Molotja (2019) argued that there is no single definition of indigenous knowledge (IK). IK is usually described as indigenous knowledge from the community, the knowledge that is still traditional or local knowledge that is only owned by particular communities. Indigenous knowledge is usually stored in the memory of traditional leaders, elders, and people who are considered experts in certain customs. It has yet to be explored and documented (Soh & Omar, 2012). These age-old practices passed down through generations, are often adapted to local conditions and have proven to be effective in enhancing agricultural productivity and resilience.

In the context of Kesses Sub County, located in Uasin Gishu County in Kenya, indigenous knowledge plays a significant role in shaping agricultural practices. It is renowned for its fertile soils and favourable climatic conditions, making it an agricultural hub in the region. However, it is the indigenous knowledge held by the local communities, particularly those belonging to indigenous ethnic groups, that has played a critical role in harnessing the full potential of the agricultural resources in the area. The study provides a valuable lens through which to investigate the role of indigenous knowledge in agriculture.

2 Statement of the problem

Kesses Sub County is home to a substantial, untapped pool of indigenous agricultural expertise that can be used for managing soil and water resources, cultivating crops, caring for livestock, processing and storing farmer produce. Unfortunately, this valuable indigenous knowledge is at risk of extinction due to rapidly changing natural environments, the swift pace of economic, political, and cultural changes on a global scale and the adoption of modern farming methods. Moreover, the intrusion of foreign technologies and the impact of urbanisation also contribute to the disappearance of indigenous knowledge (Ngulube, 2002). The problem is compounded by the soaring population growth, shrinking and fragmented land holdings, limited farmer participation in decision-making processes, the lack of training opportunities for farmers and extension workers, constrain the implementation of indigenous knowledge and as well as migration to urban centres (Ebanyat et al., 2010). With concerted efforts to document and preserve indigenous knowledge in detail, communities can avoid the loss of invaluable sources of indigenous knowledge, jeopardising the well-being of the local people and undermining agriculture. This situation raises the question of how indigenous knowledge can be conserved. Unless means for recording and preserving indigenous knowledge comprehensively can be found, some farmers risk losing primary sources of indigenous knowledge that are useful for the indigenous people and food security. The rationale of the study is to investigate the role of indigenous knowledge in agriculture, using a case study of Kesses Sub County, Uasin Gishu County. The objectives include identifying indigenous knowledge practices of farmers in agricultural production for food society, investigating the use of indigenous knowledge by farmers at Kesses Sub-County, and Identifying the benefits and limitations of indigenous knowledge to sustainable agriculture.

3 Literature review

Indigenous knowledge of agriculture is handed down from one generation to another through symbols, art, oral narratives, proverbs, and performances such as songs, storytelling, wise sayings, riddles, and dances (Daimai & Parhi, 2021). However, in times without numbers, historians remind us that indigenous knowledge refers to the knowledge that is accumulated, transferred/transmitted, and explored intergenerationally through cultural practices, norms, and beliefs. Scholars have defined Scholars who have indigenous knowledge differently.

Ajayi and Mafongoya (2017) defined indigenous knowledge as the cumulative body of knowledge, practice and belief, evolving by adaptation processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with their environment. It is clear from these sampled definitions that indigenous knowledge is passed down from one generation to another. In most rural parts of Kenya, especially in communities where formal education has had an insignificant impact, oral art remains the most important means of transmitting knowledge and skills as a way of maintaining societal continuity from one generation to the next (Chepchirchir et al., 2019).

Nnadi et al. (2013) state that indigenous knowledge is required for food production if agricultural sustainability and food security are to be achieved. Similarly, Asaba et al. (2006) explained that the application of indigenous knowledge ensures continued food security. More so, Olatokun Wole and Ayanbode (2009) emphasise that the extent of the adoption of indigenous knowledge can measure improvement in agricultural productivity and food availability.

Echoing the same sentiments, Nnadi et al. (2013) emphasise that indigenous knowledge is an essential asset with regard to the social capital of local people and constitutes their primary resources for their livelihoods. For instance, farmers, predominantly in developing countries, have planned agricultural production by using their indigenous knowledge to ensure food security and sustainable agricultural production. In a similar vein, Dey and Sarkar (2011) argue that indigenous knowledge is very relevant to the conservation of natural resources, climate adaptation, and food production. It should be noted that since indigenous knowledge is a cultural and adaptive system of knowledge, it is dynamic and constantly changing to accommodate new realities (Kwanya, 2013; Ross, 2011). Viewing indigenous knowledge from the livelihood assets perspective, Ihenacho et al. (2019) contended that indigenous knowledge is the social capital of people with low incomes.

In Africa, Akullo et al. (2007) studied the application of indigenous knowledge in agricultural production and farm management in Uganda. They discovered that although indigenous knowledge contributes significantly to agricultural development, local farmers face the challenge of incorporating their indigenous knowledge into new knowledge to produce better results.

This study addresses several critical gaps in the existing literature on indigenous knowledge in agriculture. First, it explores the diverse modes of transmission, highlighting the cultural significance of practices such as oral narratives, proverbs, and art. Secondly, the study underscores the practical importance of indigenous knowledge for achieving agricultural sustainability and food security, as demonstrated by previous research. It also delves into the social capital and livelihood implications of indigenous knowledge, particularly in developing countries. Moreover, it recognises the challenges faced by local farmers in integrating indigenous knowledge with modern agricultural practices, as revealed in a study from Uganda. Finally, the study acknowledges the dynamic nature of indigenous knowledge, which constantly adapts to new realities.

This study identified numerous gaps in the existing literature on indigenous knowledge in agriculture. Firstly, it attempts to investigate the cultural importance and role of various modalities of transmission, such as art and oral histories, in knowledge transfer, something that has been acknowledged by earlier research. Second, although indigenous knowledge has been recognised as having practical value for agricultural sustainability and food security, this study aims to further investigate its significance, especially in areas where formal education has had little effect.

Thirdly, the study aims to highlight the social capital and livelihood implications of indigenous knowledge, particularly in developing countries, going beyond mere recognition to understanding its practical implications for farmers' lives. The study acknowledges the challenges faced by local farmers in integrating indigenous knowledge with modern agricultural practices, shedding light on the practical difficulties encountered in leveraging traditional wisdom alongside contemporary techniques. Lastly, the study recognises the dynamic nature of indigenous knowledge and its adaptation to new realities, providing insights into its resilience and relevance in contemporary agricultural contexts.

4 Theoretical framework and research methodology

Indigenous knowledge of agriculture can be explained using several models for the application of knowledge management in developing countries. It is possible to approach Indigenous knowledge of agriculture from the perspective of critical theory, analysing the connection between knowledge and power relations, with the goal of liberating indigenous farmers from forms of domination. Since knowledge management models give fresh perspectives and offer a variety of potential remedies for knowledge management techniques, they can also be used to explain indigenous agricultural knowledge. These knowledge management models are specifically used to provide a thorough explanation and as a theoretical perspective (Tella, 2007).

The research used a case study. Quantitative data was collected from farmers and qualitative data from agricultural officers. Data was collected using interview schedules and questionnaires. The study population was comprised of farmers and agricultural officers in the Kesses sub-county. The study targeted five agricultural officers who were purposively sampled and 100 farmers randomly sampled. Qualitative data were analysed using content analysis, while quantitative data were analysed using frequency distribution and cross-tabulation methods. Tables, charts, graphs and thematic discussions were used to present the data.

5 Findings and discussion

One hundred (100) self-administered questionnaire copies were distributed among postgraduate students, but only 71 (71%) were returned. For face-to-face interviews with the Agricultural officers, out of the 5-library staff, only 3(60%) were interviewed. The expected number of interviews was not met due to the interviewees' busy schedules, preventing the researcher from interviewing them.

Table 1: Response rate

Category	Sample Size (N)	Response Rate (n)	Response Rate (n%)
Farmers (Questionnaires)	100	71	71%
Agricultural Officers (Interviews)	5	3	60%
Total	105	74	70.5%

The response rate was considered adequate based on Mugenda and Mugenda (2008), who observed that a 50% response rate is adequate, 60% is good and above, while 70% is rated very well; therefore, this was considered a good representation of the population.

5.1 Demographics characteristics of farmers

This section of the questionnaire and interview schedule aimed to gather background information from the respondents, including their gender, age, level of education, length of library usage, the position of the key informant, and the working experience of Agricultural officers.

Table 2: Demographics characteristics of farmers

Gender	Frequency	Percentage
Male	40	56.3%
Female	31	43.7%
Total	71	100

Gender	Frequency	Percentage
Marital Status	Frequency	Percentage
Married	69	97.2
Single	2	2.8
Total	71	100
Age	Frequency	Percentage
50 years and above	38	53.5
41-50	20	28.2
31-40	10	14.1
20-30	3	4.2
Total	71	100

The findings revealed that 40 (56.3%) of the farmers were male, while the rest were female. These results show that almost an equal number of both male and female farmers participated in this study. This means that males who, by virtue of being head of the family and people who have access to land resources, engage more than females who only have access to their husbands' assets at the will of their husbands.

On marital status, a total of 2.5% indicated that they are single, while 82.5% indicated that they are married. Again, 9.2% and 5.8% are widows and widowers, respectively. The result shows that married people engaged in farming activities make up the majority of the population. The couple and the offspring complement one another's efforts, thereby reducing the stress that could have been in an individual working alone. The cost of labour is reduced too. In the same manner, more information on indigenous knowledge is likely to trickle in as each member of the farming is a prospective source of receiving information on indigenous farming practices.

It was also noted that 38 (53.5 %) of the farmers fall within the age range of 50 years and above, while 20 (28.2%) of the farmers fall within the range of 41-50 years. Another 10 (14.1%) of the respondents fall within the range of 31-40 years, and finally, 3 (4.2%) of the respondents fall within the range of 20-30 years. This implies that the majority of the respondents in the area are relatively older, and therefore, they may need more strength for farm work involving indigenous farming practices.

5.2 Indigenous knowledge practices of farmers in agricultural production for food society

Indigenous knowledge is the information that local people have established over time and continues to improve for use. It is founded on practice and understanding, often tried over time of use and entails adaption to the native values and environs. It is verifying that people have an intimate knowledge of many aspects of their surroundings and their daily lives and, therefore, are able to utilise it for survival. Table 2 Forms of indigenous knowledge practice of farmers.

Table 3: Distribution of respondents according to indigenous farming practices (Multiple Responses)

Indigenous farming practices	Frequency	Percentage
Mulching	68	95.8
Use of organic manure	71	100
Use of locally made pesticide	62	87.3

Indigenous farming practices	Frequency	Percentage
Non-tillage	47	66.2
Use of ash for seed treatment	31	43.7

From Table 3 above, it is evident that the majority of farmers, 68 (95.8%), apply and use indigenous practices such as mulching. Further, 71 (100%) of farmers use organic manure (100%), while 62 (87.3%) of farmers use locally made pesticide. 47 (66.2%) of the farmers apply and use non-tillage. However, 31 (43.7%) of them apply and use ash for seed treatment. All the key informants (Agricultural officers 1,2, and 3), 3 (100%) collectively stated that there was extensive use of indigenous knowledge in the area, such as the use of organic manure, non-tillage to some extent and use of local organic manure.

The findings are similar to those of Nnadi et al. (2013) in a study titled “Assessment of Indigenous Knowledge Practices for sustainable agriculture and Food Security in Idemili South Local Government Area of Anambra State, Nigeria”, revealed that the majority of the rural are farmers have vast knowledge of indigenous practices and that there was an extensive use of indigenous knowledge in the area such as mulching, use of organic manure, non-tillage, roasting and frying food, and use of locally made pesticides among others. A possible explanation for these results is that most rural farmers in the study area employed indigenous knowledge practices for their agricultural activities and that farmers appreciate the usefulness of conserving and protecting their farm practices so as to enhance their livelihood.

5.3 Extent of use of indigenous knowledge by farmers (Multiple Response)

According to Kunnie (2000), farmers in the developing world have long depended on indigenous knowledge for improved agricultural production. This explains why Stilwell (2010) suggests that the applicability of IK takes place in different seasons and periods. Such knowledge ranges from clearing land, tilling, selecting seed varieties for planting, planting, harvesting, and storage to identifying weather patterns.

Table 4: Extent of use of indigenous knowledge

The extent of use of indigenous farming practices	Often used	Not often used
Control of pests in the garden	61 (85.9%)	10 (14.1%)
Use of locally made pesticide	36(50.7%)	35(49.3)
Use of chemicals from industries	1(1.4%)	70 (98.6)
Maintenance of soil fertility	69 (97.2)	2(2.8%)
Use of organic manures	71 (100)	0
Storage technologies	53 (74.6)	18(25.4)
Traditional processing methods	64 (90.1)	7(8.9%)

The findings revealed that farmers often practised farming practices such as controlling pests in the garden, maintaining soil fertility, using organic manures, using storage technologies, and using traditional processing methods. In contrast, farmers did not often use locally made pesticides, chemicals from industries, and inorganic manures. Findings from interviews revealed that local farmers apply their indigenous knowledge of farming to a limited extent, such as controlling pests in the garden, maintaining soil fertility, using organic manures, and storage.

The study’s findings are in line with the results of the study by Nyota and Mapara (2008) on understanding Indigenous Knowledge: Bridging the knowledge gap through a knowledge Creation model for agricultural development, which revealed that indigenous knowledge

ranges from clearing the land, tilling, selecting seed varieties for planting, planting, harvesting, and storage to identify weather patterns.

A possible explanation for these results is that farmers have their own indigenous knowledge that they apply and use in their daily farming activities. They rely on locally available materials and do not need any specialised training, so they are often more cost-effective than modern farming technologies.

5.4 Benefits of the use of indigenous knowledge

The use of indigenous knowledge in agriculture offers numerous benefits that contribute to sustainable and resilient farming systems, as shown in Table 5.

Table 5: Benefits of use of indigenous knowledge (Multiple Response)

Benefits of IK practices	Frequency	Percentages (%)
Seed preparation promotes early germination	67	93.4
Availability of healthy crops	63	88.7
Reduction of pest diseases	47	63.5
Less disruption of farm practices	33	46.5
Improve soil fertility	69	97.2
Reduced damage to food produce	34	47.9
Availability of diseases resistant crops	70	98.6

The majority of farmers demonstrated a high level of awareness regarding the benefits of indigenous farming practices. Notably, 70 (98.6%), 69(97.2%) and 67 (93.4%) of the farmers acknowledged the availability of disease-resistant crops, improved soil fertility, and seed preparation that promotes early germination as benefits. In comparison, 63(88.7%) of the respondents stated the availability of healthy crops as a benefit as a result of indigenous knowledge. However, 34 (47.9%) of the farmers of farmers recognised that such practices reduce damage to food produce, and finally, 33 (46.5%) of the farmers acknowledged the minimal disruption of farm practices.

Agricultural officer’s interviews echoed the sentiments that farmers benefit from using their indigenous knowledge in their farming since they rely on locally available skills and materials and are thus often more cost-effective in terms of farming and food security. This situation meant a dire need for farmers to combine local indigenous knowledge with modern farming techniques that provide a powerful basis from which alternative ways of preserving local indigenous knowledge, managing resources and improving farming activities.

These findings support the views of Salami et al. (2020) in their study titled “The role of indigenous knowledge in sustainable urban agriculture and urban food security in Minna, Nigeria”, which reveals that indigenous knowledge is result-oriented and, thus, highly indispensable in addressing local problems such as availability of healthy food, reduce food waste, improve soil fertility, reduction of pests and availability of disease resistance crop that adapt to environmental conditions.

The result shows that the majority of the farmers in Kesses Constituency, Tulwet Chuiyat ward, in the study area, rated the above practices according to the benefits they accrued from

indigenous knowledge. This is true because people are familiar with indigenous practices and technologies; they can understand, handle, and maintain them better than introduced Western practices and technologies. Farmers are less dependent on outside supplies, which can be costly, scarce, and unavailable regularly. This could account for the high level of involvement in farming using indigenous knowledge practices.

5.5 Factors that limit the use of indigenous knowledge practices

Several challenges reduce the extent to which the application of indigenous knowledge practices by farmers and agricultural officers would have promoted and improved farming activities. While indigenous knowledge practices in agriculture have many advantages, some factors can limit their widespread use, as shown in the table below.

Table 6: Limitations of indigenous practices (Multiple Response)

Indigenous farming practices	Frequency	Percentage
Lack of documentation	69	97.2
Obsolete and outdated	62	87.3
Unsupportive authors	39	55
One man knowledge	67	94.4
Time demanding	66	93.0
Poor recognition	52	73.2
Lack of resources	41	57.8
Lack of trust	36	50.7
Socio-economic status	23	32.4

Table 4 shows that a total of 97.2 % indicated a lack of documentation, while 87.3 % indicated obsolete. Also, 55.0% indicated unsupportive authors, while 94.4 % indicated one-man knowledge. A total of 93.0 % indicated time demand, 73.2 % indicated poor recognition, 57.8 % indicated lack of resources, and 50.7 % indicated lack of trust, while 32.4% indicated socio-economic status. This implies that these factors hinder the use and effectiveness of indigenous knowledge in agriculture and food security.

According to the Agricultural Officer 1:

“The rapid pace of youth migration to urban centers threatens the physical, sociological, and economic setup of indigenous communities. Before it is too late, we urgently need to capture valuable, fast-vanishing knowledge for the larger good of society and nature.”

According to the Agricultural Officer 2:

“Younger generations are not aware of indigenous food systems, diet patterns, and farming methods their grandparents used to practice, under some challenging conditions with no technology or essential tools.”

The work of Lwoga et al. (2011) indicated that the lack of a cohesive approach to managing knowledge suppresses the efforts of people with low incomes to take advantage of their innovations and skills to improve their farming activities. Indigenous knowledge is mainly preserved in the memories of elders whose knowledge disappears when they die of old age, and thus, indigenous knowledge has been lost at a high rate. At the same time, there is still a low rate of adoption of external technology despite the fact that it receives most of the attention (Nnadi et al., 2013) due to weak linkage between research extension and farmers. Hence, farmers neither adapt to new technologies nor manage their knowledge systems for improved farming operations.

6 Conclusion

Based on the findings of this study, indigenous knowledge emerges as a valuable resource, not only for providing effective alternatives to Western practices but also for expanding the options available to local farmers in their agricultural operations. Instead of solely relying on Western technologies, farmers can choose to draw from indigenous knowledge or integrate it with Western approaches. Given the significance of sustainable agriculture and food security for human survival, it is crucial to prioritise their implementation. Additionally, indigenous knowledge has made substantial contributions to sustainable agriculture and food security.

Consequently, the study concludes that rural communities in Kesses Sub-County have developed complex management practices over the years, encompassing indigenous techniques such as mulching, organic manure utilisation, sun drying, and various food preservation methods. These practices include early harvesting by hand, the use of sacks, the mixture of red pepper, the application of wood ash, and placing food under fire for preservation.

7 Recommendations

In light of these findings, the following recommendations are proposed:

- The government should provide access to information and communication technologies (ICTs), such as computers, the Internet, digital cameras, and camcorders, to enable libraries to facilitate the accessibility of indigenous knowledge in the agricultural sector, end hunger, achieve food security and improved nutrition, and promote sustainable agriculture as per Sustainable Development Goal number 2, zero hunger.
- Seminars, workshops, and extension education campaigns should be initiated to promote the utilisation of indigenous knowledge and practices in agriculture in rural communities.
- Government institutions, private organisations and local communities should collaborate to address the issues surrounding indigenous knowledge practices and farming activities in rural areas.

References

- Ajayi, O., & Mafongoya, P. (2017). *Indigenous knowledge systems and climate change management in Africa*. CTA.
- Akullo, D., Kanzikwera, R., Birungi, P., Alum, W., Aliguma, L., & Barwogeza, M. (2007). *Indigenous knowledge in agriculture: A case study of the challenges in sharing knowledge of past generations in a globalised context in Uganda*. 19–23.
- Asaba, J. F., Musebe, R., Kimani, M., Day, R., Nkonu, M., Mukhebi, A., Wesonga, A., Mbula, R., Balaba, P., & Nakagwa, A. (2006). Bridging the information and knowledge gap between urban and rural communities through rural knowledge centres: Case studies from Kenya and Uganda. *Quarterly Bulletin of LAALD*, 51(4), 143–151.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Daimai, K., & Parhi, A. R. (2021). The Folklore of Liangmai: An Analysis of Its Cultural Significance. *Asian Journal of Language, Literature and Culture Studies*, 4(3), 13–21.

- Dey, P., & Sarkar, A. (2011). *Revisiting indigenous farming knowledge of Jharkhand (India) for conservation of natural resources and combating climate change*.
- Ebanyat, P., de Ridder, N., De Jager, A., Delve, R. J., Bekunda, M. A., & Giller, K. E. (2010). Drivers of land use change and household determinants of sustainability in smallholder farming systems of Eastern Uganda. *Population and Environment*, 31, 474–506.
- Ihenacho, R., Orusha, J., & Onogu, B. (2019). Rural farmers use of indigenous knowledge systems in agriculture for climate change adaptation and mitigation in Southeast Nigeria. *Ann Ecol Environ Sci*, 3, 1–11.
- Koohafkan, P., & Altieri, M. A. (2011). *Globally important agricultural heritage systems: A legacy for the future*. Food and Agriculture Organization of the United Nations Rome.
- Kunnie, J. (2000). Developing indigenous Knowledge and Technological systems. *Indigenous Knowledge and Technology in African and Diasporan Communities*. Harare: Southern African Association for Culture and Development Studies, 33–44.
- Kwanya, T. (2013, September). Mainstreaming indigenous knowledge in climate change response: traditional 'rainmaking' in Kenya. In *The 8th International Conference on Knowledge Management in Organizations: Social and big data computing for knowledge management* (pp. 603-615). Dordrecht: Springer Netherlands.
- Lwoga, E. T., Ngulube, P., & Stilwell, C. (2011). *Challenges of managing indigenous knowledge with other knowledge systems for agricultural growth in sub-Saharan Africa*.
- Masekoameng, M. R., & Molotja, M. C. (2019). The role of indigenous foods and indigenous knowledge systems for rural households' Food Security in Sekhukhune District, Limpopo Province, South Africa. *Journal of Consumer Sciences*.
- Mugenda, A. G., & Mugenda, A. (2008). Social science research: Theory and principles. *Nairobi: Applied*, 11–22.
- Ngulube, P. (2002). Managing and preserving indigenous knowledge in the knowledge management era: Challenges and opportunities for information professionals. *Information Development*, 18(2), 95–102.
- Nnadi, F., Chikaire, J., & Ezudike, K. (2013). Assessment of indigenous knowledge practices for sustainable agriculture and food security in Idemili South Local Government Area of Anambra State, Nigeria. *Journal of Resources Development and Management*, 1.
- Nyota, S., & Mapara, J. (2008). Shona Traditional Children's Games and Play: Songs as Indigenous Ways of Knowing. *Journal of Pan African Studies*, 2(4).
- Olatokun Wole, M., & Ayanbode, O. (2009). Use of indigenous knowledge by women in a Nigerian rural community. *Indian Journal of Traditional Knowledge*, 8(2), 287–295.
- Ross, A. (2011). *Indigenous peoples and the collaborative stewardship of nature: Knowledge binds and institutional conflicts*. Left Coast Press.
- Salami, R. O., Akawu, L., & Abutu, P. (2020). The role of indigenous knowledge in sustainable urban agriculture and urban food security in Minna, Nigeria. *Library Philosophy and Practice*, 1–16.
- Soh, M. B. C., & Omar, S. K. (2012). Small is big: The charms of indigenous knowledge for sustainable livelihood. *Procedia-Social and Behavioral Sciences*, 36, 602–610.
- Stilwell, C. (2010). Understanding indigenous knowledge: Bridging the knowledge gap through a knowledge creation model for agricultural development. *South African Journal of Information Management*, 12(1), 1–8.
- Tella, R. D. (2007). Towards promotion and dissemination of indigenous knowledge: A case of NIRD. *The International Information & Library Review*, 39(3–4), 185–193.

30. Uncodified but Diffused: Mainstreaming indigenous irrigation practices for sustainable agriculture in Kenya

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Abstract

Food security is fundamental to Kenya's Vision 2030 and the Sustainable Development Goals (SDGs). The second SDG target aims to achieve zero hunger, achieve food security, improve nutrition, and promote sustainable agriculture. The Kenya Kwanza government has set similar targets to support sustainable food production. Some reasons for the lack of resilience of irrigation projects in Kenya relate to technological challenges, lack of relevant skills among farmers, costly infrastructure and poor uptake among rural communities. This paper explores the possible use of sustainable traditional irrigation methods to promote food production through irrigation. Despite the significant contribution of these practices to agricultural productivity, they remain primarily uncodified and underutilised. The challenges affecting irrigation projects were also analysed. Strategies to mitigate these challenges by mainstreaming traditional irrigation practices are proposed for consideration by the Government of Kenya and its agencies. Data for this study was collected through key informant interviews and questionnaires administered to irrigation sector stakeholders, including National Irrigation Authority staff and farmers. Over 98% of the respondents reported using indigenous irrigation practices, including terracing, furrow irrigation, flood irrigation and diversion canals for irrigation. It was further revealed that a diverse mix of scientific and traditional methods has the potential to contribute to food security. Lastly, it was realised that Kenya has not deliberately promoted traditional irrigation systems since they were believed to be wasteful. These study findings are expected to inform irrigation policy and practice by harnessing traditional practices.

Keywords: *Food security, zero hunger, agriculture, indigenous knowledge, traditional irrigation, Kenya*

1 Introduction

Food is one of the most essential necessities of life. This explains why “zero hunger” is one of the targets of the Sustainable Development Goals (SDGs). This SDG target aims to end hunger through food security and improved nutrition. This goal can be attained by promoting sustainable agriculture. The SDG aims explicitly to end hunger and ensure access by all people; end all forms of malnutrition; double the agricultural productivity and incomes of small-scale food producers; ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production; maintain the genetic diversity of seeds, cultivated plants, farmed and domesticated animals and their related wild species. This paper argues that sustainable agriculture is a critical means of attaining food security in Kenya.

The Food and Agriculture Organization (FAO), in its 1996 Summit, affirmed that food security is attained when “all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life” Clapp et al. (2022) argued that availability, access, utilisation and stability are the essential pillars of food security. Berry et al. (2015) added that sustainability is vital in defining and assessing long-term food security in a community. Thus, sustainability is considered the fifth pillar of food security.

Food security is a critical component of Kenya’s Vision 2030. Food security is under the social pillar of Vision 2030, which aims to improve the well-being of the citizens (Irungu, 2009). One of the key objectives of the social pillar is to attain a food-secure nation where all Kenyans have access to sufficient and nutritious food throughout the year (Mireri, 2013). The factors which affect food security include climate change and extreme weather phenomena; water scarcity and access; land degradation and soil erosion; population explosion; poverty and inequality; limited access to finance and credit; political instability and conflict; inadequate agricultural infrastructure; limited use of emerging agricultural technologies; global economic factors; and pests and diseases. Therefore, the specific strategies and interventions to achieve food security under Kenya’s Vision 2030 seek to address these factors by increasing agricultural productivity, diversifying agriculture, enhancing agro-value addition, improving irrigation, supporting smallholder farmers, promoting research and innovation, strengthening agro-market access, promoting sustainable use of natural resources, and enhancing food safety and quality (Odini, 2014; Wafula & Odula, 2018).

2 Rationale and context of the study

Improving sustainable agriculture through enhanced irrigation is one of the strategies Kenya has adopted to increase sustainable access to high-quality food and thereby improve the well-being of its citizens. Modern irrigation approaches and technologies currently dominate scientific literature on the subject. This situation gives the impression that irrigation has always been a scientific endeavour undertaken by engineers (Akoko et al., 2020). Many communities in Africa have practised sustainable irrigation for centuries.

Indigenous irrigation applies traditional approaches and systems to manage water resources and support agriculture. These systems have evolved to suit the local environmental conditions and are often well-adapted to the specific challenges and constraints of the region. Indigenous irrigation methods are typically low-cost and sustainable and rely on local knowledge and practices. They have been used in various parts of the world, including Africa, Asia, and America, to efficiently utilise water resources and ensure agricultural productivity in arid and semiarid regions. Recently, efforts have been made to recognise and promote the value of indigenous knowledge and practices in modern water resource management and agriculture, blending traditional wisdom with appropriate modern technologies for more efficient and sustainable solutions.

In the face of consistently growing food vulnerability in the country, indigenous irrigation may offer another complementary strategy for improving food security, particularly among rural communities. Indigenous irrigation has been used successfully in many African countries, including Egypt, Nigeria, Sierra Leone, Chad, Guinea Bissau, Ethiopia, and Tanzania (Adams & Watson, 2003). The extent to which indigenous irrigation is used in Kenya is unknown. This paper explores the possible use of indigenous irrigation methods, which are sustainable, relevant, and cost-effective, to promote better food production through irrigation (Kipkorir & Kareithi, 2013). Despite the significant contribution of these practices to agricultural

productivity, they remain primarily uncoded and underutilised (Östberg, 2016). The paper examines the current irrigation practices in terms of their application, suitability, and impact on sustainable food production.

3 Theoretical framework

This paper was anchored on Max Boisot's i-Space model. This knowledge management framework promotes understanding the dynamics of knowledge creation, sharing, and utilisation. The model is based on the argument that knowledge is not a static entity but a dynamic and contextual phenomenon that evolves through interactions between individuals and groups within an organisation (Schmitt, 2013). The i-Space model distinguishes between two types of knowledge: codified knowledge and experiential knowledge. The i-Space represents explicit codified knowledge that can be easily articulated, codified, and transmitted through formal channels.

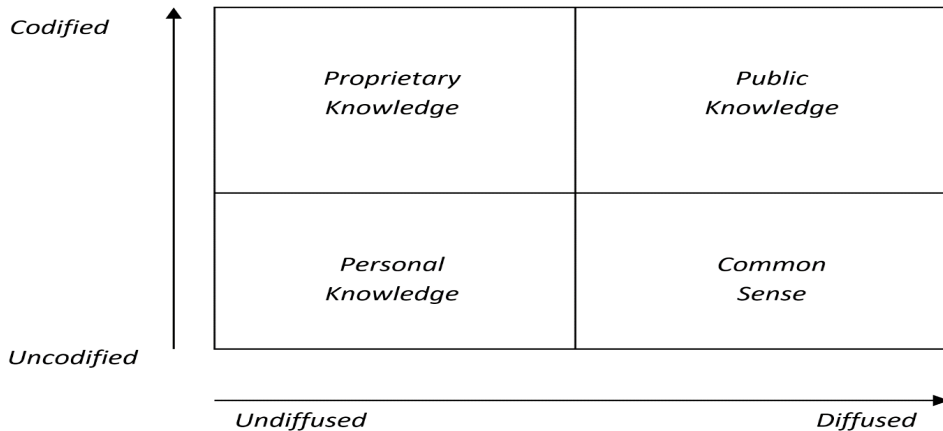


Figure 1: Conceptual framework of Boisot's model

Boisot's i-Space model provides a valuable framework for organisations to understand the interplay between explicit and tacit knowledge and to develop effective knowledge management strategies that leverage both types of knowledge for innovation, problem-solving, and organisational learning (Boisot, 2011). This intangible knowledge must be codified and translated into a tangible, explicit form to be mainstreamed.

4 Literature review

Evidence from reviewed literature reveals that indigenous irrigation methods, tools and systems have been used in eastern African rural communities and considered indigenous knowledge of those communities. Several scholars strive to provide evidence of the benefits of indigenous irrigation methods in rural communities. These benefits are derived from the fact that they are simple, farmer-managed, sustainable, adaptable, eco-friendly, and based on local knowledge and innovations. Indigenous irrigation methods are also suitable for small-scale and traditional farmers who cannot afford to invest in heavy mechanisation or whose farm size does not justify expensive mechanisation (Malouta & Wilson, 2013).

Adopting indigenous irrigation is also natural to rural communities because it reflects their cultural practices, such as communal ownership (Adams & Watson, 2003). These

advantages demonstrate the multifaceted benefits that indigenous irrigation methods can offer to communities and the environment. By appreciating and promoting these methods, communities can harness the wisdom of their past to address current challenges in agriculture, water management, and sustainable development. Some scholars have argued that they are wasteful in their use of water (Tagseth, 2008). Some methods are labour-intensive, while others are vulnerable to climatic variability. The other disadvantages include dependence on seasons, low coverage, lack of precision and control, higher risk of waterborne diseases, limited crop choices, and resistance to change (Li et al., 2021). Some of the methods also promote gender inequality since women may, traditionally, have limited access or ownership to resources such as land and water.

Scholarly literature on the extent to which indigenous irrigation methods are used in Kenya is scanty. However, some evidence exists to demonstrate that many challenges hamper the widespread use of these techniques to boost agricultural production in Kenya. These challenges include increasing land fragmentation, population explosion, political and security instability, water scarcity or variability, modernisation, and inadequate codification and diffusion of the techniques (Gebul, 2021). This paper documents the indigenous irrigation practices used by rural communities in Kenya, their merits and demerits, and specific factors influencing their uptake. It also proposes strategies that can be used to mainstream indigenous irrigation to foster sustainable development by improving food security in Kenya.

5 Methodology

This study employed a mixed-methods research approach to gather data from 112 farmers and 98 staff from the National Irrigation Authority (NIA). Among the NIA staff who responded, 50% were male, and 50% female responded to the questionnaires. Among the farmers, 58% of males and 42% of females responded to the online questionnaire. The farmers were from Tana River, Nyandarua, Meru, Kirinyaga, Busia, Nakuru, Kisumu (Nyando), Kiambu, Nyeri, Muranga, and Embu (Mwea) counties. Interviews were used to collect data from the respondents. A semi-structured interview guide was used to collect the data. A different guide was used for NIA staff and farmers respectively. The collected data was analysed descriptively.

This research approach, techniques, and tools were deemed appropriate for this study because they facilitated the researchers' collection of both qualitative and quantitative data (Kwanya, 2022). This enabled the research to benefit from the merits of qualitative and quantitative approaches while minimising their weaknesses. Notably, the mixed methods research approach enabled the researchers to triangulate the techniques to generate holistic and comprehensive data for the study.

6 Presentation of research findings

The findings of this study revealed that the majority (54.84%) of NIA workers who participated in the study hold at least a Bachelor's degree. They worked in diverse areas, including engineering, information technology, procurement, communication, operations, planning and agronomy. Their work experience within the Authority was varied but spanned two (2) to fourteen (14) years. The NIA workers identified the conventional irrigation techniques used in Kenya, including drip irrigation, furrow irrigation, overhead irrigation, sprinklers, diversion canals, centre pivot irrigation, surface irrigation, and flood irrigation. They perceived conventional or scientific irrigation as the use of mechanised irrigation practices as a means of supplementing traditional methods.

They argued that the effectiveness has been reflected in increased acreage under irrigation, improved crop yields in irrigated areas, enhanced agricultural sustainability, continuous production and availability of foodstuff, and improved farmers' livelihoods. However, they pointed out that most techniques are expensive and beyond the reach of ordinary farmers in Kenya. They suggested several opportunities for improvement to ensure efficiency, affordability and sustainability. These findings imply that scientific irrigation in Kenya is still in the infancy stage regarding the scale of application, funding, technological advancement and localisation. Therefore, the efforts do not generate the desired returns on investments in irrigation. Some of the challenges identified by the NIA workers as hindering the effective use of scientific irrigation in Kenya include inadequate funding, high costs of energy (fuel) and equipment, lack of technical knowledge, over-abstraction of rivers, depleted water levels, political interference, salt accumulation, high operation and maintenance costs, poor water infrastructure, and lack of awareness among farmers and other stakeholders.

According to the farmers, scientific irrigation methods used by the NIA in Kenya included sprinklers, drip irrigation, terracing, furrow irrigation, and diversion canals. The farmers were generally of the opinion that scientific irrigation techniques were effective. However, they were quick to add that they were expensive and unaffordable for most farmers, particularly in rural areas. NIA workers also identified traditional irrigation practices used by farmers in Kenya. These irrigation practices include furrow, basin, flood, terracing, canals and ditches, wells and step-wells, manual water collection from canals, earth dams or streams, and check basin methods.

The NIA respondents perceived indigenous irrigation practices as effective because they are affordable, simple, small-scale, and less mechanised. The respondents also emphasised that traditional irrigation techniques have been used for centuries in various parts of the world to cultivate crops and sustain agricultural practices. Nonetheless, they also pointed out that while the effectiveness of these techniques can vary depending on specific factors such as geographical location and climate, they have generally proven successful and efficient in many regions. Traditional techniques continue to be utilised and adapted in many parts of the world, often in combination with modern approaches, to meet the diverse needs of agricultural communities. Despite their potential benefits, it was the opinion of the NIA workers that indigenous irrigation practices are used to a limited extent. Many factors limit the application of these irrigation methods. Inadequate diffusion, thereby slowing down adoption, reduced availability of water, poor mainstreaming, and hyped quest for modernisation.

The farmers identified several traditional irrigation techniques. These include cover crops, intercropping, furrowing, the use of water guards, mulching, watering crops using cans, terracing, diversion canals, and basin irrigation. These techniques are still relevant due to the falling rainfall patterns and are also more sustainable due to their relatively lower costs. The farmers also suggested that they should be involved in developing policies on irrigation to mainstream their experiences in the national irrigation blueprint.

7 Discussion of the research findings

The findings reveal a diverse mix of scientific and traditional irrigation methods. This implies that no irrigation technique suits all crops, topography, or environmental contexts. Therefore, the technique adopted may be determined by the soil type, crop farmed, availability and quality of water, climatic conditions, economic considerations, labour intensity, environmental impact, regulations and policies, and scale of operation (Quintana-Ashwell et al., 2020). Ultimately, the choice of irrigation technique is a complex decision that

requires consideration of multiple interacting factors to ensure efficient water use, optimal crop growth, and sustainable agricultural practices. This explains that traditional and modern irrigation is practised in Kenya.

The study also demonstrated that scientific and traditional irrigation methods are accepted as having the potential to safeguard food security in Kenya. Although most of the respondents stated that both sets of irrigation methods are complementary, the majority of the NIA staff believed there is a need to improve traditional irrigation methods due to the increasing water scarcity. These findings echo studies elsewhere. For instance, Al-Zaidi et al. (2014) argued that most farmers in Saudi Arabia were adopting modern irrigation approaches to maximise the scarce water resources in the country. Similar findings have been reported in Egypt (Moursy et al., 2023), Ethiopia (Bogale & Bogale, 2005), Indonesia (Utami & Oue, 2023), Chile (Salazar & Rand, 2016), and China (Cremades et al., 2015). It is noteworthy, however, that several scholars have argued for the promotion of traditional irrigation methods, which are low-cost, locally relevant, environment-friendly and simple. For instance, Debnath et al. (2020, p. 12) argued that “before concentrating on promoting new technologies, it is appropriate and even necessary to respect the existing physical structures of irrigation systems.” Kanda and Lutta (2022) also argued that most people in rural Kenya, particularly women, cannot afford modern irrigation infrastructure and would be left out if traditional irrigation is neither encouraged nor facilitated. Bouimouass et al. (2022) asserted that there are locales where traditional irrigation is best suited. Such areas are like the semiarid regions where traditional irrigation helps to preserve underground water.

The study’s findings revealed that Kenya has not deliberately promoted traditional irrigation. The efforts are on modern irrigation. However, besides the other barriers to modern irrigation, the system is also unsuitable for some areas or crops. Scholars recommend several strategies to promote traditional irrigation. These include the development of facilitative policies (Damiani, 1999), mainstreaming of the contribution of stakeholders, such as farmers’ associations and groups, in the development and execution of irrigation plans and blueprints (Kanda & Lutta, 2022; Wang & Wu, 2018); increased financing of traditional irrigation infrastructure and systems (Ricart et al.; 2019); promotion of traditional irrigation innovations (Kulkarni, 2011); and improved user education and awareness through effective extension services (Castillo et al., 2021).

8 Conclusion

Over 98% of the respondents reported using indigenous irrigation practices, including terracing, furrow irrigation, flood irrigation and diversion canals. These practices improved water management, soil conservation, and crop yields. However, the study found that farmers face several challenges in using these practices, including limited access to financing, lack of technical knowledge, and inadequate infrastructure. Further, mainstreaming indigenous irrigation practices could significantly improve agricultural production and livelihoods. The respondents reported that these practices could enhance crop yields by up to 50% and reduce crop failure incidence.

9 Recommendation

The study recommends developing policies that promote integrating indigenous irrigation practices into formal agricultural systems, increasing investment in indigenous irrigation technologies, and establishing knowledge-sharing platforms to promote the diffusion of indigenous irrigation practices among farmers. Traditional irrigation knowledge must also be codified to promote and perpetuate its diffusion and use.

References

- Adams, W. M., & Watson, E. E. (2003). Soil erosion, indigenous irrigation and environmental sustainability, Marakwet, Kenya. *Land Degradation & Development*, 14(1), 109–122.
- Akoko, G., Kato, T., & Tu, L. H. (2020). Evaluation of irrigation water resources availability and climate change impacts. A case study of the Mwea irrigation scheme, Kenya. *Water*, 12(9), 2330.
- Al-Zaidi, A. A., Baig, M. B., Elhag, E. A., & Al-Juhani, M. B. A. (2014). Farmers' Attitude toward the Traditional and Modern Irrigation: Methods in Tabuk Region—Kingdom of Saudi Arabia. *Science, Policy and Politics of Modern Agricultural System: Global Context to Local Dynamics of Sustainable Agriculture*, 109–122.
- Berry, E. M., Dernini, S., Burlingame, B., Meybeck, A., & Conforti, P. (2015). Food security and sustainability: Can one exist without the other? *Public health nutrition*, 18(13), 2293–2302.
- Bogale, T., & Bogale, A. (2005). Technical efficiency of resource use in the production of irrigated potato: A study of farmers using modern and traditional irrigation schemes in Awi Zone, Ethiopia. *Journal of Agriculture and Rural Development in the Tropics and Subtropics (JARTS)*, 106(1), 59–70.
- Boisot, M. (2011). Knowledge management and complexity. *The SAGE Handbook of Complexity and Management*, pp. 436–453.
- Boisot, M. H., MacMillan, I. C., & Han, K. S. (2007). *Explorations in information space: Knowledge, agents, and organisation*. OUP Oxford.
- Bouimouass, H., Fakir, Y., Tweed, S., Sahraoui, H., Leblanc, M., & Chehbouni, A. (2022). Traditional irrigation practices sustain groundwater quality in a semiarid piedmont. *Catena*, 210, 105923.
- Castillo, G. M. L., Engler, A., & Wollni, M. (2021). Planned behavior and social capital: Understanding farmers' behavior toward pressurised irrigation technologies. *Agricultural Water Management*, 243, 106524.
- Clapp, J., Moseley, W. G., Burlingame, B., & Termine, P. (2022). The case for a six-dimensional food security framework. *Food Policy*, p. 106, 102164.
- Cremades, R., Wang, J., & Morris, J. (2015). Policies, economic incentives and the adoption of modern irrigation technology in China. *Earth System Dynamics*, 6(2), 399–410.
- Damiani, O. (1999). *Beyond market failures: irrigation, the state, and non-traditional agricultures in Northeast Brazil* (Doctoral dissertation, Massachusetts Institute of Technology).
- Debnath, S., Adamala, S., & Palakuru, M. (2020). An overview of Indian traditional irrigation systems for sustainable agricultural practices. *Int J Mod Agric*, 9, 12–22.
- FAO. (1996) Declaration on world food security. World Food Summit, FAO, Rome.
- Gebul, M. A. (2021). Trend, status, and challenges of irrigation development in Ethiopia—A review. *Sustainability*, 13(10), 5646.
- Irungu, J. (2009, August). Contribution of horticulture to food security in Kenya. In *I All Africa Horticultural Congress 911* (pp. 27–32).
- Kanda, E. K., & Lutta, V. O. (2022). The status and challenges of a modern irrigation system in Kenya: A systematic review. *Irrigation and Drainage*, 71, 27–38.
- Kipkorir, D., & Kareithi, J. (2013). Indigenous irrigation and food security in Tot division, Kerio Valley, Kenya. *Journal of Anthropology and Archaeology*, 1(1), 12–27.
- Kulkarni, S. (2011). Innovative technologies for water saving in irrigated agriculture. *International journal of water resources and arid environments*, 1(3), 226–231.

- Kwanya, T. (2022). Mixed methods and quality of postgraduate research: a Kenyan perspective. In *Handbook of Research on Mixed Methods Research in Information Science* (pp. 147–172). IGI Global.
- Li, H., Mei, X., Wang, J., Huang, F., Hao, W., & Li, B. (2021). Drip fertigation significantly increased crop yield, water productivity and nitrogen use efficiency with respect to traditional irrigation and fertilisation practices: A meta-analysis in China. *Agricultural Water Management*, 244, 106534.
- Malouta, M., & Wilson, A. I. (2013). Mechanical irrigation: water-lifting devices in the archaeological evidence and the Egyptian papyri. *The Roman agricultural economy: organisation, investment, and production*, 273-306.
- Mireri, P. C. (2013). Assessment of the contribution of urban agriculture to employment, income and food security in Kenya: a case of Kisumu municipality. *African Journal of Agricultural Research*, 8(23), 2884-2896.
- Moursy, M. A. M., Elfetyany, M., Meleha, A. M. I., & El-Bialy, M. A. (2023). Productivity and profitability of modern irrigation methods through the application of on-farm drip irrigation on some crops in the Northern Nile Delta of Egypt. *Alexandria Engineering Journal*, pp. 62, 349–356.
- Odini, S. (2014). Access to and use of agricultural information by small-scale women farmers in support of efforts to attain food security in Vihiga County, Kenya. *Journal of emerging trends in economics and management sciences*, 5(2), 80–86.
- Östberg, W. (2016). Irrigated fields are wives: indigenous irrigation in Marakwet, Kenya. In *Landesque Capital* (pp. 197–214). Routledge.
- Quintana-Ashwell, N., Gholson, D. M., Krutz, L. J., Henry, C. G., & Cooke, T. (2020). Adoption of water-conserving irrigation practices among row-crop growers in Mississippi, USA. *Agro-nomy*, 10(8), 1083.
- Ricart, S., Ribas, A., Pavón, D., Gabarda-Mallorquí, A., & Roset, D. (2019). Promoting historical irrigation canals as natural and cultural heritage in mass-tourism destinations. *Journal of Cultural Heritage Management and Sustainable Development*, 9(4), 520-536.
- Salazar, C., & Rand, J. (2016). Production risk and adoption of irrigation technology: evidence from small-scale farmers in Chile. *Latin American Economic Review*, 25, 1-37.
- Schmitt, U. (2013, June). Knowcations-A meme-based personal knowledge management system-in-progress. In *Proceedings of the 8th International Conference on e-Learning ICEL, ACPI* (pp. 523-527).
- Tagseth, M. (2008). Oral history and the development of indigenous irrigation. Methods and examples from Kilimanjaro, Tanzania. *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography*, 62(1), 9-22.
- Utami, A. S., & Oue, H. (2023). Traditional value and its function in managing modern irrigation system in West Sumatra Indonesia. *Sustainable Water Resources Management*, 9(2), 54.
- Wafula, E. N., & Odula, O. (2018). Considerations for the shift in roles of national and county governance towards the realisation of food security in Kenya. *African Journal of Food, Agriculture, Nutrition and Development*, 18(3), 13776-13791.
- Wang, Y., & Wu, J. (2018). An empirical examination of the role of water user associations for irrigation management in rural China. *Water Resources Research*, 54(12), 9791-9811.

31. Promoting Indigenous Knowledge for Sustainable Development in Africa: A Meta-analysis

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Abstract

Indigenous knowledge (IK) plays a crucial role in fostering sustainable development due to its deep connection with the social, economic, and environmental aspects of a community. This study evaluated the role of indigenous knowledge in achieving sustainable development goals in Africa. A mixed-methods research approach was employed. This entailed bibliometric analysis and a systematic literature review. Data was collected from Google Scholar. The study collected forty-one publications from Google Scholar, which were then comprehensively analysed. The analysis covered publication trends, types, and quality, as well as the perception, potential, and application of IK in various sectors such as health, education, agriculture, and ecological conservation. The findings revealed fluctuations in publication activity over three decades, with notable increases from 2000 to 2007 and 2011 to 2015. The most common publication types were book chapters and journal articles, with the majority being single-authored. Citation analysis was used to assess the quality of publications, with older articles showing a trend to accumulate more citations over time. The study underscored the importance of IK in sustainable development, aligning with existing literature on its potential contributions to addressing environmental and socioeconomic challenges. Factors such as regulatory frameworks, stakeholder engagement, and infrastructure were identified as influencing the integration of IK into sustainable development efforts. While the findings supported the growing recognition of IK in sustainable development, the study acknowledged the need for a balanced assessment of its strengths and limitations. It emphasised the importance of contextual factors and the integration of IK with other knowledge systems for more effective and sustainable outcomes. This research provides valuable insights for policymakers, researchers, and practitioners working to harness the potential of IK for sustainable development in Sub-Saharan Africa.

Keywords: *Informetrics, bibliometrics, indigenous knowledge, sustainable development, Africa*

1 Introduction

Indigenous knowledge contributes significantly to sustainable development in Africa yet it faces challenges in promotion and integration. IK encompasses practices, beliefs, and traditions deeply rooted in local ecosystems (Kibe, 2021). African indigenous communities demonstrate resilience through adapting to environmental changes and implementing sustainable practices (Estrada et al., 2022). However, marginalisation and erosion of indigenous cultures pose threats to preserving IK (Loch & Riechers, 2021). The need for recognition by policymakers creates barriers to the effective integration of IK into development policies. Despite these challenges, IK holds significant potential to foster environmental conservation and socioeconomic empowerment, contributing to biodiversity conservation and sustainable resource management (Kiage, 2019).

Promoting IK empowers local communities and enhances self-reliance, autonomy, and resilience amidst socioeconomic challenges (East & Mare, 2018). Community-based resource management and customary land tenure systems foster collective ownership and decision-making, strengthen social cohesion and reduce vulnerability to external shocks. The full potential of IK can only be harnessed through a paradigm shift in development approaches. This shift should prioritise inclusion, respect, and collaboration with indigenous communities (Silvestru, 2023). Recognising the complementary nature of IK and scientific knowledge systems, fostering dialogue and mutual learning between knowledge holders, and integrating IK into policy frameworks, are not just steps but essential and immediate actions towards achieving sustainable and equitable development across Africa.

2 Literature review

Indigenous knowledge is a unique and invaluable resource that plays a vital role in advancing sustainable development across various sectors in Africa (Kibe, 2021). IK contributes to preserving biodiversity, promoting agriculture, and fostering socioeconomic development, healthcare, education, environmental management, gender equality, and access to clean water and sanitation (SDG-12) (DiPrete-Brown et al., 2020). Rocha et al. (2017) highlight the intrinsic value of traditional ecological knowledge in maintaining ecosystem resilience and emphasise the critical role of indigenous communities in safeguarding biodiversity hotspots and managing natural resources sustainably.

The transformative potential of IK in promoting sustainable farming methods in the field of agriculture has garnered significant attention. Huynh et al. (2020) provide a detailed account of how IK-based agroecological practices, such as crop rotation and intercropping, enhance food security and resilience to climate change. These strategies contribute to the achievement of Sustainable Development Goals (SDG) 2 on zero hunger, and 13 on climate action. They also increase agricultural productivity. Kibe (2021) underscores the transformative potential of integrating indigenous knowledge into agricultural development, particularly in enhancing agro-biodiversity and promoting sustainable farming methods. For instance, in Kenya's Nandi community, traditional farming practices like terracing and water harvesting have played a pivotal role in mitigating soil erosion and conserving water resources, thereby ensuring the resilience of agricultural systems in the face of climate variability (Ontita et al., 2017).

In terms of socioeconomic development, IK not only fosters resilience and autonomy but also empowers indigenous communities (Gharios, 2019). Customary institutions and indigenous traditions promote community ownership and democratic decision-making, enhancing social cohesiveness and empowering people. However, there are challenges associated with the erosion of indigenous cultures and languages (Manyike & Shava, 2018), which underscore the need for measures to preserve and maintain IK's contributions to SDG 1 on eliminating poverty and SDG 10 on reducing disparities.

Indigenous knowledge in healthcare and educational institutions fosters cultural awareness and improves experiences (Magni, 2017). SDG 3 on excellent health and well-being, and SDG 4 on high-quality education are aligned with traditional healing approaches and experiential learning, which promote holistic well-being and maintain linguistic variety (Faradova, 2020). Indigenous knowledge offers perspectives on climate change adaptation and environmental preservation (Petzold et al., 2020). Policymakers may contribute to SDG 13 on climate action and SDG 15 on life on land by developing policies to reduce the consequences of climate change and maintain biodiversity by utilising indigenous knowledge of local ecosystems.

A key component of sustainable development is gender equality. IK plays a vital role in the empowerment of women and the advancement of gender equity in indigenous communities (Aluko, 2018). Gender stereotypes that have been perpetuated through the centuries are frequently included in traditional knowledge. For instance, women typically take care of the elderly in many indigenous communities and possess particular expertise in medical herbs and procedures (Adu-Gyamfi & Anderson, 2019). By acknowledging and elevating women's expertise and leadership in indigenous communities, IK may facilitate the dismantling of gender stereotypes and encourage women's involvement in decision-making, eventually aiding in the achievement of SDG 5 on gender equality.

According to Torres-Slimming et al. (2019), IK provides insightful information about how to accomplish SDG 6 on sanitation and clean water. Indigenous tribes have established sustainable water management techniques to guarantee the availability of clean and safe water sources. For example, for generations, populations residing in arid and semi-arid locations have relied on traditional methods of rainwater gathering, water conservation, and purification procedures to satisfy their water demands (Zhou et al., 2023).

Elum and Momodu (2017) assert that IK can have a significant impact on sustainable development as clean and economical energy. Indigenous populations frequently rely on biomass, solar, and wind energy for lighting, warmth, and cooking. Particularly in rural and isolated locations with limited access to contemporary energy services, traditional knowledge of harvesting and using these renewable energy sources can guide the development of decentralised and off-grid energy solutions (Makondo & Thomas., 2018).

IK provides insightful analysis and practical solutions for several of Africa's Sustainable Development Goals. Policymakers may utilise IK's transformational potential to create equitable, inclusive, and sustainable development results that benefit indigenous communities and society at large by acknowledging, appreciating, and incorporating them into development policies and programmes.

3 Context and rationale of the study

Promoting indigenous knowledge has drawn more attention in Africa as a crucial step towards attaining sustainable development. Despite its increasing recognition, the inadequate integration of IK into mainstream development projects persists, presenting substantial obstacles to realising its full potential in tackling socioeconomic and environmental concerns in the region (Fletcher et al., 2021). Rapid urbanisation, globalisation, and cultural assimilation have left indigenous people in Africa needing help to preserve and pass on their knowledge systems (Bangura, 2020). IK's continued existence is threatened by this marginalisation, which also lessens its applicability in modern development contexts. These difficulties are made worse by IK's lack of acknowledgement and incorporation into development strategies, which are frequently disregarded in favour of Western-centric knowledge systems by governmental organisations and development agencies (Shawoo & Thornton, 2019).

Furthermore, the decline of native ecosystems and civilisations puts Africa's biodiversity and cultural legacy in jeopardy. Indigenous knowledge systems are essential for preserving natural resources, traditional livelihoods, and cultural practices since they are intricately linked to regional ecosystems and biodiversity (Kennedy et al., 2022). The quickening pace of environmental deterioration and cultural uniformity threatens the sustainability of this ecological and cultural variety. It is clear that collaborative strategies that encourage

communication and interaction between indigenous people, politicians, researchers, and development practitioners are not just necessary; they are vital to meet these difficulties (Adade-Williams et al., 2020). The co-creation of inclusive and culturally sensitive development plans that integrate IK viewpoints is hampered by limited collaboration. This study sheds light on the potential contribution of IK to development, the obstacles that impede its incorporation into policy and practice, and the prospects for establishing cooperative partnerships that empower indigenous communities and promote sustainable development objectives.

The specific objectives of the study were to examine the informetric patterns of research production on IK for sustainable development in Africa; explore the perception of IK and their potential for sustainable development in Africa; investigate the extent to which IK have been harnessed to support sustainable development in Africa; determine the factors influencing the use of IK for sustainable development in Africa; and identify the strategies which can be used to harness IK for sustainable development in Africa.

3 Methodology of the study

This study employed a mixed-methods research approach, combining quantitative and qualitative data analysis techniques. Mixed-methods research integrates the collection, analysis, and interpretation of quantitative and qualitative data, providing a comprehensive understanding of the research topic (Kwanya, 2022).

For the quantitative component, a bibliometric analysis was conducted to examine the scholarly literature on promoting indigenous knowledge for sustainable development in Africa. Bibliometrics is a method used to measure and analyse scholarly publications within a specific field, including the number of publications, citations, and visibility of research work (Norton, 2001). For the qualitative component, a systematic literature review was conducted to identify, evaluate, and synthesise relevant written scholarly work (Kwanya et al., 2021). SLRs enable researchers to evaluate scholarly works comprehensively with an open mind, capturing diverse perspectives on the research topic (Okoli & Schabram, 2010). This study adopted a meta-analysis type of literature review, combining both quantitative and qualitative findings.

The research began with the quantitative component, employing bibliometric analysis to retrieve relevant literature for the systematic review. Publications focusing on indigenous knowledge and Sustainable Development in Africa, including books, journal articles, theses, and conference papers, were identified and analysed. Google Scholar was chosen as the primary database for identifying and retrieving relevant literature due to its inclusivity, accessibility, and multidisciplinary coverage. Google Scholar provides an unrestricted platform for retrieving documents published in various fields (Kwanya et al., 2021). The search was performed in September 2023, using search words such as “*indigenous knowledge*,” “*sustainable development*,” and “*Africa*”. The search words were used in title words to gain all scholarly work that has been published in relation to IK and sustainable development in Africa.

The retrieved data was analysed using descriptive statistics and content analysis techniques, supported by software tools such as STATA, Microsoft Excel, Notepad, Atlas.ti version 9, and VOSviewer version 8. This mixed-methods approach enabled a comprehensive examination of the scholarly literature, capturing trends, patterns, and critical insights related to the promotion of indigenous knowledge for sustainable development in Africa.

4 Findings of the study

The Google Scholar search first returned fifty-three (53) publications. A comprehensive data-cleaning procedure was carried out to guarantee the applicability of the study scope. Forty-one (41) articles that covered the promotion of indigenous knowledge for sustainable development in Africa were therefore found to be relevant to the research. There were no limitations on the year of publication. Every one of the 41 selected articles included one or more of the pertinent keywords in the title, guaranteeing their direct connection to the subject of the study.

4.1 Informetric analysis of IK for sustainable development research in Africa

The researchers analysed the quantity of research output on the topic, themes captured by the publications, and the quality of the publications. The details are presented hereunder.

4.1.1 Quantity of research on IK for sustainable development in Africa

The cleaned data had 41 publications on IK and sustainable development in Africa. The oldest article was published in 1993, while the latest was published in 2022. Figure 1 shows the publication trends.

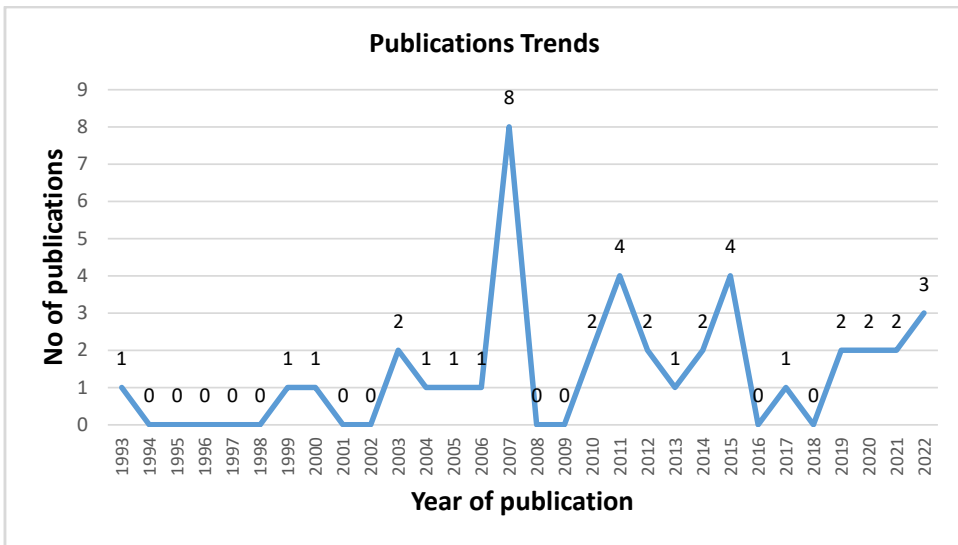


Figure 1: Trends of publications on IK for sustainable development in Africa

Figure 1 shows a fluctuating pattern of publication activity over three decades. In the early years, from 1993 to 1999, publications were irregular, with only one or two per year and some years yielding none at all. A gradual increase in publications occurred from 2000 to 2007, with a peak of 8 in 2007. Subsequent years saw fluctuations, with some years lacking publications and others with one or two. Another noticeable uptick emerged from 2011 to 2015, ranging from 1 to 4 publications annually. Despite a slight decline post-2015, publication rates remained relatively steady, ranging from 1 to 3 per year until 2022.

In terms of types of publications written on IK for sustainable development in Africa. Table 1 shows the data.

Table 1: Types of Publications

Types of publications	Frequency
Book chapters	17
Journal articles	12
Thesis	4
Books	2
Conference Proceedings	2
Research gate	2
Academia.edu	1
Bulletin	1
Total	41

Table 1 highlights a varied landscape of publication types and their frequencies. Book chapters had the highest number of publications (17). This was followed by journal articles (12). Theses had a frequency of 4, which indicates a growing interest in IK in academic research projects, possibly part of graduate studies. Additionally, there are two books listed. Conference proceedings (2), ResearchGate (2), and Academia.edu (1) entries reflect diverse dissemination avenues, emphasising engagement with both traditional academic platforms and modern online networks. A single bulletin entry underscores further dissemination methods, portraying a comprehensive spectrum of scholarly output.

4.1.2 Themes in IK on sustainable development research in Africa

From the analysis of keywords in the titles of the publications, “sustainable development” was the most common phrase, with 31 appearances. This was followed by Africa (26), Indigenous Knowledge (16), Indigenous Knowledge System (11), relevance (8), development (3), education (3), central Africa (3), architecture (2) and sustainable social economic development (2). Figure 2 shows the results. These themes indicate that research has been conducted on sustainable development and indigenous knowledge.

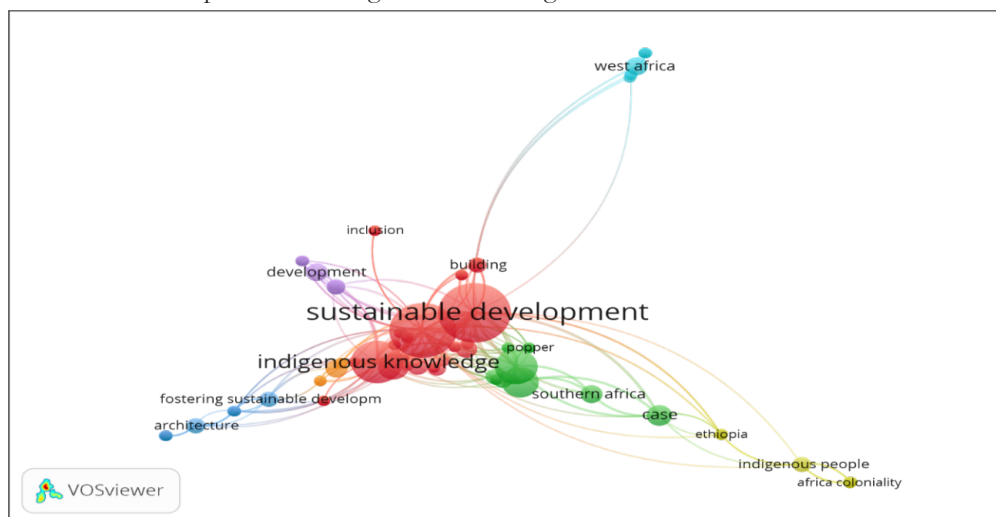


Figure 2: Themes in IK for sustainable development research in Africa

4.1.3 Quality of publications on IK for sustainable development in Africa

According to Kwanya et al. (2021), citation analysis, which measures the extent to which other researchers have referenced scholarly work, is a valid and valuable approach. The use of citations as an indicator of research excellence is a widely accepted practice in the scientific literature. However, it is essential to acknowledge that not all scholars support this viewpoint, with some expressing concerns about the objectivity and validity of citation-based assessments (Bonzi & Snyder, 1991). Despite these reservations, this study operates under the assumption that research with a higher number of citations is generally considered to be of higher quality and impact within the academic community. The article with the highest number of citations had 207 citations. 171, and 104 citations followed them. Only three articles attained more than 100 citations. Of the 41 articles, only 8 (20%) had yet to receive any citation. This indicated that 80 per cent of the papers had been cited. Table 2 shows the top ten cited papers.

Table 2: Top ten most cited publications on IK and sustainable development in Africa

Cites	Authors	Title	Year
207	CT Eyong	Indigenous knowledge and sustainable development in Africa: Case study on Central Africa	2007
171	WM Adams	Indigenous use of wetlands and sustainable development in West Africa	1993
104	M Mawere	Culture, indigenous knowledge and development in Africa: Reviving interconnections for sustainable development	2014
72	S Langill	Indigenous knowledge: a resource kit for sustainable development researchers in dryland Africa	1999
48	N Noyoo	Indigenous knowledge systems and their relevance for sustainable development: A case of Southern Africa	2007
48	TJ Lebakeng	Discourse on indigenous knowledge systems, sustainable socioeconomic development and the challenge of the academy in Africa	2010
41	R Asomani-Boateng	Borrowing from the past to sustain the present and the future: indigenous African urban forms, architecture, and sustainable urban development in contemporary Africa	2011
25	E Boon, L Hens	Indigenous knowledge systems and sustainable development: Relevance for Africa	2007
21	AA Apusigah	Indigenous knowledge, cultural values and sustainable development in Africa	2011
18	SS Manabete, B Umar	Indigenous technology for sustainable development in West Africa	2014

Further, after checking the quality, the researchers correlated and regressed the number of citations for articles with the age of the articles. Table 3 indicates the correlation data.

Table 3: Correlation analysis of Citations vs Age of articles

	Cites	Age
Cites	1.0000	
Age	0.4155	1.000

The correlation coefficient between the number of citations (Cites) and the age of articles (Age) was 0.4155. This positive correlation suggested that there is a moderate, positive relationship between the two variables (Table 3). Specifically, as the age of the articles increases, there tends to be a tendency for the number of citations to increase as well, and vice versa. It is essential to keep in mind that other factors may also influence the number of citations an article receives, such as the quality of the research, the significance of the findings, or the promotional efforts by authors. Figure 3 indicates the scatter image of the results.

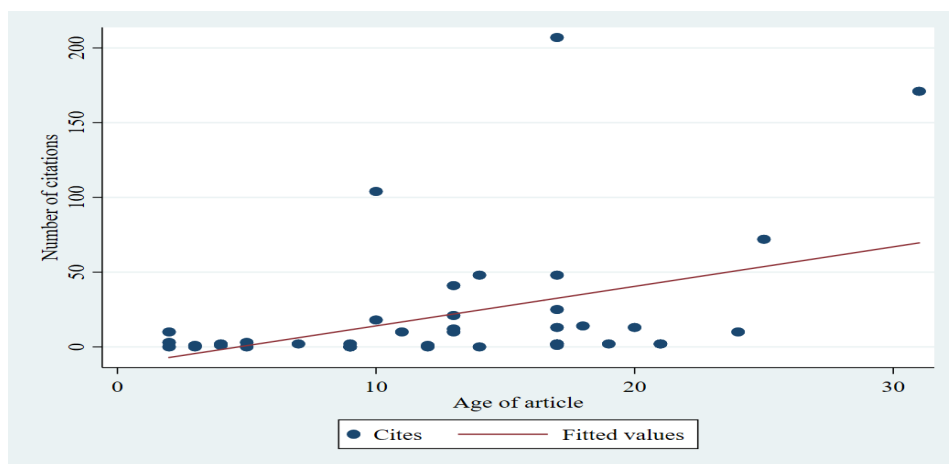


Figure 3: Scatter graph for Citations vs age of articles.

Further, a regression analysis was performed on the citations, age, and number of authors of the papers. Table 4 indicates the model summary, while Table 5 indicates the regression coefficients.

Table 4: Model summary

Source	SS	df	MS	Number of obs = 41
Model	15189.8102	2	7594.90512	F (2, 38) = 4.58
Residual	63041.4093	38	1658.98445	Prob > F = 0.0165
				R-squared = 0.1942
				Adj R-squared = 0.1518
Total	Total	40	1955.78049	Root MSE = 0.731

The model's F-statistic of 4.58, coupled with a p-value of 0.0165, attests to the statistical significance of the overall model at the 0.05 significance level. This suggests that at least one of the predictor variables, either the age of articles or the number of authors, bears a significant association with the number of citations. Furthermore, the R-squared value of 0.1942 indicates that approximately 19.42% of the variability in the number of citations can be elucidated by the age of the articles and the number of authors. This implies that these predictors collectively contribute to explaining a noteworthy proportion of the observed variability in citation counts. However, after adjusting for the number of predictors in the model, as indicated by the adjusted R-squared value of 0.1518, the explanatory power is somewhat reduced, underscoring the importance of considering additional factors that might influence citation patterns. In essence, while the model offers valuable insights into

the relationship between citation counts and the age of articles along with the number of authors, it is prudent to acknowledge the potential influence of other variables that could further elucidate the complexities of citation dynamics.

Table 5: Regression coefficients

Cites	Coef.	Std. Err.	t	P> t	95% Conf. Interval
Age	2.392723	.9597647	2.49	0.017	.4497808 4.335665
Number of authors	-9.992322	9.915371	-1.01	0.320	-30.06494 10.0803
_cons	5.198851	22.01757	0.24	0.815	-39.3734 49.7711

Table 5 shows results on the regression coefficients and sheds light on the relationship between predictor variables and the number of citations. For the predictor variable “Age,” the coefficient of 2.392723 reveals a crucial insight. It indicates that for each additional year of age of an article, there is an average increase of approximately 2.392723 citations, holding the number of authors constant. This coefficient, which is statistically significant at the 0.05 significance level, underscores the fact that older articles tend to accumulate more citations over time.

On the other hand, the predictor variable “Number of Authors” presents a more complex picture. The coefficient of -9.992322 suggests that for each additional author contributing to an article, there is an average decrease of approximately 9.992322 citations, holding the age of articles constant. However, this coefficient, which is not statistically significant at the 0.05 significance level, implies that the number of authors may have a negligible effect on the number of citations after accounting for the age of articles. This uncertainty calls for further investigation and consideration of additional factors.

4.2 Authorship of the research on IK and sustainable development in Africa

Of the 41 publications, 27(66%) had been authored by a single author. This was followed by two authors, 10 (24%) and three authors, 4(10%). It is expected that the more the authors, the more the contributions they can make, but the data paints a different picture. The researchers further went on to try to prove the Lotka law. Lotka’s Law describes the distribution of scientific productivity among researchers. It suggests that the number of authors who have published a certain number of papers decreases exponentially as the number of papers published by those authors increases. This implies that scientific productivity is highly concentrated among a small number of authors who publish many papers, while the majority of authors publish only a few papers. Table 6 shows the data.

Table 6: Regression to prove Lotka Law

Source	SS	df	MS	Number of obs =	3
				F (1, 1)	= 675.00
Model	112.5	1	112.5	Prob > F	= 0.0245
Residual	.16666667	1	.16666667	R-squared	= 0.9985
				Adj R-squared	= 0.9970
Total	112.666667	2	56.3333333	Root MSE	= .40825

Total authors Conf. Interval]	Coef.	Std. Err.	t	P> t	[95%
Number of authors	-7.5	.2886751	-25.98	0.024	-11.16797 -3.832035
cons	34.66667	.6236096	55.59	0.011	26.74296 42.59038

The regression analysis yields a high R-squared value (0.9985), indicating that nearly 99.85% of the variability in the total number of authors is accounted for by the number of authors per article. This robust association between the two variables underscores the influence of author collaboration on productivity, aligning with Lotka's Law. Furthermore, the negative coefficient for "Number of authors" (-7.5) suggests that there is an average decrease of 7.5 total authors for each additional author per article, holding other variables constant. This finding aligns with the general pattern described by Lotka's Law, where the number of articles authored by each group decreases as the number of authors per article increases. The regression results provide a compelling validation of the observed distribution of author productivity in the data, which adheres to the general patterns described by Lotka's Law. This underscores the importance of comprehending the relationship between author collaboration and productivity in scientific research.

Figure 4 shows the authors' social network analysis. Some authors have co-authorships, with M Mawere (3) having many collaborations. This was followed by quite a number of 2 collaborations: G Jack, G Renman, J Chikozho, M Malisa, NJ Marobhe, RY Bayeck, TI Asino, and TR Mubaya.

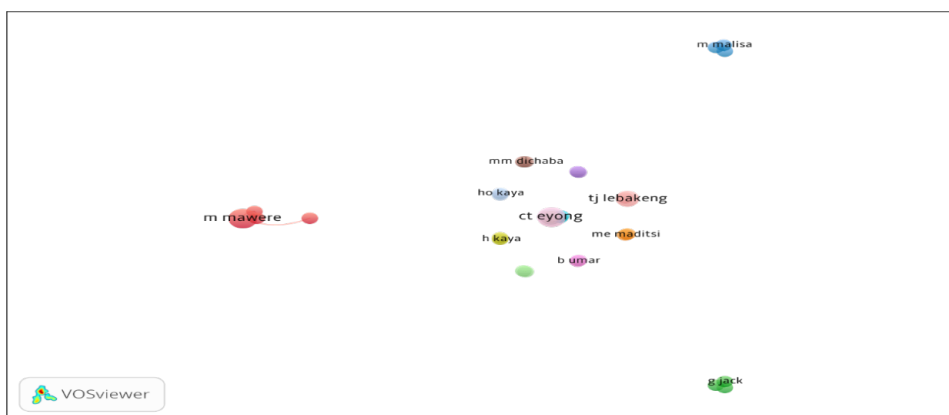


Figure 4: Co-authorship on IK and sustainable development research in Africa

4.3 Perception and potential of IK for sustainable development

From the literature reviewed, it emerged that citizens of African countries are aware of IK and their potential for sustainable development. Some of the excerpts from the literature are highlighted below:

... Indigenous knowledge is passed from generation to generation, usually by word of mouth and cultural rituals, and has been the basis for agriculture, food preparation and conservation, health care, education, and a wide range of other activities that sustain a society and its environment in many parts of the world for many centuries [CN Atoma]

... *Integrated curriculum, incorporation of indigenous knowledge into formal education, and teaching of indigenous languages are some approaches advised by scholars to preserve these ways of knowing.* [RY Bayeck, TI Asino, M Malisa]

... *indigenous knowledge will play a vital role in sustainable agriculture in this region.* [OO Fashola]

... *in indigenous knowledge (IK) as an essential contributor to plans for sustainable development.* [S Langill]

... *valuable contributions to the use of indigenous knowledge in sustainable development without cost or damage to the environment.* [CN Atoma]

... *indigenous knowledge and technologies play vital roles in biodiversity, conservation and sustainable development* [SS Manabete, B Umar]

4.4 The extent to which IK have been used for sustainable development

From the literature, it emerged that some IK has already been used to support sustainable development initiatives in Africa. Figure 5 highlights how IK has supported sustainable development in Africa.

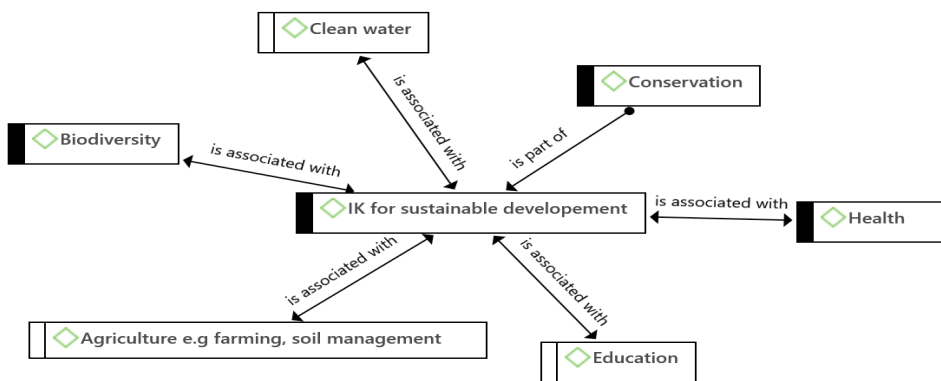


Figure 5: Use of IK to support sustainable development

Figure 5 reveals that IK has supported diverse development initiatives in Africa. The sectors include health, education, agriculture, ecological conservation and clean water.

4.5 Factors influencing the use of IK for sustainable development in Africa

From the content analysis, the documents reviewed highlighted different factors that have inhibited the full adoption of IK for sustainable development. Firstly, the presence of robust regulatory frameworks is crucial for integrating IK into development policies and practices. Clear guidelines and policies can facilitate the recognition and application of IK in sustainable development initiatives. However, the real power lies in the involvement of various stakeholders, including local communities, policymakers, and organisations. Their engagement is not just essential, but it is the key to building knowledge about the potential of IK for sustainable development. Engaging stakeholders ensures a more comprehensive understanding and effective implementation of IK.

Limited integration of IK into government ministries, particularly those related to information and communication technology (ICT), poses a challenge. Efforts to incorporate IK into governmental structures can enhance its visibility and utilisation in development strategies. Concerns about infrastructure and information security, especially in traditional

health practices and knowledge, impact the use of IK. Furthermore, support from regional organisations, such as the Southern African Development Community (SADC), plays a vital role in developing policies and initiatives that promote the recognition and application of IK in sustainable development efforts. Collaborative efforts at regional levels can facilitate knowledge sharing and capacity building in utilising IK effectively. Ultimately, recognising and respecting indigenous cultures and knowledge systems are not just important; they are fundamental for the successful integration of IK into sustainable development practices. Cultural sensitivity ensures that IK is not exploited or misrepresented, fostering mutual respect and cooperation between different knowledge systems. Figure 6 shows some of the factors affecting the use of IK for sustainable development.

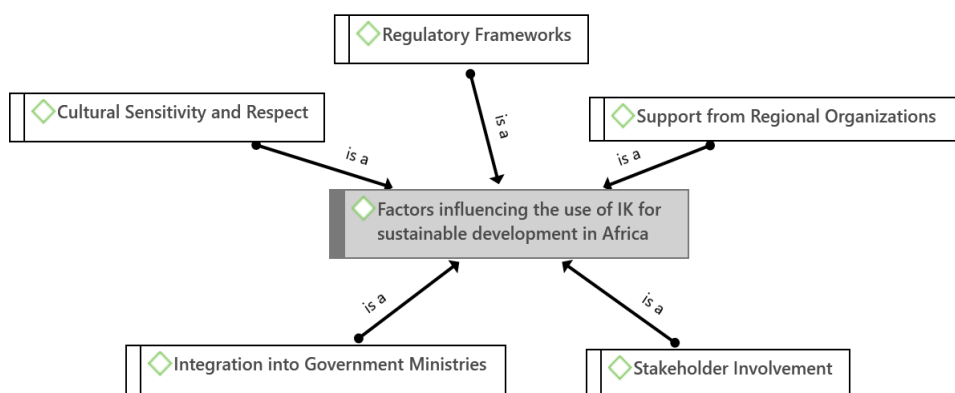


Figure 6: Factors influencing the use of IK for sustainable development

5 Discussion of the findings

The observed fluctuations in publication activity over the past three decades reflect varying levels of interest and attention given to IK for sustainable development. The increased publication activity from 2000 to 2007 and 2011 to 2015 can be attributed to the growing recognition of IK's potential contributions to addressing environmental and socioeconomic challenges in the context of sustainable development (Slikkerveer, 2019). Some scholars argue that the rising interest in IK during these periods may be linked to international policy discourses, such as the Millennium Development Goals (MDGs) and the emergence of the Sustainable Development Goals (SDGs) (Fukuda-Parr & Muchhala, 2020). These global initiatives have emphasised the importance of integrating local knowledge systems into development strategies, leading to increased research and publications on the topic. However, other researchers contend that the fluctuating patterns may also be attributed to the limited availability of funding, changing research priorities, and challenges related to documenting and disseminating IK (Magni, 2017). The decline in publication activity between 2008 and 2010 and after 2015 could be due to these constraints, as well as the need for more consistent policy support for integrating IK into sustainable development practices.

The study's findings indicate that book chapters and journal articles are the most common publication forms. This is consistent with the consensus on the significance of both formats for sharing research findings with the academic community (Martín-Martín et al., 2018). The scholarly discourse and advancement of knowledge on indigenous knowledge for sustainable development

are greatly enhanced by these sorts of publications. The dominance of book chapters and journal articles in IK research dissemination provides a reassuring foundation for the field.

The importance of themes like indigenous knowledge, systems of knowledge, sustainable development, and Africa in the literature on indigenous knowledge is shown by their dominance in the IK research literature (Adade-Williams et al., 2020). These topics demonstrate the growing understanding of the importance of IK in tackling social, economic, and environmental issues within the framework of sustainable development, especially in the African continent.

The study's results, which showed a positive relationship between the number of citations and the article's age, are consistent with other studies that contend that older papers often receive more citations over time due to increasing exposure and citation possibilities. However, academics have issued a warning against drawing too broad conclusions from this link, pointing out that a number of factors, such as self-citation practices and disciplinary standards, can influence citation patterns (Szomszor et al., 2020). The majority of articles are published by a single author, indicating a concentration of authorship that is consistent with Lotka's Law. This result emphasises how well-known a small number of writers have been when it comes to the literature on IK for sustainable development (Armitage et al., 2020).

The literature reviewed echoed the widely recognised importance of IK for sustainable development across various sectors such as agriculture, health, and education (Magni, 2017). These findings align with previous research underscoring the potential of IK to contribute to sustainable development by offering context-specific, locally appropriate solutions to pressing environmental and socioeconomic challenges. However, some authors argue that the perception of IK as a panacea for sustainable development may need to be more optimistic and pay more attention to the complexities and limitations of indigenous knowledge systems (Sandoval-Rivera, 2020). They emphasise the need for a balanced assessment of IK's strengths and weaknesses and its integration with other knowledge systems for more effective and sustainable development outcomes.

The diverse applications of IK in sectors such as health, education, agriculture, and ecological conservation identified in this study are consistent with existing literature on the multifaceted contributions of IK to sustainable development in Africa (Obiero et al., 2023). These findings demonstrate the versatility and adaptability of IK in addressing various development challenges and opportunities.

Prior research supports the study's identification of factors such as regulatory frameworks, stakeholder engagement, and infrastructure challenges that influence the integration of IK into sustainable development efforts. This research highlights the importance of policy support, stakeholder engagement, and infrastructure development in promoting the use of IK for sustainable development (Magni, 2017).

6 Conclusion

The findings of the study provide valuable insights into the quantity, quality, and utilisation of IK in addressing development challenges on the continent. Over three decades, there has been a fluctuating yet growing interest in the intersection of IK and sustainable development, reflected in academic publications predominantly in the form of book chapters and journal articles. The thematic analysis underscores a focus on leveraging indigenous knowledge for sustainable development in Africa.

The quality of publications, assessed through citation analysis, indicates a generally positive reception within the academic community, with older articles accumulating more citations over time. Authorship patterns reveal a concentration of single-author publications, aligning with Lotka's Law. At the same time, social network analysis highlights collaborative research efforts among authors, emphasising interdisciplinary partnerships as crucial for addressing complex development challenges.

7 Recommendation

The study makes the following recommendations to enhance further the integration of IK into sustainable development initiatives in Africa:

- **Strengthen Regulatory Frameworks:** Develop and implement robust regulatory frameworks at national and regional levels to recognise and protect indigenous knowledge systems. These frameworks should provide clear guidelines for the incorporation of IK into development policies and practices, ensuring its proper acknowledgement and utilisation.
- **Enhance Stakeholder Engagement:** Foster meaningful engagement with a diverse range of stakeholders, including local communities, policymakers, researchers, and indigenous knowledge holders. Collaborative approaches that involve stakeholders in decision-making processes can facilitate a more comprehensive understanding of IK and its relevance to sustainable development.
- **Promote Knowledge Sharing and Capacity Building:** Support initiatives aimed at sharing indigenous knowledge and building capacity among communities, policymakers, and practitioners. Training programmes, workshops, and knowledge exchange platforms can help bridge the gap between traditional knowledge systems and modern development practices.
- **Integrate IK into Governmental Structures:** Advocate for the integration of indigenous knowledge into government ministries and departments, particularly those related to agriculture, health, education, and environmental conservation. Incorporating IK into policy-making processes can enhance its visibility and influence in shaping development strategies.
- **Support Regional Collaboration:** Foster collaboration among countries and regional organisations to promote the recognition and application of IK in sustainable development efforts. Regional initiatives can facilitate knowledge sharing, capacity building, and the development of standard policies and strategies for harnessing IK.
- **Respect Indigenous Cultures and Knowledge Systems:** Ensure cultural sensitivity and respect for indigenous cultures and knowledge systems in all development interventions. Recognise the rights of indigenous communities to control and benefit from their knowledge and promote equitable partnerships based on mutual respect and cooperation.

By implementing these recommendations, policymakers, practitioners, and researchers can contribute to the effective integration of indigenous knowledge into sustainable development agendas in Africa, ultimately enhancing the resilience and sustainability of development outcomes across the continent.

References

- Adade-Williams, P., Sikutshwa, L., & Shackleton, S. (2020). Acknowledging indigenous and local knowledge to facilitate collaboration in landscape approaches—Lessons from a systematic review. *Land*, 9(9), 331.
- Adu-Gyamfi, S., & Anderson, E. (2019). Indigenous medicine and traditional healing in Africa: a systematic synthesis of the literature. *Philosophy, Social and Human Disciplines*, 1, 69-100.
- Aluko, Y. A. (2018). Women's use of indigenous knowledge for environmental security and sustainable development in Southwest Nigeria. *The International Indigenous Policy Journal*, 9(3).
- Armitage, C. S., Lorenz, M., & Mikki, S. (2020). Mapping scholarly publications related to the Sustainable Development Goals: Do independent bibliometric approaches get the same results? *Quantitative Science Studies*, 1(3), 1092-1108.
- Bangura, A. K. (2020). The Impact of Globalization and the New World Order on African Languages and Linguistics: A Systematic Analysis Using the Theorem of Accelerated Language Deaths. *Africa and Globalization: Novel Multidisciplinary Perspectives*, 103-126.
- Bonzi, S., & Snyder, H. (1991). Motivations for citation: A comparison of self-citation and citation to others. *Scientometrics*, 21(2), 245-254
- DiPrete-Brown, L., Atapattu, S., Stull, V. J., Calderón, C. I., Huambachano, M., Houénou, M. J. P., ... & Monzón, A. (2020). From a three-legged stool to a three-dimensional world: Integrating rights, gender and indigenous knowledge into sustainability practice and Law. *Sustainability*, 12(22), 9521.
- East, M., & Mare, C. (2018). Community-based solutions to locally-sourced food production systems featuring the revival of indigenous knowledge. *Ecocycles*, 4(1), 32-40.
- Elum, Z. A., & Momodu, A. S. (2017). Climate change mitigation and renewable energy for sustainable development in Nigeria: A discourse approach. *Renewable and sustainable energy reviews*, 76, 72-80.
- Estrada, A., Garber, P. A., Gouveia, S., Fernández-Llamazares, Á., Ascensão, F., Fuentes, A., ... & Volampeno, S. (2022). Global importance of Indigenous Peoples, their lands, and knowledge systems for saving the world's primates from extinction. *Science advances*, 8(31), eabn2927.
- Faradova, G. (2020). Adult education: Contribution to the sustainable development goals. *Quality Education*, pp. 1-17.
- Fletcher, M. S., Hamilton, R., Dressler, W., & Palmer, L. (2021). Indigenous knowledge and the shackles of wilderness. *Proceedings of the National Academy of Sciences*, 118(40), e2022218118.
- Fukuda-Parr, S., & Muchhala, B. (2020). The Southern origins of sustainable development goals: Ideas, actors, aspirations. *World Development*, 126, 104706.
- Gharios, G. (2019). Fostering sustainable development by empowering indigenous abilities: The border zone case of rural south Lebanon. *International Journal of Sustainable Development and Planning*, 14(2), 130-140.
- Huynh, C. V., Pham, T. G., Nguyen, T. Q., Nguyen, L. H. K., Tran, P. T., Le, Q. N. P., & Nguyen, M. T. H. (2020). Understanding indigenous farming systems in response to climate change: An investigation into soil erosion in the mountainous regions of Central Vietnam. *Applied Sciences*, 10(15), 5091.
- Kennedy, G., Wang, Z., Maundu, P., & Hunter, D. (2022). The role of traditional knowledge and food biodiversity to transform modern food systems. *Trends in Food Science & Technology*, pp. 130, 32-41.
- Kiage, O. E. (2019). The Ogiek peoples' indigenous knowledge: A pathway towards sustainable natural resource management in the Mau Forest, Kenya. *Afr. J. Hosp. Tour. Leis*, 8(1).

- Kibe, L. (2021). The Role of Indigenous Knowledge in Attaining Kenya's Vision 2030: A. *Management*, 6(2), 110–124.
- Kwanya, T. (2022). Mixed Methods and Quality of Postgraduate Research: A Kenyan Perspective. In *Handbook of Research on Mixed Methods Research in Information Science* (pp. 147–172). IGI Global.
- Kwanya, T., Kogos, A. C., Kibe, L. W., Ogolla, E. O., & Onsare, C. (2021). Cyber-bullying research in Kenya: a meta-analysis. *Global Knowledge, Memory and Communication*, 71(4/5), 208-229.
- Loch, T. K., & Riechers, M. (2021). Integrating indigenous and local knowledge in management and research on coastal ecosystems in the Global South: A literature review. *Ocean & Coastal Management*, 212, 105821.
- Magni, G. (2017). Indigenous knowledge and implications for the sustainable development agenda. *European Journal of Education*, 52(4), 437–447.
- Makondo, C. C., & Thomas, D. S. (2018). Climate change adaptation: Linking indigenous knowledge with Western science for effective adaptation. *Environmental science & policy*, 88, 83-91.
- Manyike, T. V., & Shava, S. (2018). The decolonial role of African indigenous languages and indigenous knowledges in formal education processes. *Indilinga African Journal of Indigenous Knowledge Systems*, 17(1), 36-52.
- Martín-Martín, A., Orduna-Malea, E., Thelwall, M., & López-Cózar, E. D. (2018). Google Scholar, Web of Science, and Scopus: A systematic comparison of citations in 252 subject categories. *Journal of Informetrics*, 12(4), 1160-1177.
- Norton, M. J. (2001). *Introductory concepts in information science*. Medford, NJ: Information Today
- Obiero, K. O., Klemet-N'Guessan, S., Migeni, A. Z., & Achieng, A. O. (2023). Bridging Indigenous and non-Indigenous knowledge systems and practices for sustainable management of aquatic resources from East to West Africa. *Journal of Great Lakes Research*, 49, S128-S137.
- Okoli, C., & Schabram, K. (2010). *A guide to conducting a systematic literature review of ... - scinapse*. Retrieved August 26, 2023, from <https://asset-pdf.scinapse.io/prod/1539987097/1539987097.pdf>
- Ontita, E. G., Onyango, C. M., & Nyamongo, D. (2017). Indigenous Knowledge on the Uses of African Nightshades Solanum Nigram L. Species Among Three Kenyan Communities.
- Petzold, J., Andrews, N., Ford, J. D., Hedemann, C., & Postigo, J. C. (2020). Indigenous knowledge on climate change adaptation: A global evidence map of academic literature. *Environmental Research Letters*, 15(11), 113007.
- Rocha, P., Niella, F., Keller, H., Montagnini, F., Metzler, R., Eibl, B., ... & Barquinero, J. (2017). Ecological Indigenous (EIK) and scientific (ESK) knowledge integration as a tool for sustainable development in Indigenous communities. Experience in Misiones, Argentina. *Integrating landscapes: agroforestry for biodiversity conservation and food sovereignty*, 235-260.
- Sandoval-Rivera, J. C. A. (2020). Environmental education and indigenous knowledge: Towards the connection of local wisdom with international agendas in the framework of the Sustainable Development Goals (SDGs). *Diaspora, Indigenous, and Minority Education*, 14(1), 14-24.
- Shawoo, Z., & Thornton, T. F. (2019). The UN local communities and Indigenous peoples' platform: A traditional ecological knowledge-based evaluation. *Wiley Interdisciplinary Reviews: Climate Change*, 10(3), e575.
- Silvestru, A. (2023). Weaving relations: Exploring the epistemological interaction between indigenous & traditional ecological knowledge and Eurowestern paradigms in education for sustainable development-an umbrella review.
- Slikkerveer, L. J. (2019). The indigenous knowledge systems' perspective on sustainable development. *Integrated community-managed development: Strategising indigenous knowledge and institutions for poverty reduction and sustainable community development in Indonesia*, 33-66.

- Szomszor, M., Pendlebury, D. A., & Adams, J. (2020). How much is too much? The difference between research influence and self-citation excess. *Scientometrics*, *123*(2), 1119-1147.
- Torres-Slimming, P. A., Wright, C., Carcamo, C. P., Garcia, P. J., Research Team, I. H. A. C. C., & Harper, S. L. (2019). Achieving the sustainable development goals: A mixed methods study of health-related water, sanitation, and hygiene (WASH) for Indigenous Shawi in the Peruvian Amazon. *International journal of environmental research and public health*, *16*(13), 2429.
- Zhou, W., Matsumoto, K., & Sawaki, M. (2023). Understanding the traditional wisdom of harvesting rainwater in household yards: construction and rainwater usage patterns of settlement water cellars in semi-arid China. *Journal of Asian Architecture and Building Engineering*, *22*(2), 589–601.

SECTION EIGHT:
CURATION AND
PRESERVATION
OF INDIGENOUS
KNOWLEDGE

32. Acquisition, Preservation and Accessibility of Indigenous Knowledge in University Libraries in South East Nigeria

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Abstract

In the recent past, indigenous knowledge (IK) has become a global term because people from different cultures have indigenous knowledge and skills that are unique to them. Such knowledge and skills could be innovations as well as sources of livelihood. The IK is an age-long knowledge which has been passed on from generation to generation. However, the knowledge of these skills is fast fading away owing to the death of practitioners. The inability to acquire, preserve, and access this knowledge by future generations is gradually becoming an illusion. There are compendiums of indigenous knowledge that have had land-breaking impacts in several places but have yet to receive much attention. Indigenous knowledge of Africans has yet to have a place in Nigerian University Libraries, particularly in South East Nigeria. This study was undertaken to examine the different indigenous knowledge available in Nigeria; ascertain the methods of acquisition, preservation and accessibility of indigenous knowledge in Nigerian University Libraries; and identify the challenges of acquisition, preservation and accessibility of indigenous knowledge in University Libraries in South East, Nigeria. The study, among others, found that IK is acquired, preserved and made accessible at a low rate. This may be a result of a lack of unified policies in IK collection development in libraries, ignorance and misconceptions about IK knowledge that exist in different environments. This implies that reasonable and practical policies should be put in place by the government.

Keywords: *Acquisition, preservation, accessibility, indigenous knowledge, university libraries*

1 Introduction

Academic libraries are established to support academic activities in universities, colleges of education, polytechnics and other higher institutions of learning. Frumkin and Reese (2011) summarised the role of the library in acquiring and disseminating information resources as a vital responsibility. Its primary role includes the collection, organisation, preservation and delivery of information delivery resources to users. Academic libraries in developing countries like Nigeria have so much to learn in order to effectively supply the information needs of the indigenous people as well as manage indigenous knowledge aptly. There is a need to ponder on strategies towards harnessing indigenous knowledge for research and national development.

Indigenous knowledge is knowledge which is spatially or culturally context-specific, collective, holistic, and adaptive. It is a network of knowledge, beliefs, and traditions that are intended to preserve, communicate, and contextualise indigenous relationships with their culture and landscape over time (Chepchirchir et al., 2019; Jima, 2023). It is common knowledge, and all over the world, modern science has begun to recognise the constructive role that indigenous

knowledge of the local ecosystem can play in the formulation and implementation of sustainable development policies and projects in developing countries.

The acquisition, preservation and dissemination of Indigenous Knowledge (IK) in academic libraries would form rich information resources for researchers. IK acts as a compass through which researchers navigate their research environment and is also a key to the understanding of the learning processes within and at the intersection of diverse worldviews and knowledge systems. Mole et al. (2018) recommend that libraries should collect, preserve, and disseminate indigenous knowledge, publicise the value, contribution, and importance of IK to both non-indigenous and indigenous people, involving elders and communities in the production of IK and encouraging the recognition of intellectual property laws to ensure the proper protection and use of IK.

According to Malapane et al. (2022), in predominately Western-oriented academic circles and investigations, the African voice is either side-lined or suppressed because indigenous knowledge and methods are often ignored or not taken seriously. African-based research and Nigeria, in particular, must, of necessity, include African thought and ideas for research in this part of the world to be meaningful and empowering. However, most academic libraries in Nigeria still grapple with the collection, preservation and dissemination of IK as it is evidently not in the same proportion as other materials of information in the inventory of academic libraries' holdings.

The primary purpose of the study was to explore the acquisition, preservation and accessibility of indigenous knowledge in university libraries in South East Nigeria. The specific objectives are to establish the different types of indigenous knowledge available at federal university libraries in South East Nigeria; ascertain the methods of acquisition of indigenous knowledge at federal university libraries in South East Nigeria; determine the methods of preservation of indigenous knowledge at federal university libraries in South East Nigeria; establish the methods of accessing indigenous knowledge at federal university libraries in South East Nigeria; and identify the challenges associated with the acquisition, preservation and accessibility of indigenous knowledge in university libraries in South East Nigeria.

2 Literature review

Indigenous knowledge is practical experience that works for Indigenous peoples even though it may not be documented. They are possessed by some people who use them to solve problems for the well-being of the society. There are different cultures, environments and geographical locations in the world. These variances influence cultural practices, myths, beliefs and taboos, which shape and impact the IK of people (Bello-Odojin, 2023). IK is rich, detailed and all about skills and innovations possessed by indigenous people (Leni et al., 2015). Filho et al. (2023) defined IK as the knowledge that a local community accumulates over generations of living in a particular environment. IK encompasses the content or substance of traditional know-how, innovations, information, practices, skills and learning of traditional knowledge systems such as traditional agricultural, environmental or medicinal knowledge (Prakriti, 2021). Ojobor et al. (2021) identified the areas in which indigenous knowledge is practised, such as hunting, fishing, medicine, conflict resolution, education, environmental conservation, and agriculture in general. It has been established through previous literature on indigenous knowledge that indigenous people possess relevant knowledge which they utilise in the management and conservation of their environment and natural resources. Leni et al. (2015) revealed specific areas, including soil fertilisation, food preparation, multiple cropping patterns, agroforestry, and health care.

Southeast Nigeria is one of the six geo-political zones in Nigeria. It is made up of Abia, Anambra, Ebonyi, Enugu and Imo states. The indigenous language spoken by Ibo and the native speakers' occupations are trading, farming, fishing, hunting, and rearing of animals, including traditional medicine, environmental controls, and food preservation, among others. According to Bello-Odofin (2023), IK that exist in South Eastern Nigeria include traditional laws (taboos) for cultural and sacred areas preservation, which aims at the management and conservation of natural resources, farming systems, medicine waste management and food processing.

Traditional or folk medicine practised in Southeast Nigeria is used to cure ailments such as colds, cancer, malaria fever, and typhoid fever using specific herbs and shrubs. Nwankwo (2014) found that the competency of traditional healers in Igbo communities is primarily recognised by indigenous people living in the community, and they provide health care services using mineral, vegetable, and animal substances. He listed other areas of specialisation of traditional medicine practices which are tantamount to IK in traditional medicine as:

- Diviner (Dibia Afa), who is regarded as a diagnostician;
- Medicine man (Dibia-Ogwu), who is regarded as a physician;
- Herbalist (Dibia-mgborogwu na-nkpa akwukwo);
- Bone setter (Dibia-Okpukpu);
- Peadoatrist (Dibia-Ogbanje);
- Traditional surgeons and
- Traditional birth attendants or birth companions.

Food processing and preservation is another area of IK practised in the region. Food preservation methods outside modern use of salting, sun drying, roasting, baking and smoking. Cassava, cocoyam, yam, maize, green beans, pepper, and tomatoes are among the food crops processed and preserved by either of these methods. Natural ripening agents have been proven valid and healthier than chemicals that are dangerous to human health. Ripening agents used for preservation include some fruits that serve as fruit and double as ripening agents in regions. Bello-Odofin (2023) ascertains that herbs, sun drying, smoking, heating and salting are used for preservation.

There are specific skills that might go into extinction if not preserved. For example, blacksmithing involves the use of indigenous knowledge and ingenuity in making iron and steel in constructions and reconstructions. Osuala (2012) asserts that the blacksmith is an example of indigenous technology; the socio-economic and military needs of indigenous people were satisfied. However, blacksmithing was influenced negatively, which resulted in its decline as a result of colonialism and post-colonial government policies concerning indigenous technology in Nigeria. Such things as matches, hoes, knives, metal sieves, cutlasses, forks and rakes and other farming and household instruments are made for the benefit of society, including hunting implements.

Agriculture is vital in the history of man as it deals with the production of food and resources for human beings everywhere. Agriculture concerns farming systems and the rearing of animals. The IK generated and used in farming are crop rotation, border cropping, intercropping, mixed cropping and sequential cropping (Bello-Odofin, 2023). These farming systems have helped to prevent the infiltration of common pests. Iheanacho et al. (2019) found that IK used for pest control includes the use of hoe for weeding, intercropping and rotation patterns and pest-resistant seed varieties.

There is also IK in traditional weaving of cloths, dyeing and bleaching of cloths, local embroideries, and fabrics processing with local wool and materials. Fibres from the bark of the trees, like palm trees, are harvested and further processed and used as hand fans and mats. Ashes from palm fruit heads are processed into black local soap (ncha -isisiakwu). Palm nuts are roasted, and the oil is extracted for the treatment of convulsions in children, which are caused by high fever (Nwankwo, 2014). The knowledge is gained as a result of experience over time and is passed on from generation to generation even though it is gradually forgotten. Dlamini and Ocholla (2018) affirmed that they are gradually disappearing due to loss of memory and death. Ngulube (2002) attributed the loss of IK to a lack of appropriate mechanisms for acquiring them. In the recent past, many African countries doubted the credibility and reliability of indigenous medicine and technology, which led to its being despised, marginalised, and lacking interest in its acquisition and management. However, because of the recent reawakened interest in IK all over the globe, there is an urgent need to acquire this knowledge for posterity.

Maluleka and Mpho (2018) defined knowledge acquisition as accepting knowledge from the external environment and transforming it for use by an organisation and at the individual level. For knowledge to be acquired, as stated by Danladi et al. (2021), willingness, attitude and the ability of the recipient to acquire and use such knowledge are crucial, and there should be a willingness to share. This means that for the acquisition of knowledge to take place, both parties involved must be willing to share. However, research showed that custodians of this wisdom are most of the time not willing to release or share it with non-relatives, and this has affected the attitude of information professionals towards sourcing such knowledge. Ukwoma et al. (2012) study revealed that the traditional bone setters were unwilling to reveal the process and techniques. They believed that it was their personal property that must be kept secret. Prakriti (2021) opined that many indigenous communities wish to maintain control over the circulation of certain types of knowledge and cultural materials based on their cultural structures. Also, Maluleka (2017) emphasised that some view it as personal property that must be kept private. Scholars have also established that ICT tools such as videos/digital cameras and tape/voice recorders are some of the practical tools for capturing indigenous knowledge (Dlamini & Ocholla, 2018). Hambisa et al. (2016) research showed that the local communities shared the IK of traditional healthcare by using folklore practices in sociocultural events.

In order to understand the world and plan for the future, there is a need to experience the past through the record of human knowledge. Preservation and conservation of knowledge are aged extended functions of the library all over the globe. Preservation is making collections accessible now and in the future. It encompasses all activities that help to ensure long-term access to knowledge. Preservation, according to Amankwah et al. (2022), means prolonging the existence of library and archival materials by maintaining them in a condition suitable for use, either in their original format or in a more durable form. Onyima (2016) averred that there is a need to preserve IK because of its capacity to promote past ways of life, which are helpful in contemporary society. It is used effectively in development projects as a source of innovative solutions because of its perspective of being intensely local and long-term (Juran, 2016).

Writing on managing and preserving indigenous knowledge, some scholars lamented that libraries are not actively involved (Ebijuwa, 2015). Practical work has yet to be done by Libraries (Alabi et al., 2018). Juran (2016) encouraged the protection and preservation of IK for the benefit of the local (indigenous) people as well as the world at large. According to Alabi et al. (2018), methods of preserving IK include digitisation, tape recording, microfilming and

the purchase of indigenous materials. Other preservation methods include documentation, digitisation, video recording, and providing Internet access (Balogun & Kalusopa, 2021), reports, memos, videos, databases (Maluleka, 2018), scholarly articles, thesis, and dissertations (Zablong & Plockey, 2015). Libraries can use their knowledge and skills to aid and educate stakeholders on copyright/intellectual protection issues relating to indigenous knowledge to ensure proper preservation and accessibility of this body of knowledge for national development (Afful-Arthur et al., 2021). Information and communication technology tools are practical tools for preserving and storing indigenous knowledge. The Internet is a veritable tool for preserving and disseminating IK (Azubuike & Aji, 2021). Thus, libraries should be proactive, using their professional knowledge and skills to diversify strategies for the preservation and management of IK to ensure easy accessibility of these valuable resources.

Access to information is critical in making efficient decisions. It is the state of being readily available. One of the significant problems facing indigenous knowledge is the inability to access it when needed. Afful-Arthur et al. (2021) believe that information users seeking indigenous or traditional-related information deserve to have access to such information in order to solve problems. Though access to indigenous knowledge is very limited in its raw form and not well organised, it is expected that information professionals should acquire, process, repack and make it accessible to users.

Moreover, Juran (2016) highlighted that the role of libraries has extended to promote indigenous knowledge, support local content development and enhance the capacity of indigenous peoples to develop content in their language. Promotion and marketing of available IK materials in the library can be done through television and radio broadcasts. Aboyade and Adeyemo (2019) assert that libraries can facilitate the accessibility of IK through marketing strategies, developing standard tools for indexing and cataloguing IK systems, and compiling bibliographies of IK resources. They can make IK accessible via the Internet, exhibitions and displays, mobile library services, and lending of relevant indigenous materials (Alabi et al., 2018).

There are challenges in the acquisition, preservation and accessibility of IK in university libraries. Oyelude and Balajoko (2023) considered them as threats to IK in the library context as they pointed out the need to revise the Library of Congress Subject Headings to be more embracing and encompassing to IK. They found out that IK was narrowed in scope and needed to be enlarged to accommodate more subjects. In addition, other challenges include language barriers, property correct issues and translation of IK. Oyelude and Balajoko (2023) found that the lack of data management system creation makes it challenging to collate the data gathered. According to Bello-Odofin (2023), the sociocultural and spiritual dimensions of IK make it seem less transferable. Ojobor et al. (2021) and Bello-Odofin (2023) observed a lack of unified policies in IK collection development in libraries, the oral mode of IK transmission, ignorance and misconceptions about the knowledge that exist in different environments, unwillingness to avail the knowledge by the custodians of IK because of suspicion and fear of secured intellectual property right; challenge of standardisation in recording and documenting IK, and lack of interest by librarians because of the difficulties encountered in fieldwork especially the recordings of IK. Jangkhohao and Laloo (2021) highlighted the challenges of IK management as intellectual property rights, labour requirements, time requirements, funding, and the reluctance of indigenous people to share their knowledge in addition to competition with the existing community structure for IK.

3 Methodology

The study used a descriptive survey research design. The area of study is South East Nigeria, which is made up of five states, namely Abia, Anambra, Ebonyi, Enugu, and Imo. The target population of the study consists of 172 professional librarians in five Federal University libraries in South East Nigeria. The distribution is in Table 1. A total enumeration sampling technique was used. The entire population was examined since the number is small and manageable (Mole, 2019). The instrument used for data collection was a questionnaire. One hundred and seventy-two (172) questionnaires were sent out, while one hundred and forty-three (143) questionnaires were retrieved, showing a percentage response rate of 83%. Data generated from the questionnaire was analysed using Statistical Package for the Social Science (SPSS) software. Descriptive statistics of frequencies and percentages were used for the distribution of the population of the study, ranks of the respondents and research question 1. In contrast, research questions 2-5 were analysed using mean scores and standard deviation.

4 Results and discussion

Results and discussion of findings are presented below.

Table 1: The Distribution of the Population of the Study

University	No. of Librarians
University of Nigeria, Nsukka (UNN)	53
Nnamdi Azikiwe University, Awka (NAU)	27
Federal University of Technology Owerri (FUTO)	48
Micheal Okpara University of Agriculture, Umudike (MOUAU)	26
Alex Ekwueme Federal University Ndufu-Alike Ikwo (AEFUNAI)	18
Total	172

Source: Library Staff Nominal Roll of Each University, 2023

Table 1 above shows the distribution of the study population. This showed the number of librarians from each of the universities under study. These data were collected from the library staff nominal roll, which is a document where all the library staff details are recorded.

Table 2: The Distribution of the Respondents by Universities

University	No. of Librarians	Per cent
University of Nigeria, Nsukka (UNN)	46	32.2
Nnamdi Azikiwe University, Awka (NAU)	24	16.8
Federal University of Technology Owerri (FUTO)	41	28.7
Micheal Okpara University of Agriculture, Umudike (MOUAU)	21	14.7
Alex Ekwueme Federal University Ndufu-Alike Ikwo (AEFUNAI)	11	7.7
Total	143	100.0

Table 2 shows the number of librarians in the five federal universities in South East Nigeria who responded to the questionnaire. They are shown thus: UNN 46 (32.2%), NAU 24 (16.8%), FUTO 41 (28.7%), MOUAU 21 (14.7%) and AEFUNAI 11(7.7%) which is a total of 100%.

Table 3: The Ranks of the Librarians (Respondents)

Ranks of the Respondents	Frequency	Per cent
University Librarian	5	3.5
Deputy University Librarian	10	7.0
Principal librarian	21	14.7
Senior Librarian	31	21.7
Librarian I	34	23.8
Librarian II	24	16.8
Assistant Librarian	18	12.6
Total	143	100.0

Table 3 shows the ranks of the respondents who are also librarians. It shows that the majority of the respondents are Librarian I - 34(23.8%), followed by Senior Librarians 31(21.7%), Librarian II 24(16.8%), Principal Librarians 21(14.7%), Assistant Librarians 18(12.6%), Deputy University Librarians 10(7.0%) and University Librarians 5(3.5%).

4.1 Types of Indigenous Knowledge Available at Federal University Libraries in South East Nigeria

Research Question 1: What are the different types of indigenous knowledge available at federal university libraries in South East Nigeria?

Table 4: The Different Types of Indigenous Knowledge Available at Federal University Libraries in South East Nigeria

S/N	Different types of Indigenous knowledge information	Available	Not Available
1.	Medicine/Healthcare	99(69.2)	44(30.8)
2.	Food processing	111(77.6)	32(22.4)
3.	Preservation of food	98(68.5)	45(31.5)
4.	Environmental preservation and conservation	106(74.1)	37(25.9)
5.	Textiles making	63(44.1)	80(55.9)
6.	Conflict resolution	94(65.7)	49(34.3)
7.	Education	115(80.4)	28(19.6)
8.	Agriculture	124(86.7)	19(13.3)
9.	Water Resource Management	101(70.6)	42(29.4)
10.	Biodiversity and Forest Management	99(69.2)	44(30.8)
11.	Soil Fertility and Pest Control	121(84.6)	22(15.4)

The analysed data in Table 4 shows the different types of indigenous knowledge available at Federal University libraries in South East Nigeria. Indigenous knowledge of agriculture got the highest frequency score, 124(86.7%); next is soil fertility and pest control, 121(84.6%), and education, 115(80.5%). Others include food processing 111(77.6%), environmental preservation and conservation 106(74.1%), medical health care 99(69.2%), biodiversity and forest management 99(69.2%), conflict resolution 94(65.7%). However, the indigenous knowledge information on textile making had a low response 63(44.1), indicating that there needs to be more indigenous knowledge on textile making in university libraries in South East Nigeria. In line with the earlier studies of Bello-Odofin (2023) and Iheanacho et al. (2019), indigenous knowledge of agriculture, soil fertility and pest control is vital as agriculture

involves farming systems, production of food and the rearing of animals. This implies that in federal universities in South East Nigeria, indigenous knowledge materials are available that will serve as useful information for decision-making in diverse fields of life. However, the need to source for IK on textile materials is imperative.

4.2 Acquisition of Indigenous Knowledge at Federal University Libraries in South East Nigeria

Research Question 2: How is indigenous knowledge acquired at federal university libraries in South East Nigeria?

Table 5: Acquisition of Indigenous Knowledge at Federal University Libraries in South East Nigeria

S/N	How is indigenous knowledge acquired in your Libraries?	Methods of Acquisition of Indigenous Knowledge						
		1: Undecided; 2 Disagree; 3: Agree						
		1	2	3	Mean	Mode	SD	Decision
1	Observation	14(9.8)	46(32.2)	83(58.0)	2.48	3	0.67	Accepted
2	Dialogue/ talk show between traditional rulers, elders and librarians	22(15.4)	53(37.1)	68(47.6)	2.32	3	0.73	Accepted
3	Interview with Community leaders	18(12.6)	50(35.0)	75(52.4)	2.40	3	0.70	Accepted
4	Village meetings	27(18.9)	65(45.5)	51(35.7)	2.17	2	0.72	Accepted
5	Cooperatives	36(25.2)	50(35.0)	57(39.9)	2.15	3	0.80	Accepted
6	Social group gathering	19(13.3)	56(39.2)	68(47.6)	2.34	3	0.70	Accepted
7	Extension workers	29(20.3)	45(31.5)	69(48.3)	2.28	3	0.78	Accepted
8	Books	4(2.8)	6(4.2)	133(93.0)	2.90	3	0.38	Accepted
9	Festivals	18(12.6)	54(37.8)	71(49.7)	2.37	3	0.70	Accepted
10	Newspapers	6(4.2)	13(9.1)	124(86.7)	2.83	3	0.48	Accepted
11	Non-Governmental Organization (NGO)	24(16.8)	39(27.3)	80(55.9)	2.39	3	0.76	Accepted
12	Testimony from older people	24(16.8)	47(32.9)	72(50.3)	2.34	3	0.75	Accepted
13	Collaboration and information sharing	8(5.6)	36(25.2)	99(69.2)	2.64	3	0.59	Accepted
14	Sharing of experiences	8(5.6)	31(21.7)	104(72.7)	2.67	3	0.58	Accepted
15	Focus group discussion	17(11.9)	43(30.1)	83(58.0)	2.46	3	0.70	Accepted
16	Oral Storytelling	17(11.9)	46(32.2)	80(55.9)	2.44	3	0.70	Accepted
17	Practical demonstrations	22(15.4)	42(29.4)	79(55.2)	2.40	3	0.74	Accepted

Table 5 above indicates that respondents accepted all the items as methods for acquiring indigenous knowledge. This is because the items recorded a 2.00 mean value and above set for decision. This implies that the methods of acquisition of IK include observation, dialogue and talk shows between rulers, elders and librarians, interviews with community leaders, village meetings, cooperatives, social group gatherings, extension workers, books, festivals, Newspapers, non-governmental organisations, testimony from older people, collaboration and information sharing, sharing experiences, focus group discussion, oral storytelling and practical demonstration. The findings corroborate with Danladi et al. (2021) and Maluleka and Mpho (2018), whose studies revealed that the acquisition of indigenous knowledge for

controlling flood and traditional healing was through testimony from older adults, parents and community leaders and through experience via participation, observation, collaborations, discussions and practice.

However, the mean ratings depict that the method of acquisition of IK directly from indigenous people through (dialogue between traditional rulers, elders and librarians, interviews with community leaders, village meetings, cooperatives, and social group gatherings) is lower than acquisition through books and newspapers. This implies that libraries in Southeast East Nigerian Universities acquire indigenous knowledge from direct contact with the indigenous people to a low extent; they get the knowledge mainly from books, newspapers, and other materials acquired in the library. Notably, for the acquisition of knowledge to take place, both parties involved (indigenous people who are the custodians of the knowledge to acquire and librarians from the libraries) must be willing to collaborate. Danladi et al. (2021) maintained that willingness, attitude, and the ability of a recipient to acquire and use such knowledge are crucial in the acquisition of knowledge. Hangshing and Laloo (2021) also affirmed that information professionals have to undergo appropriate training. Librarians should develop a positive attitude, be willing and engage effectively to source for this invaluable knowledge that is disappearing. They need to be trained and develop the relevant skills required to enhance their ability to collaborate with the local people and acquire knowledge.

4.3 Preservation of Indigenous Knowledge at Federal University Libraries in South East Nigeria

Research Question 3: What methods of preservation of indigenous knowledge are employed in federal university libraries in South East Nigeria?

Table 6: Preservation of Indigenous Knowledge at Federal University Libraries in South East Nigeria

S/N	What methods of preservation of indigenous knowledge are employed in your library?	Methods of Preservation of Indigenous Knowledge						
		1: Undecided; 2 Disagree; 3: Agree						
		1	2	3	Mean	Mode	SD	Decision
1	Documentary Material	7(4.9)	15(10.5)	121(84.6)	2.80	3	0.51	Accepted
2	Reports (thesis, dissertations)	13(9.1)	6(4.2)	124(86.7)	2.78	3	0.60	Accepted
3	Videos	21(14.7)	41(28.7)	81(56.6)	2.42	3	0.74	Accepted
4	Paper documents	4(2.8)	11(7.7)	128(89.5)	2.87	3	0.42	Accepted
5	Databases	11(7.7)	34(23.8)	98(68.5)	2.61	3	0.63	Accepted
6	Electronic format	9(6.3)	26(18.2)	108(75.5)	2.69	3	0.58	Accepted
7	Tape recording	15(10.5)	47(32.9)	81(56.6)	2.46	3	0.68	Accepted
8	Purchase of Indigenous Materials	10(7.0)	12(8.4)	121(84.6)	2.78	3	0.56	Accepted
9	Memos	18(12.6)	50(35.0)	75(52.4)	2.40	3	0.70	Accepted
10	Film	23(16.1)	55(38.5)	65(45.5)	2.29	3	0.73	Accepted
11	Institutional/Digital Repository	12(8.4)	12(8.4)	119(83.2)	2.75	3	0.60	Accepted

Table 6 above depicts that the methods of preserving indigenous knowledge at Federal University Libraries in South East Nigeria are through paper documents (2.87), documentary materials (2.80), reports (2.78), purchase of indigenous materials (2.78), institutional /digital

repository (2.75), electronic format (2.69), databases (2.61), tape recording (2.46), videos (2.42), and memos (2.40). This finding is in line with a number of scholars, Zablong and Plockey(2015), Maluleka and Mpho (2018), Alabi et al. (2018) and Balogun and Kalusopa (2021) findings that methods for preserving IK include tape recording and purchase of indigenous materials. Documentaries, video recordings, and reports, memos, databases, paper, electronic format, and digitisation are all documented. Contemporary society is digitally inclined; therefore, libraries should venture into creating digital repository systems where acquired indigenous knowledge can be archived for the long term as text, audio or video files showcasing the rich local contents of our traditional people. Academic libraries can serve as data banks for indigenous knowledge for the storage and preservation of IK resources and related research output in their institutional repositories and research data management systems.

4.4 Accessing indigenous knowledge at Federal University Libraries in South East Nigeria

Research Question 4: How is indigenous knowledge accessed at federal university libraries in South East Nigeria?

Table 7: Accessing Indigenous Knowledge at Federal University Libraries in South East Nigeria

S/N	How is indigenous knowledge accessed in your library?	Methods of Accessing Indigenous Knowledge						
		1: Undecided; 2 Disagree; 3: Agree						
		1	2	3	Mean	Mode	SD	Decision
1	Exhibitions and displays	11(7.7)	22(15.4)	110(76.9)	2.69	3	0.61	Accepted
2	Institutional/Digital Repository	4(2.8)	20(14.0)	119(83.2)	2.80	3	0.46	Accepted
3	Lending of Relevant Indigenous Materials,	12(8.4)	18(12.6)	113(79.0)	2.71	3	0.62	Accepted
4	Mobile Library Services	12(8.4)	92(64.3)	39(27.3)	2.19	2	0.57	Accepted
5	Television	11(7.7)	90(62.9)	42(29.4)	2.22	2	0.57	Accepted
6	Radio broadcasting	9(6.3)	90(62.9)	44(30.8)	2.24	2	0.56	Accepted
7	Seminars	3(2.1)	39(27.3)	101(70.6)	2.69	3	0.51	Accepted
8	Symposiums	7(4.9)	55(38.5)	81(56.6)	2.52	3	0.59	Accepted
9	Conferences and Workshops	5(3.5)	22(15.4)	116(81.1)	2.78	3	0.50	Accepted
10	Documentaries	4(2.8)	47(32.9)	92(64.3)	2.62	3	0.54	Accepted

Results in Table 7 above revealed that respondents accepted all items as the methods of accessing IK. This is because the items recorded a 2.00 mean value and above set for decision. This implies that methods for accessing IK in Federal University Libraries in South East Nigeria are through exhibitions and displays, institutional/digital repositories, lending of relevant indigenous materials, mobile library services, television, radio broadcasting, seminars, symposiums, conferences workshops and documentaries. This corroborates with Aboyade and Adeyemo (2019) and Alabi et al. (2018) that accessibility of indigenous knowledge is possible through library exhibitions and displays, institutional repositories, conferences and workshops, mobile library services, and documentaries.

However, the mean ratings depict that the rate of accessing IK content by library users is low. This suggests that most library users need to make effective use of the available once in the library. It may be seen as non-essential, primitive, and valueless, which may be the reason

why librarians are not ardent and passionate about taking charge of acquiring, preserving, and disseminating indigenous knowledge resources. Hence, the need for library professionals to market and promote values of indigenous knowledge in our communities must be emphasised.

4.5 Challenges encountered in the course of Acquisition, Preservation and Accessibility of Indigenous Knowledge at University Libraries in South East Nigeria

Research Question 5: What challenges are encountered in the acquisition, preservation, and accessibility of indigenous knowledge at university libraries in South East Nigeria?

Table 8: Challenges encountered in the course of Acquisition, Preservation and Accessibility of Indigenous Knowledge at University Libraries in South East Nigeria

S/N	What challenges do you encounter?	The Challenges of Acquisition, Preservation and Accessibility of Indigenous Knowledge						
		1: Undecided; 2 Disagree; 3: Agree						
		1	2	3	Mean	Mode	SD	Decision
1	Language barriers	4(2.8)	34(23.8)	105(73.4)	2.71	3	0.52	Accepted
2	Intellectual property rights issues	4(2.8)	37(25.9)	102(71.3)	2.69	3	0.52	Accepted
3	Translation of indigenous knowledge	4(2.8)	14(9.8)	125(87.4)	2.85	3	0.43	Accepted
4	Lack of data management system creation	3(2.1)	23(16.1)	117(81.8)	2.80	3	0.45	Accepted
5	Lack of library consortia for indigenous knowledge	7(4.9)	20(14.0)	116(81.1)	2.76	3	0.53	Accepted
6	Difficulty in transferring indigenous due to its sociocultural and spiritual dimensions	5(3.5)	20(14.0)	118(82.5)	2.79	3	0.49	Accepted
7	Lack of unified policies in indigenous knowledge collection development in libraries	2(1.4)	7(4.9)	134(93.7)	2.92	3	0.32	Accepted
8	The oral mode of indigenous transmission	5(3.5)	19(13.3)	119(83.2)	2.80	3	0.48	Accepted
9	Ignorance and misconceptions about the knowledge that exists in different environments	3(2.1)	10(7.0)	130(90.9)	2.89	3	0.38	Accepted
10	The challenge of standardisation in recording and documenting IK	14(9.8)	15(10.5)	114(79.7)	2.70	3	0.64	Accepted
11	Demands much labour	14(9.8)	39(27.3)	90(62.9)	2.53	3	0.67	Accepted
12	Lack of funds	6(4.2)	7(4.9)	130(90.9)	2.87	3	0.45	Accepted

Table 8 above indicates the respondents' responses on the challenges of acquisition, preservation, and accessibility of indigenous knowledge at university libraries in Southeast Nigeria. The challenges with the highest mean score are lack of unified policies in indigenous knowledge collection development in libraries (2.92) followed by ignorance

and misconceptions about the knowledge that exists in different environments (2.89), lack of funds (2.87), translation of indigenous knowledge (2.85), the oral mode of indigenous transmission (2.80), lack of data management system creation (2.80), difficulty in transferring indigenous due to its sociocultural and spiritual dimensions (2.79), lack of library consortia for indigenous knowledge (2.76), language barriers (2.71), challenge of standardisation in recording and documenting IK (2.70), intellectual property correct issues (2.69), and demands much labour (2.53). This study coincides with the earlier findings of Ojobor et al. (2021) that the need for unified policies on IK collection development in libraries is a big challenge. In the same vein, Oyelude and Balajoko (2023) noted that lack of consortia for IK can promote duplication of efforts in collecting IK, while Jangkhohao and Laloo (2021) identified funding, intellectual property rights, among others, as challenges to acquisition and preservation of IK, in university libraries. However, this study has it that the major challenge is that most of these Ik died with the individuals that possessed them without any documentation or transmission in any form, thereby making it impossible to access. The lack of unified policies makes it difficult for librarians to handle the collection of raw IK from indigenous people. At the same time, ignorance and misconceptions about the various kinds of IK that exist in various places hinder the knowledge of the IK that exists in those areas. Therefore, librarians, as information professionals, need to attend the festivals of indigenous people at different times. They should also socialise with them in order to know specific IK to harvest for libraries. Also, libraries can source funding by seeking assistance from the local government systems and NGOs in order to carry out this excellent task.

5 Conclusion

The importance of indigenous knowledge in academic libraries can never be overemphasised. It provides a wide range of resources needed for research in various fields of life. The objectives of the study were to establish the different types of indigenous knowledge available at federal university libraries in South East, Nigeria; ascertain the methods of acquisition, preservation and accessing indigenous knowledge; and to identify the challenges associated with the acquisition, preservation and accessibility of indigenous knowledge in university libraries in South East, Nigeria. A descriptive survey research design was adopted with a targeted population of 172 professional librarians in five Federal University libraries in South East Nigeria. The study revealed that IK are obtained mainly from books and newspapers, not directly from indigenous people, and they are preserved using reports, paper documents, and institutional repositories, among others. The study also found a lack of unified policies in indigenous knowledge collection development in libraries, ignorance and misconceptions about the knowledge that exists in different environments, and lack of funds as the major challenges.

6 Recommendations

Based on the findings, the study recommends that librarians as information professionals should defile all hindrances and ensure that IK is acquired, preserved and made accessible in academic libraries. They should promote the value, contributions, and importance of IK to both indigenous and university communities. Libraries, governments and NGOs should come to terms with elders and practitioners of IK to fund and establish workshops and laboratories where such knowledge could be transferred to students and apprentices of younger generations in order to preserve them. This will go a long way towards satisfying the needs of diverse kinds of users.

References

- Aboyade, W. A., & Adeyemo, O. O. (2019). The role of the library in the acquisition, preservation, and dissemination of indigenous knowledge and cultural heritage in Nigeria. *American Research Journal of Humanities & Social Science (ARJHSS)* 2(8) 39-44
- Afful-Arthur, P., Kwafoa, P. N., Ampah-Johnston, M., & Mensah, V. (2021). Managing and accessing indigenous knowledge for national development: The role of academic Libraries in Ghana. *Information Development* 1–14
- Alabi, A. O., Oyelude A. A., & Sokoya, A. A. (2018). *It takes two to Tango: libraries achieving sustainable development goals through the preservation of indigenous knowledge on textile craft making (Adire) among women*. Standing Conference of Eastern, Central and Southern African Library and Information Association, Entebbe, Kampala, Uganda.
- Amankwah, D. N., Bilson, A. P. K. E., & Atisoc, G. (2022). Preservation of library materials: A case of a public library within the Accra Metropolitan area of Ghana (2022). *Library Philosophy and Practice*. <https://digitalcommons.unl.edu/libphilprac/6927>
- Azubuikwe, F. C., & Aji, T. C. (2021). Role of information and communication technologies in Repackaging indigenous knowledge: A 21st-century perspective (2021). *Library Philosophy and Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/6092>
- Balogun, T., & Kalusopa, T. (2021). Web archiving of indigenous knowledge systems in South Africa. *Information Development*, 1–14. doi 10.1177/02666669211005522
- Bello-Odofin. (2023). Ethnographic relevance of Nigeria's indigenous knowledge. *The Guardian*, 16 April, 2023.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Danladi, A., Ling, G. H., Dan'arewa, A. D., Lawal, Y. Z., Akoka, P., Zango, M. S., & Dyachia, S. Z. (2021). Acquisition of flood disaster risk reduction indigenous knowledge in Kaduna floodplain, Kaduna Town, Nigeria. *Texas Journal of Multidisciplinary Studies*, <https://zienjournals.com>
- Dlamini, P., & Ocholla, D. N. (2018). Information and communication technology tools for managing indigenous knowledge in KwaZulu-Natal Province, South Africa. *African Journal of Library Archives and Information Science*. 28(2), 137-153.
- Ebijuwa, A. S. (2015). The role of libraries in the preservation of indigenous knowledge in primary healthcare in Nigeria. *International Journal of Digital Library Services* 5(2)
- Filho, W. L., Wolf, F., Totin, E., Zvobgo, L., Simpson, N. P., Musiyiwa, K., Kalangu, J. W., Sanni, M., Adelekan, I., Efitre, J., Donkor, F. K., Balogun, A.-L., Mucova, S. A. R., & Ayal, D. Y. (2023). Is indigenous knowledge serving climate adaptation? Evidence from various African regions. *Development Policy Review*, 41. <https://doi.org/10.1111/dpr.12664>
- Frumkin, J., & Reese, T. (2011). Provision Recognition: Increasing awareness of the library's value in delivering electronic information resources. *Journal of Library Administration*, 51(7-8), 810-819.
- Hambisa M., Worku J., & Chala D. (2016). Knowledge management approach and a Framework for sharing and acquisition of indigenous knowledge of traditional healthcare practices: The case of Horro Guduru Wollega Zone, Ethiopia. *European Academic Research*, 4(1)
- Hangshing, J., & Laloo, B. (2021). Role of Libraries in preservation and accessibility of indigenous knowledge: a study of university libraries in Northeast India. *Library Philosophy and Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/5254>
- Iheanacho, R.A., Orusua, J.O., & Onogu, B. (2019). Rural farmers' use of indigenous knowledge Systems in agriculture and climate change adaptation and mitigation in Southeast Nigeria.

- Annals of Ecology and Environmental Science* 3(1) 1-11
- Jangkhohao, H., & Laloo, B. (2021). Roles of libraries in preservation and accessibility of indigenous knowledge: A study of university libraries in Northwest India. *Library Philosophy & Practice* (e-journal). <https://digitalcommons.unl.edu/libphilprac/5254>
- Jima, A. O. (2023). Modern Education Vis-à-vis Indigenous Knowledge in Ethiopian School Curriculums. In S. G. Barnabas (Ed.) *Indigenous and Minority Population* (pp.1–12)
- Juran, K. S. (2016). Strategies of Indigenous Knowledge Management in Libraries. *Qualitative and Quantitative Methods in Libraries (QQML)* 5, 427–439.
- Leni D. C., Dixon T. G., Antonio P. C., & Sofronio C. C. (2015). Indigenous knowledge and practices for the sustainable management of Ifugao forests in Cordillera, Philippines. *International Journal Of Biodiversity Science, Ecosystem Services and Management*, 12 (1–2), 5–13.
- Malapane, O. L., Musakwa, W., Chanza, N., & Radinger-Peer, V. (2022). Bibliometric analysis and systematic review of indigenous knowledge from a comparative African perspective: 1990–2020. <https://doi.org/10.3390/land11081167>
- Maluleka, J. R. (2017). *Acquisition, transfer and preservation of indigenous knowledge by traditional healers in the Limpopo Province of South Africa*. (Unpublished Ph.D Thesis) University of South Africa.
- Maluleka J. R., & Mpho, N. (2018). Accumulation of cultural capital: the acquisition of indigenous knowledge by traditional healers in the Limpopo Province of South Africa. *International Journal of Knowledge Management Studies*, 9(3).
- Mole, A. J. C. (2019). *Practical Guide to Research in Library and Information Science*. University of Nigeria Press, Nsukka.
- Mole, A. J. C., Ekwelem, V., & Dim, C. L. (2018). They are repackaging indigenous knowledge for non-indigenous users in university libraries. *Library philosophy and practice (e-journal)*. <http://digitalcommons.unl.edu/libphilprac/2111>
- Ngulube, P. (2002). Managing and Preserving Indigenous Knowledge in the Knowledge Management Era: Challenges and Opportunities. *Information Development*, 18(2), 95-100
- Nwankwo, I. U. (2014). Resilience of folk medicine among the Igbos of South east Nigeria. *European Scientific Journal* 10(36) 177-189
- Ojabor, R. C., Babarinde, E. T., Fagbemi, V. O., & Nwankwo, E.U. (2021). The role of federal varsity libraries in collecting and preserving indigenous knowledge for sustainable development in South East Nigeria. *Library Philosophy & Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/5155>.
- Onyima, B. N. (2016). Nigerian cultural heritage: Preservation, challenges and prospects. *OGIRI-SI, a New Journal of African Studies*
- Osuala, U. S. (2012). Colonialism and the disintegration of indigenous technology in Igboland: A case of blacksmithing in Nkwere. *Historical Research Letter*, pp. 3, 11-2
- Oyelude, A. A., & Balajoko, C. O. (2023). Indigenous knowledge examines its past and present status and projects its future in library and information services. <https://www.researchgate.net/publication/272460422>.
- Prakriti, G. (2021). Digitalisation of Indigenous Knowledge in Nepal – Review Article. *Acta Informatica Malaysia (AIM)* 5(2) 42–47. DOI:10.26480/aim.02.2021.42.47
- Ukwoma, S. C., Iwundu, N. E., & Iwundu, I. E. (2012). Management and preservation of indigenous health knowledge: The study of traditional bone setting in Owerre Ezeorba Community in Nsukka. In *Ikeoro Journal of Institute of African Studies* 9(1&2) 410-426
- Zablong Z. A., & Plockey F. D. (2015). Managing Indigenous knowledge among traditional historians of dagbon: The role of academic libraries in Ghana. *Journal of Performing Arts*. 58, 33–56. Available at: <http://ugspace.ug.edu.gh>.

33. Adoption and Domestication of Metadata Aggregation for Effective Information Retrieval Services in African Indigenous Libraries

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Abstract

Most library users in African environments experience unusual difficulties accessing their desired information, especially those related to their rich cultural and natural heritage. Ideally, users of the library should be able to discover, through one search, what information is freely available from a variety of library collections rather than having to search for each collection separately. Unfortunately, even now, our libraries' present information retrieval systems appear to be very slow, tedious, and sometimes not user-friendly; they may not be able to meet such users' expectations. There already exists a significant agreement in the research community that the use of metadata is an adequate solution to promote more efficient and accurate retrieval services in libraries, making integration and information exchange amongst heterogeneous information sources possible. Therefore, this paper employs a desk research approach to explore the relevance of adopting metadata aggregation practices as a panacea for effective information retrieval among indigenous library users concerning the African continent. The paper reviewed the literature on metadata, the benefits of metadata to libraries, and Indigenous Knowledge and Libraries. The paper also explains the need for metadata applications in African libraries. It further reviews the significance of metadata in libraries and the need for domestication of metadata aggregation. The paper further identifies potentials through which metadata aggregation in libraries can contribute to effective information retrieval services. The paper concludes that improved access to and preservation of priceless knowledge from various African cultures will result from adopting and domesticating metadata aggregation for efficient information retrieval services in African indigenous libraries. Therefore, compliance with this recommendation is crucial for effective library operations and is the best innovation to facilitate access to indigenous knowledge deposited in libraries.

Keywords: *Metadata, knowledge, indigenous libraries, Africa*

1 Introduction

Information professionals always seek to facilitate access to information sources and resources in their local communities. Proactive innovation by librarians is a vital force that makes them conduct their professional responsibilities. Knowledge provision is a good quality of any progressive information environment because it serves as a spinal cord that can create an avenue for the exchange of ideas directly and indirectly among people. The power of any library depends on its adequate provision of information and retrieval services to its users. Like any other library users globally, library users in Africa need quick responses to their information needs, which can be met through multiple sources of information assets. Indigenous knowledge is now produced by combining text, graphics, videos, audio sounds, animation and virtual reality. Indigenous knowledge is a strategic resource for development in most of the world's population as it plays a pivotal role in various aspects of their lives, poverty alleviation, medicinal treatment, conservation of natural resources and problem-solving (Zimubiyela, 2016).

Ideally, a library user should be able to discover, through one search, what information is freely available from a variety of library collections rather than having to search for each collection separately. Unfortunately, the present information retrieval systems in the African library environment appear to be very slow, tedious, and sometimes not user-friendly; hence, they may not be able to meet such users' expectations. These numerous challenges associated with information retrieval resulted from too many formats and routes of the available information sources, a need to understand the retrieval techniques, and difficulties in effectively preserving such information resources. Literature and a preliminary investigation have shown that indigenous libraries in Africa have suffered a severe decline as regulation has not improved, even with the enormous human resources at their disposal. Such information organisations suffer in terms of their productivity due to the current nature of knowledge retrieval processes. To buttress this assertion, Ngulube (2003) argued that indigenous knowledge is created and shared through cultural roles such as apprenticeship, initiation rites during adolescence, and age-set systems. Managing these types of knowledge is almost impossible as some critical traditions are lost due to a lack of media or tools to gather, record, organise, and preserve them. To counter these challenges, libraries in various parts of the world are being incorporated into the application of metadata practices to improve their information retrieval services, as more is needed to describe, organise, and provide access to traditional print material. In response to this, therefore, there is a need for the African Libraries to embrace the adoption of metadata aggregation as leverage to indigenous libraries, which will play a pivotal role in information retrieval.

Today's Information services are becoming more technologically driven, especially with the proliferation of opportunities brought by higher Information and Communication Technologies. Anyim (2018) warned that library users would be scared to patronise the library if improvement and innovation for accessing and retrieving library resources and services were not considered. According to Ogunbameru (2001), innovation can be a new product, equipment, skills, practice or idea related to solving identified constraints. It is also referred to as "changes to the status quo", which, in the judgment of the moment, are considered to be better solutions to the existing problems. In this paper, innovation represents the practices of metadata aggregation currently adopted by modern libraries to overcome the challenges experienced by using existing information retrieval systems to provide access to knowledge resources in multiple formats and routes. Therefore, rethinking the potential of metadata aggregation in African indigenous libraries, as highlighted in this paper, will play a pivotal role in preserving and promoting the continent's rich cultural heritage. Metadata aggregation can empower these libraries to bridge the gap between traditional knowledge and the digital age, fostering a greater recognition of Africa's diversity of cultures.

2 The concept of metadata

The term metadata originated from computer science and was adopted into the library and information science field, which means "data about data" (Greenberg, 2005). It is data or information used to describe the data contained in something like a webpage, document or file. According to the National Information Standards Organization (2004), metadata is structured information that describes, explains, locates, or otherwise makes retrieving, using, or managing an information resource easier. Metadata provides information about where the data came from, when it was delivered, what happened during transport, and other descriptions (Paranhusham & Madupu, 2006). According to the American Library Association (2018),

metadata is descriptive information about a particular data set, object, or resource, including how it is formatted and when and by whom it was collected.

Although the “meta” prefix (from the Greek preposition) means “after” or “beyond”, however, it is also used to mean “about”. Therefore, metadata is defined as the data providing information about one or more aspects of the data; it is used to summarise basic information about data, making tracking and working with specific data easier (A Guardian Guide to Your Metadata, 2016). Examples of this essential information include: 1) Means of creation of the data; 2) Purpose of the data; 3) Time and date of creation; 4) Creator or author of the data; 5) Location on a computer network where the data was created; 6) Standards used; 7) File size; 8) Data quality; 9) Source of the data; 10) Process used to create the data.

3 Benefits of metadata to libraries

Metadata has been used in various ways as a means of cataloguing items in libraries in both digital and analogue formats. Such data helps classify, aggregate, identify, and locate a particular resource or any object a library might hold in its collection. More recent and specialised instances of library metadata include establishing digital libraries, e-print repositories and digital image libraries. The purpose is to direct patrons to the physical or electronic location of items or areas they seek and provide a description of the item/s in question.

Dashrath (2014) viewed metadata as the data associated with objects, allowing potential users to understand their existence and characteristics fully. In other words, metadata refers to standard bibliographic information summaries, indexing terms and abstracts as surrogates for the original material. Information about authenticity availability and accessibility, copyright, and reproduction is also metadata.

Parankusham and Madupu (2006) remarked that literal metadata is “data about data”, and an example of real-world metadata is a library catalogue which contains data about the information about a book, like contents, authors’ names, and the book’s location. A simple example of metadata for a document contains information that includes the author, file size, and the date created (Chappel, 2018). Metadata is data that describes other data serving as an informative label. Therefore, at the time of information retrieval, library user has to depend on the metadata, and the extent of the use of library resources depends significantly upon the quality of the library Information retrieval services. Hence, well-structured metadata can facilitate infinite ways to search for information, present results, and manipulate information objects without compromising the integrity of these objects. Although metadata most commonly refers to web resources, it can be about either physical or electronic resources. It may be created automatically using software or entered by hand (ALA, 2018).

According to Adebayo and Emeahara (2012), other examples of metadata are library catalogue records, indexes and abstracts, finding aids, standard bibliographic description tools such as MARC 21 formats, Library of Congress Subject Headings (LCSH), Dewey Decimal Classification (DDC) and Sears List of Subject Headings (SLSH). These structured data describe the characteristics and contents of information resources to facilitate their discovery and use.

In Web pages, metadata is often used when describing page content for a search engine. Hence, it is essential for improving a Web page’s search engine optimisation (SEO). Search engines generally use metadata and a combination of other factors to determine what is on a Web page and how relevant that content is to a given search (Techopedia Inc., 2018).

Yanez (2009) noted that the most basic definition of metadata can be applied to traditional library metadata, such as the information on the cards in a card catalogue and the information in a bibliographic record displayed in an online public access catalogue (OPAC), however, when metadata is mentioned today, it usually denotes to data that facilitates the description, discovery, and retrieval of networked electronic resources (Hudgins et al., 1999).

4 Indigenous knowledge and libraries

Knowledge is defined as facts, information and skills acquired by a person through experience or education (Stevenson, 2015). Knowledge is referred to as data combined with experience, interpretation, reflection, creativity and information, which is processed and analysed. Bulan and Indra (2013) opined that knowledge is information for decision-making and actions that lead to usefulness and purpose. Kamba and Abba (2019) stated that libraries maintain important knowledge and cultural artefacts that represent a significant part of the communities' heritage. Libraries use their history and buildings as cultural assets to enrich local communities alongside other heritage attractions to contribute to tourism associated with a city or region.

As viewed by Davilt et al. (2008), Indigenous knowledge is specific to one place. Eneh and David (2022) stated that Indigenous Knowledge is knowledge peculiar to people, culture and setting. Adams (2012) noted that vital information on health, child rearing and natural resource management in indigenous settings is often encoded in unique forms such as proverbs, myths, rituals and ceremonies. According to Ayandokun and Okechukwu (2022), there are different types of indigenous knowledge, ranging from people's beliefs to medicines and arts and crafts. The main aim of indigenous knowledge management is to rebirth culture and promote the people's cultural heritage (Enh & David, 2022). Mole et al. (2018) noted that community libraries have shown a strong tendency towards preserving local culture in digital and paper formats as well as promoting the exchange of information in many countries.

Libraries are responsible for selecting, acquiring, organising, preserving and disseminating intellectual contents of human practices, experiences and recorded knowledge. Hence, they can engage leaders and other local citizens considered to hold the indigenous information. This can assist the libraries in repackaging the indigenous knowledge in a format that will be usable by different groups of users. Indigenous libraries are those libraries that are primarily aimed at indigenous knowledge management. Indigenous knowledge management is the process of acquiring, organising, preserving and, making accessible and disseminating the intellectual contents, practices, experiences, beliefs and cultures of a particular society (Eneh & David, 2023). Kamba and Abba (2019) attributed indigenous libraries to one of the primary aims of those libraries, which is to hold the cultural assets in the trust of their communities. For instance, the Ray and Millie Silver Indigenous Library is at the Community Indigenous Centre. The library features Indigenous books that range from children's literature to adult fiction and non-fiction books. They also host many Indigenous Literacy kits users can borrow through the library. The Indigenous Department has curated unique collections that can be used to support the infusion of Indigenous content and perspectives into the classrooms.

Eneh and David (2022) list some challenges that inhibit indigenous knowledge management. They include a lack of basic infrastructure, including electricity, computer hardware and software; limited budget allocations for information technology maintenance; high cost of technology; lack of technology training and support; lack of ICT expertise among policymakers; language barrier; and lack of legislative and policy implementation.

5 The need for metadata application in African indigenous libraries

According to Sefollahi (2018), ICTs facilitate information managers' dissemination of knowledge and information. Thus, they have a prominent role in knowledge management initiatives. Adams (2012) remarked that ICTs capture, store and disseminate Indigenous Knowledge so that traditional knowledge is preserved for future generations.

In the noble profession of information today, every effort is being made to embrace the new methods of information service provision. The ever-increasing advances in technology have made it necessary for information professionals to either shape in or ship out, as they cannot remain static. One of these advances that have recently gained popularity is the adoption of metadata aggregation, which is now affecting the ways libraries and information centres respond to the needs of their clients. Given the benefits, it is pertinent to advocate adopting and domesticating such innovation in our indigenous libraries.

It was recognised that raw data of knowledge was of little value without information about how it was collected, the purpose for which it was intended, formats, platforms for viewing it and restrictions on its reproduction aside from more conventional information such as author producer title, subject, and abstract (Dashrath, 2014), hence the need for metadata.

In addition, Mehsafar (2004) opined that the proliferation of internet formats introduced the perception that the available cataloguing standards could not be satisfactorily adapted for the description and discovery of multiple forms of information objects, so it became apparent that the unique characteristics of electronic resources in terms of location, document version, instability and redundant data reveals some inappropriateness in using traditional schemas such as cataloguing rules. This motivated Atinmo (2011), who posits that cataloguers must go beyond the ordinary and learn to use new and emerging technologies, multimedia applications, systems analysis and systems maintenance. The author also emphasised that information professionals should master the use of existing metadata schema such as Dublin Core and/or be able to create in-house metadata elements to describe digital documents. Thus, there is a need for indigenous libraries in Africa to embrace metadata applications in their effort to comply with the submission (Miller, 2004). One should actively be engaged in the ongoing process of ensuring that the systems, procedures and culture of an organisation are managed in such a way as to maximise opportunities for exchange and re-use of information.

6 Significance of metadata in libraries

Access to indigenous knowledge can only be effectively achieved by involving libraries, as they are one of the building blocks of the local information and knowledge structure. Rahman, Francese, Yilmaz, Beyene (2011) stated that metadata can be identified as the foundation of all information retrieval. Metadata also helps to organise electronic resources, provide digital identification, and support the archiving and preservation of resources. Metadata assists users in resource discovery by allowing resources to be found by relevant criteria, identifying resources, bringing similar resources together, distinguishing dissimilar resources, and giving location information.

According to Dashrath (2014), the following are the roles of metadata in digital information systems:

- 1) **Metadata increases accessibility:** The primary role of metadata is resource discovery, searching and locating the resource. As opined by Vejzovic (2010), the

primary purpose of descriptive metadata is to assist researchers in discovering resources relevant to their research objectives and aid the general and/or potential audience in discovering resources relevant to their needs.

- 2) **Metadata for Interoperability:** Metadata is compatible with information structures for information retrieval and exchange.
- 3) **Metadata for Multi-Versioning:** Multi-versions of the same object may be created for preservation, research, dissemination and product development purposes.
- 4) **Metadata for Right Management:** Metadata allows depositors to track the many layers of rights and reproductions of information for information objects and their multiple versions.
- 5) **Metadata for Preservation:** Lavoie and Gartner (2013) remarked that the preservation of metadata is a familiar concept for information professionals. Technical, descriptive, and preservation metadata help to know how a digital object was created and maintained, how it behaves, and how it relates to other digital objects. Preservation metadata can extend across all three descriptive, structural, or administrative categories. In addition to its functions, which are to describe, structure, and administer library resources, it also supports the process of long-term digital preservation.
- 6) **Metadata for system Improvement:** Metadata is also helpful in evaluating and refining systems to make them more effective and efficient from a technical and economic standpoint.

6.1 Types of metadata

According to Radebaugh (2004), *descriptive metadata* is typically used for discovery and identification as information to search and locate an object, such as title, author, subjects, keywords, and publisher.

Structural metadata describes how the components of an object are organised. An example of structural metadata could be how pages are ordered to form book chapters.

Administrative metadata gives information to help manage the source. Administrative metadata refers to the technical information, including file type or when and how the file was created. Two sub-types of administrative metadata are rights management metadata and preservation metadata. *Rights management metadata* explains intellectual property rights, while *preservation metadata* contains information to preserve and save a resource.

Metadata in a museum context, according to Murtha (2006), is the information that trained cultural documentation specialists, such as archivists, librarians, museum registrars and curators, that is created to index, structure, describe, identify, or otherwise specify works of art, architecture, cultural objects and their images.

6.2 The need for the domestication of metadata

Hanshing and Laloo (2022) emphasized that libraries can help collect, preserve, and disseminate indigenous knowledge to non-indigenous people. Scholars like Eneh and David (2022) pointed out that there is no doubt that ICTs have brought unprecedented relief, ease, and security to the management of indigenous knowledge. Indigenous knowledge should be repacked and presented in a format that various users can easily access. Kohode (2016)

opined that indigenous knowledge could strengthen cultural identity and assist in achieving social development through sustainable agriculture and affordable and appropriate health.

Moreover, according to Adebayo and Emeahara (2012), the solution to numerous information is “metadata”, which has been described as information about information. Metadata is structured information that describes, explains, locates or otherwise makes retrieving, using or managing an information resource easier. It is often called data about data, and it helps to facilitate the discovery of relevant information, organise electronic resources, facilitate interoperability and legacy resource integration, provide digital identification, and support archiving and preservation (National Information Standards Organization, 2004). Vejzovic (2010) stressed that a digital resource may be irretrievable, unidentifiable or unusable without metadata.

Many libraries have now replaced these paper file cards with computer databases. These computer databases make it much easier and faster for users to do keyword searches (*National Archives of Australia, 2002*).

Metadata can be created either by manual work or by automated information processing. Elementary metadata captured by computers can include information about when an object was created, who created it when it was last updated, file size, and file extension. In this context, an object refers to a physical item such as a book, CD, DVD, paper map, chair, table, flower, or pot or an electronic file such as a digital image, digital photo, electronic document, program file, or database table.

Each discipline has different metadata standards (e.g., museum collections, digital libraries, websites) describing the contents and context of data, which increases its usefulness. For example:

- A web page may include metadata specifying what software language the page is written in (e.g., HTML), what tools were used to create it, what subjects the page is about, and where to find more information about it. This metadata can automatically improve the reader’s experience and make it easier for users to find the web page online (Best Practices for Structural Metadata, 2016).
- A CD, for instance, may include metadata providing information about the musicians, singers and songwriters whose work appears on the disc.
- Metadata may be written into a digital photo file that will identify who owns it, copyright and contact information, what brand or model of the camera created the file and descriptive information, such as keywords about the photo, making the file or image searchable on a computer and/or the Internet.
- The camera creates some metadata, and some is input by the photographer and/or software after downloading it to a computer. Most digital cameras write metadata about model number and shutter speed (How to Copyright Your Photos with Metadata, 2016).

6.3 Adoption of metadata for effective information retrieval services

Adoption is defined as a process composed of learning, deciding and acting over time; it is a decision to use innovation as the best course of action available (Ogunbameru, 2001). According to Ogunbameru (2001), the decision to adopt technical innovation is assumed to be associated with the potential adopter’s social, economic and psychological characteristics and the type of the innovations, that is, their characteristics and complexities.

According to Ren and Bracewell (2009), information retrieval is an act of searching, retrieving and storing information that matches users' requests. As opined by Muhammed (2015), the concept of information retrieval can be understood within the context of what motivates someone to seek, search and retrieve information and the success, satisfaction, discovery, pleasure, benefits, and resources derived as ways, strategies and outcomes of such endeavours serve to encourage the information seeker to continue to push in a variety of efforts to succeed in retrieving and accessing the relevant information needed. Abdulkadir and Mohammed (2015) quoted Ingwersen (2002), stating that information retrieval concerns the processes involved in the representation, search, finding and storing of information relevant to a requirement for the information desired by a human user. It is also seen by Christopher (2009) as a process whereby a user of information can convert his need for information into actual lists of citations to documents in storage containing valuable information.

As Mohammed (2011) summarised, information retrieval systems are simply those processes of obtaining relevant information resources. Integrated library management systems are being leveraged differently to capture, organise, preserve, make accessible and disseminate indigenous knowledge. Indigenous knowledge is usually unpacked specifically for the use of the Indigenous people, although when acquired and processed, it may be stored or presented in various forms for other users (Eneh & David, 2022). Nevertheless, metadata has been instrumental in creating digital information systems and archives within information centres, making it easier for them to publish digital content online. This has enabled audiences who might have yet to have access to cultural objects due to geographic or economic barriers to have access to them (Murtha, 2006). Metadata will be one of the most important tools with which we will fight against digital dementia (Hakala, 2001).

According to Ottong et al. (2015), libraries were hitherto seen as the only custodians of information resources, which were mostly in print format. However, this was altered with the emergence of information and communication technology, which has incidentally affected how indigenous knowledge is retrieved. With the multiplication of mobile communication handheld devices, which have resulted in the relentless upsurge of information in electronic format, emphasis is gradually shifting away from the resource to the information it carries. According to Ogunbameru (2001), there are five (5) interrelated stages of the adoption process: Awareness, Interest, Evaluation, Trial and Adoption.

Stage 1: Awareness

Knowledge sharing is essential in a knowledge-based organisation such as libraries because most employees are knowledge workers. This effective knowledge sharing would lead librarians to realise and develop their full potential and would foster effective and efficient service delivery. At this stage, librarians should first know that metadata aggregation exists but lack details about it. This implies that before any library can adopt a new practice, its staff must know about it. It is, therefore, the major task of change agents to bring the new idea of metadata aggregation practices to the knowledge of actual stakeholders.

Stage 2: Interest

In this stage, the librarians seek more factual information about metadata aggregation technology due to the interests they developed in the practice. They may wish to know what practice is, how it works and its potential or general merit. Librarians must be willing to adapt to innovation and the circumstances of service and share knowledge to deliver high-quality

service. They need to have the right strategies where their common interest has shifted from traditional services to this much sought-after positive interest that has been fully realised.

Stage 3: Evaluation

In this stage, Indigenous libraries can carry out generalised assessments when experiencing budget or time constraints. However, generalised assessments sometimes provide a more detailed mapping between information assets, associated threats, identified risks, impact, and mitigating controls. Knowledge workers as information professionals will then show a marked interest in the technology as it applies to them, the types of information resources and services they provide. They then evaluate how the new idea affects their information retrieval services. If optimistic, they go ahead to the next phase. If negative, they stop there. It is assumed that the librarians obtained more information about the idea and decided whether or not to try it. This is because this emerging field of knowledge management offers them the opportunity to improve effectiveness for themselves and their potential users. Hence, it is a panacea for indigenous library workers and an important activity to boost and improve productivity and increase understanding among knowledge users. It can also help their organisations retain the valuable intangible assets in their communities' minds.

Stage 4: Trial

At this stage, the knowledge workers should weigh the advantages and risks involved in adopting metadata aggregation. Therefore, a Risk management strategy should also be developed in order to reduce the risks identified during the trial stage. Carrying out a risk assessment allows information organisations to view the application portfolio holistically. It supports managers in making informed resource allocation, tooling, and security control implementation decisions.

They will try the adoption first on a small scale. For example, they will begin with metadata mapping before going to aggregation practices.

Stage 5: Adoption

The final stage of the adoption metadata aggregation process is characterised by the large-scale use of the innovation and its continuous use on a large scale because there is satisfaction with its adoption. Thus, the adoption process of metadata aggregation consists of hearing about the practice, learning more about it, applying it to one's situation, trying it out on a limited scale and making the final decision to adopt or not to adopt it.

6.4 Potentials of metadata aggregation to African libraries

Metadata standards are the structured encoding mechanisms that describe the characteristics of information-bearing objects so that they can be locally organised, managed, and preserved in the Integrated Library Systems (ILS) and globally accessed and retrieved by users from different localities (National Information Standard Organization, 2004).

Metadata needs to be directed at human users, but it needs to be increasingly addressed at programmatic users. Metadata will assist in the effective human use of resources; it will be essential for the effective programmatic use. Metadata is knowledge which allows human and automated users to behave intelligently (Lorcan & Heery, 1998). Therefore, the building of extensive databases or digital catalogues that users can search, browse, and access remotely is made possible by metadata aggregation. For academics, students, and community members

interested in pursuing their cultural heritage, this vastly enhances access to information that might otherwise be difficult to locate.

Ayandokun and Okechukwu (2022). Indigenous knowledge arises from life experience and is passed down from generation to generation through word of mouth through folklore, idioms, proverbs, songs, rites of passage and rituals. However, metadata aggregation enables the connection of related resources, building an interconnected informational network. Recommending relevant resources and giving context better to understand indigenous cultures, traditions, and behaviours improves the user experience.

Adopting standardised metadata schemas and protocols is essential to ensuring efficient metadata aggregation. Users will have a simpler time searching for and retrieving pertinent materials by ensuring uniformity in how information is provided.

Researchers, teachers, and scholars frequently need interdisciplinary resources for their work. The connection of materials from diverse disciplines is made possible through metadata aggregation, which promotes thorough study by fostering the exchange of ideas. Also, the use of contemporary technologies, including databases, content management systems, and digital archives, may require the adoption of metadata aggregation. As a result, libraries are encouraged to adopt technology and develop their digital literacy, upgrading their operations.

According to Kamba and Abba (2019), there is increasing recognition that culture is equally important to social, economic, and environmental concerns for a sustainable society. Thus, by sharing their aggregated metadata, indigenous libraries in various African regions can work together to promote cross-cultural exchange and a better understanding of the continent's rich history.

7 Conclusion

Improved access to and preservation of priceless knowledge from various African cultures will result from adopting and domesticating metadata aggregation for efficient information retrieval services in African indigenous libraries. By gathering, categorising, and characterising data about resources, metadata aggregation helps users find and retrieve pertinent information. Indigenous languages, oral histories, cultural artefacts, and traditional knowledge are abundant in African libraries. These libraries can document and preserve this priceless material in digital formats by implementing metadata aggregation procedures, making it available to future generations, as highlighted in this paper.

References

- Abdulkadir, A., & Mohammed, A. (2015). Influence of Push and Pull Factors on Information Seeking and Retrieval by the Academic Staff and Students in Ahmadu Bello University, Zaria, Nigeria. *Nigerian Libraries: Journal of Nigerian Library Association* vol. 48 No. 1& 2 Jan – Dec, 2015 121-133
- Adams, (2012). Information and Communication Technologies, Knowledge Management and Indigenous Knowledge: Implication to Livelihood of Communities in Ethiopia.
- Adebayo, O., & Emeahara, E. (2012). Use of Internet Facilities and Metadata as Precursors to Electronic Resource Cataloguing In Selected University Libraries In South-Western Nigeria. *The Information Manager Vol. 12 (1&2)2012*

- Anyim, W. O. (2018). E-Library Resources and Services: Improvement and Innovation of Access and Retrieval for Effective Research Activities in University E-libraries in Kogi State Nigeria. *Library Philosophy and Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/1647>
- Atinmo, M.I. (2011). New Direction in Cataloguing and Metadata Management. A Paper presented at the 31st Annual Cataloguing, Classification and Indexing seminar/workshop of Nigerian Library Association held at ASCON Badagany 23-28 October. 13-18
- Ayandokun, A. A., & Okechukwu, I.C. (2022). Incorporating Indigenous Knowledge Practices into Modern Academic Practices for Sustainable Development: The Roles of the Public and Academic Libraries. A Compendium of 2022 Conference papers of NLA held at Abuja, 3rd to 8th July, 2022
- Bulan, S.J & Indra, S. D. (2013). Knowledge Sharing Model Among Academic Staff in Universities. In: *Jurnal Sistem Informasi*. 2012 8(2):133
- Chappel, M. (2018). Metadata Follows You Everywhere You Go: Metadata is critically important for website and database management. Retrieved Thursday 3rd 2018 from: <https://www.lifewire.com/metadata-definition-and-examples-1019177>
- Christopher, N. (2009). Information Overload, Retrieval Strategies and Internet User Empowerment. IWF Wissen and Medieng G MB H City: Gottingen country: Germany.
- Dashrath, V. B. (2014). Role of Metadata in Digital Resource Management. *International Journal of Digital Library Services*, vol. 4 July-Sept., 2014 ISSN:2250-1142 (Online), ISSN 2349-302X (Print)
- Davilt, L., Murray, S., & Terzali, A. (2008). The Role of Indigenous Knowledge in Computer Education in Africa. *International Federation for Information Processing*. Vol. 281pp 287-294
- Eneh, A.C & David, U.A.C. (2022). Indigenous Knowledge Management and ICT: The Intercepting Point. Presented at Nigerian Library Abuja Conference held 3rd – 8th July, 2022
- Greenberg, J. (2005). Understanding metadata and metadata schemes. In R. P. Smiraglia (Ed.), *Metadata: A cataloger's primer* (pp. 17-36). Binghamton, NY: Haworth Information Press.
- Hakala, J. (2001). Libraries Metadata and Preservation of Electronic Resources Proceedings of the IATUL Conferences. Paper 27. <http://docs.lib.purdue.edu/iatul/2001/papers/27>
- Hanshing, J. & Laloo, B. (2021). Role of Libraries in Preservation and Accessibility of Indigenous Knowledge: A study of University Libraries in Northeast India. *Library Philosophy and Practice*.
- Hudgins, J., Agnew, G., Brown, E. (1999), *Getting Mileage out of Metadata: Applications for the Library*, American Library Association, Chicago, IL.
- Ingwersen, P. (2002). Information Retrieval Interaction. London: Taylor and Graham p. 49 available at www.db.dk/p/iri
- Kamba, M. A., & Abba, M. A. (2019). Preservation of Cultural Heritage and Indigenous Knowledge Sustainability in Nigeria: The Role of Private Libraries. A Conference Paper presented at the 57th National Conference/AGM held at Petroleum Training Institute, Warri-Delta State, July 28 to August 2, 2019
- Kohode, O. (2016). Indigenous Knowledge and Sustainable Development in the Novel of Daniel Fagunwa. Munich, GRIN Verlag. Retrieved from: <https://www.grin.com/document/337707>
- Lavoi, B. & Gartner, R. (2013). Preservation Metadata (2nd Edition) DPT Technology Watch Report. Great Britain
- Lorcan, D., & Heery, R. (1998). Metadata: a current view of practice and issues. *Journal of Documentation*, 54 (2), March 1998. pp. 145–172.
- Mehsafari, M. (2004). Metadata and the Web. *Webology* 1(2) Available at <http://www.webology.ir/2005/v1n2/a7.html>

- Miller, P. (2004). *Metadata: What does it mean for memory institutions?* In G. E. Gorman & D. G. Dorner (Eds.), *Metadata applications and management* (pp. 4–16). Lanham, MD: Scarecrow Press
- Mohammed, Z. (2011). Organisation and Retrieval of Information Resources in Nigerian Libraries. *Journal of Nigerian Library Association* vol. 44 No. 1 p. 109-111
- Mole, A. J. C., Ekwelem, V., & Din, C. L. (2018). Repackaging Indigenous Knowledge for Non-Indigenous Users in University Libraries. *Library Philosophy and Practice (e-journal)*. Available at <http://digitalcommons.unl.edu/libphilprac/2111>
- Murtha, B. (2006). *Cataloguing cultural objects: a guide to describing cultural works and their images*. Visual Resources Association. Visual Resources Association.
- National Information Standards Organization(220). Understanding metadata. [Pamphlet]. Bethesda, MD: NISO Press. Retrieved February 1, 2009, from National Information Standards Organization Web site: <http://www.niso.org/publications/press/UnderstandingMetadata.pdf>
- Ngulube, P. (2003). Using the SECI Knowledge Management Model and other tools to communicate tacit Indigenous Knowledge. *Innovation*, 27: 21-30
- Ogunbameru, B. O. (2001). *Practical Agricultural Communication: Daily Graphics* (Nigeria) Ltd, Ibadan.
- Ottong, E. J., Etim, F. E., Ukpanah, M., Umoh, M. O., & Enidiok, O. (2015). Subject Metadata Development and Awareness for Digital Resources in University of Uyo Library, Nigeria. Available at: <http://creativecommons.org/licenses/by/3.0/>
- Parankusham, K.K and Madupu, R.R (2006). The Role of Metadata in the Data warehousing Environment. A master's Thesis, submitted to the Department of Business Administration and Social Sciences Division of Information Systems Sciences, Lulea University of Technology.
- Rahman, AIMJ., Francese, E., Yilmaz, M., & Beyene, W. (2011). Metadata practices in digital libraries. Proceedings of the International Seminar 'Vision 2021: the role of libraries for building digital Bangladesh' (p. 66–82). Dhaka: Library Association of Bangladesh.
- Ren, F., & Bracewell, D. F. (2009). Advanced Information retrieval. *Electronic Notes in Theoretical Computer Science* 225 303-317 www.elsevier.com/locate/entcs
- Sharma, A. K. (2014). Indigenous Knowledge Communication in the 21st Century. *International Knowledge of Digital Library Services*. 4(1) 128-135
- Sefollahi, N. (2018). The Importance of ICT on Knowledge Management in Organizations. *Journal of Fundamental and Applied Sciences*, 10(2) 431-448
- Stevenson, A. (2015). *Oxford Dictionary of English*. Sv 'Knowledge' and 'Process'. Oxford: Oxford University Press.
- Understanding metadata (2004). [Pamphlet]. Bethesda, MD: NISO Press. Retrieved February 1, 2009, from National Information Standards Organization Web site: <http://www.niso.org/publications/press/UnderstandingMetadata.pdf>
- Vejzovic, L.M. (2010) Metadata Research and Application in the Management of Digital Collections. https://www2.usgs.gov/core_science_systems/csas/metadata/index.html
- Yanez, I. (2009). Metadata: Implications for Academic Libraries. *Library Philosophy and Practice* 2009. <http://www.webpages.uidaho.edu/~mbolin/yanez.htm>
- Yusuf, I. T., & Olusegun, K. J. (2015). Management of Indigenous Knowledge (Ifa and Egungu) in Osun State, Nigeria. *Library Philosophy and Practice*.
- Zimubiyela, A. N. (2016). The Management and Preservation of Indigenous Knowledge Dlangubo Village in Kwazulu-Natal, South Africa. A Doctoral thesis submitted to the University of South Africa, Pretoria

34. Awareness, Accessibility and Preservation of Indigenous Knowledge for the Sustainable Development of Public Libraries in North Western States of Nigeria

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Abstract

This study examined the awareness, accessibility and preservation of indigenous knowledge (IK) for the sustainable development of public libraries in North Western States of Nigeria (NWSN). The objectives of the study were to examine the level of awareness, access and preservation of IK and the challenges with the preservation of IK. The study employed the qualitative research methodology using the narrative based design. Interview was used as the data collection instrument. The population of the study was the seven (7) executive directors from the seven (7) public libraries of the NWSN and the data was analyzed using the narrative based qualitative data analysis. The findings of the study revealed that the librarians are not aware of preserving IK; they do not have access to IK and do not engage into the practice of preserving IK. Similarly, inadequate funding, lack of awareness and training and lack of motivation were the major challenges with the preservation of IK. The study concludes that the Public Libraries do not engage into the practice of preserving IK despite its importance, thus, the need for these libraries to make effort to ensure that its documentation and practice is ensured. The study recommends that; librarians should be enlightened, trained and motivated on the need for the preservation of IK and the need for policies on the preservation of IK for the sustainable development of public Libraries in the NWSN.

Keywords: *Librarians, practice, documentation, knowledge, libraries*

1 Introduction

The system of Indigenous Knowledge has been in existence right from time immemorial. The term indigenous knowledge is seen as a traditional or local knowledge as well as a body of observations, oral and written knowledge, innovations, practices and beliefs that promote sustainability and the stewardship of cultural and natural resources through relationships between humans and their landscapes. Indigenous Knowledge can also be described as the knowledge systems developed by a community as opposed to the scientific knowledge that is generally referred to as modern knowledge.

Non indigenous people take time to learn about indigenous knowledge because western science is increasingly recognizing the value of IK and is collaborating with communities to incorporate their knowledge in related research fields. This type of knowledge is very significant as it has a great value for our cultures and also for scientist that are striving hard in order to ensure that there is improvement in conditions within the local community, improvement in decision making as well as improvement in solving particular problems that may arise in library and information centres and in the society at large. Librarians therefore need to be aware of the concept and relevance of preserving IK so that they could be accessed and preserved for the sustainable development of public Libraries.

Abubakar (2021) maintained that indigenous knowledge system is a local knowledge that has been developed over centuries and is passed orally from one generation to another. More so, Indigenous knowledge (IK) is an emerging field in the Library and Information Profession which has been accepted widely in the present global society and as such it has generated a lot of concern on the need for its preservation, access and use which could also be viewed in the context of this work from the public library perspective where librarians need to play a very significant role in order to ensure the practice of preserving IK for access and use by its clients.

Librarians in Public Libraries must endeavour to move on with the pace of development and the current trend in the discipline so as to be effective and efficient in providing public library services. They should therefore strive hard towards ensuring adequate service delivery by providing users with quality information. It can therefore be deduced that; the primary objective of any library is to preserve information and knowledge for its users and as such these libraries preserve information in order to provide users with the required services expected of them. However, one relevant type of knowledge that needs to be preserved in library is the Indigenous Knowledge. More so, Librarians need to be aware of IK, learn more about it and have access to it so as to document and preserve it for effective provision of information resources and services to users and for the sustainable development of Public Libraries in Nigeria and the North western states in particular.

2 Statement of the problem

Indigenous knowledge is a very significant aspect as it has become a global concern today and the world is waking up to the need for identifying, accessing and preserving this indigenous knowledge. It could however be seen that this knowledge gathered over the years by indigenous people are at risk of disappearing and in order to prepare for this great challenge of vanishing which may likely come frontwards, librarians need to play a very vital role to ensure that IK is been documented and preserved for use in order to solve particular problems.

Librarians globally have been playing significant role in ensuring that IK is been preserved for future use. Despite the role played by these librarians in preserving indigenous knowledge, It is rarely preserved in public libraries. These as assumed by the researcher could be as a result of the fact that a lot of librarians are not even aware of what IK is all about or they do not have access to it or are also not into the practice of preserving it. It is in view of this that the study seeks to investigate into the awareness, accessibility and preservation of IK in public libraries of the North Western States of Nigeria.

The objectives of the study are to determine the awareness of librarians on the preservation of Indigenous Knowledge, determine the level of accessibility to preserving Indigenous Knowledge in libraries, examine the practice of preserving Indigenous Knowledge in the libraries, and identify the challenges with the preservation of Indigenous Knowledge in the libraries.

3 Review of related literature

Libraries and librarians are positioned to play vital roles in providing access to indigenous knowledge to users. Librarians as such are globally carrying out different task with indigenous communities to serve as partners in creating knowledge, providing access to knowledge, preserving it, sharing it and utilizing it in order to enrich their lives. Libraries are providing indigenous materials and training to the community to help the community in documenting their IK and in ensuring that the intellectual property rights of indigenous communities are not exploited.

Public libraries are expected to collect, store and provide access to different types of information including IK for all people in the society. Jain and Jibril (2016) were of the view that Botswana public libraries have initiated a number of projects to support indigenous communities to capture and document their knowledge. The study also revealed two major ways of providing access to IK; the face to face forums and using CDs, thus, the paper recommends for librarians' proactive attitudes, strong collaborative partnership with indigenous communities and support from the Government. This showed that public libraries in Nigeria could also provide means of documenting IK by having a face-to-face forum like interviewing and use of CDs to record the knowledge accessed.

Additionally, Abubakar (2021) maintained that for rural and indigenous people, local knowledge informs decision making about fundamental aspects of day-to-day life. It thus recognizes that IK could play a very significant role in decision making processes as well as in solving clientele's daily problem and that is why librarians need to be up and doing in making sure that they are vast in knowledge and in understanding of the concept and practices of preserving IK so that their clientele can make good use of it more effectively and efficiently and for the sustainable development of libraries and the society at large. Thus, there is need for awareness in order to enhance access, use and preservation of the IK.

Awareness is one aspect that needs to be taken into consideration on the issue of providing access to IK and as such librarians need to be aware of what IK is, what it is all about and how it should be accessed, before thinking of how it should be preserved over time. Consequently, awareness is seen as a very significant aspect that needs to be given much attention to so that the librarians and the community would have more knowledge on it, build up on it and at the end facilitate the preservation of these knowledge. Mhlongo (2020) maintained that increased awareness is likely to lead to increased usage as potential users might likely realize the importance of libraries in fulfilling their objectives. Similarly, Owolabi, Ovwasa, Ajayi and Odewale (2022) maintained that practical steps should be taken to create awareness on the need to preserve IK activities in different forms. This shows the need for awareness at all levels of concern.

Looking at the need for the preservation of IK for the sustainable development of public libraries, it has been observed by Jangkhohao and Bikika (2021) that many academics and professionals are yet to appreciate the value of IK as a valid mode of learning, research and application for sustainable development and socio-economic transformation of rural community and the society at large. This is not surprising as stated by Abubakar (2021), because until lately, this mode of learning was yet to be given recognition to in the academic curriculum of universities, research institutions and private firms relying heavily on formal scientific methods.

Additionally, to preserve and make IK accessible, libraries and librarians should collaborate with indigenous people to record indigenous knowledge, store it, and make it available through different means like; television and radio broadcast, the Internet, exhibits, or mobile library services. Okore, et. al., (2009) state that; though there is so much IK in different indigenous communities of the developing world, the availability of such knowledge does not mean its accessibility or use. Libraries can promote access to IK by creating an environment which permits face-to-face forums and network formation to discuss and debate on issues that might be useful to members of the communities. For example, libraries can organize talk shows involving traditional rulers, elderly people and professionals to gather and record information on various local vocations from different subject areas.

More so, Libraries can also work in partnership with library schools to create IK collections, which can be repackaged and made accessible. Stevens (2008), believes that library and

information professionals should partner with indigenous communities. Ngulube (2002), however, observes that libraries have not been particularly active in managing IK while Nakata and Langton (2005) suggest that libraries and archives must look at the broad issues involved in the preservation of IK. They assert that libraries must consider IK not simply part of a historical archive, but a contemporary body of relevant knowledge. There is therefore the need to provide ICTs such as computers, Internet, digital cameras, camcorders, and so on, to allow libraries to make IK accessible (Okore, et al., 2009). Similarly, it was also revealed that video and audio recordings were significant sources of preserving IK in public libraries and therefore access to IK resources by the users was through the use of ICT tools such as computers and compact discs and in order to make IK accessible, television/radio broadcasting, exhibits and displays, film, mobile library services, lending of relevant indigenous materials, and online access could be used. Libraries can also use the Internet to provide access to a wide range of IK (Okore, et al., 2009). Stevens (2008) adds that libraries should collaborate with indigenous communities to acquire, store, and make IK accessible.

Furthermore, there is a vast untapped IK in the Nigerian society as well as the fear that this knowledge will be destroyed gradually and misplaced as such the Nigeria system is enthusiastic to develop its IK systems which has been orally passed from generation to generation. Okore, Ekere and Eke (2009) state that developing countries are endowed with a wealth of IK but access to such knowledge is hampered by lack of an environment that permits free flow of ideas amongst members of the community. This statement by Okore, Ekere and Eke (2009) clearly suggest that libraries should facilitate the exchange and capturing of indigenous knowledge by providing favorable environment. Indigenous knowledge (IK) is considered crucial in any country's knowledge system. However, despite the importance of indigenous knowledge in the sustainable development of public libraries, it is still faced with a lot of challenges.

Owolabi et al. (2021), revealed that inadequate funding was identified as a major challenge facing the development of IK. The study therefore recommends, among others, increased budgetary allocation to public libraries for the management of IK resources and Libraries and librarians should prioritize the preservation of IK. These Libraries should collaborate with indigenous people to acquire, store, and make IK accessible as such efforts should be made to collect and package IK and make it available on the Internet. Efforts should also be made to persuade traditional institutions and resource persons in indigenous communities to share IK with libraries for proper preservation and accessibility and the Government and corporate organizations should collaborate with libraries by providing adequate fund for the preservation.

However, despite the willingness of librarians to capture and document IK, there are challenges such as, lack of appropriate equipment to capture indigenous knowledge and lack of sufficient funds to complete some partially implemented projects on IK (editing videos and consolidating them into a one complete film) as observed by Jain and Jibril (2016), Nonetheless, these challenges are not unique to Botswana libraries as they are also experienced by other libraries. Inadequate funding, poor infrastructure and librarians' poor attitude and lack of cooperation by indigenous communities are well-cited challenges in Nigerian libraries (Okore, Ekere & Eke, 2009; Anyira, Onoriode & Nwabueze, 2010; Adeniyi & Subair, 2013).

In other words, Jain and Jibril (2016) also opined that, lack of storage facilities, such as, DVDs, CDs, films etc., unwillingness to disclose cultural information, Inadequate Infrastructure, insufficient space in libraries, inadequate equipment, such as, video camera and tape recorders to capture IK are not provided and mostly public libraries have to rely on other stakeholders for necessary equipment, lack of funds, low spirit of volunteerism: spirit of volunteerism among

indigenous people is slowly dying; hence people need to be paid for their skills or input of IK in order to encourage indigenous people to come forward to share their knowledge so that they could be preserved appropriately for the sustainable development of public libraries in the North Western states of the country. The review had clearly shown that other studies have shown the relevance of preserving IK in libraries across the globe as well as identified the problems facing libraries in its preservation but none of this literature had looked at the level at which the librarians in the public Libraries of the North Western States of Nigeria to find out if they are aware of or have access towards the preservation of IK, neither do they engage into the practice of preserving it. Therefore, this study sets out to reduce this gap by looking at the perspective of the librarians in the public Libraries of the North Western States of Nigeria.

4 Methodology

The researcher employed the qualitative research method using the narrative based research design. Interview was used as the data collection instrument in order to have an in-depth understanding of the phenomenon on ground as well as explore issues of concern. The population of the study was the executive directors of the Seven Public Libraries in the North Western States of Nigeria and all the Seven (7) directors were purposively selected as the sample size for the study using the total enumeration sampling technique to determine the sample size for the study. These participants were all selected based on their level of expertise and experience in their profession and the data was analysed using narrative analysis. Due to the nature of the population which was quite manageable, the data was collected through a telephone interview; where the researcher had a phone call with each of the respondents and in line with the research objective at the time most convenient to them, after they have been informed. However, note taking was used in jotting down what transpired with each of the respondents.

5 Analysis and interpretation of results

Table 1: Summary of Background Information of Participants

S/No	States	Code	Years of working experience	Highest Qualification	Interview Date
	Jigawa	P1	29 Years	BLIS	8/3/23
	Kaduna	P2	35 Years	MLIS	10/4/23
	Katsina	P3	28 Years	BLIS	26/2/23
	Kano	P4	30 Years	PhD	26/2/23
	Kebbi	P5	29 Years	BLIS	29/3/23
	Sokoto	P6	30 years	MLIS	28/2/23
	Zamfara	P7	32 Years	MLIS	8/3/23

Source: Telephone Interview, 2023

The data presented shows the summary of the background information of the Seven (7) Participants interviewed from the Seven (7) Public Libraries of the North Western States of Nigeria.

The data revealed the number of the participants in the library under study and the codes given to each of the participants as can be seen. The data also showed the Years of working experience and the educational qualification of each of the participants from Bachelor of

library science to PhD in Library and Information Science. The finding indicated that the participants are well experienced and vast in knowledge looking at their years of working experience which ranges from 29 to 35 years respectively and qualification ranging from Bachelor Degree to Doctor of Philosophy in Library and information science.

Similarly, participant P1, P3 and A5 are Bachelor Degree holders while P2, P6 and P7 are Master Degree holders and only P4 is a PhD holder. This showed that some of these librarians need to attain additional qualification in the area of Librarianship. The data also revealed the date and time the researcher conducted the interview from the 26th of February, 2023 to the 10th of April, 2023.

Research Question One: What is the level of awareness of librarians on the preservation of Indigenous Knowledge in the Public Libraries of the North Western States of Nigeria?

Response

P1 stated that they are aware of IK, P2 revealed that they are not aware of IK, P3 maintained that they are not aware of IK, P4 lamented that they are aware, P5 stated that they are not aware while P6 opined that they are aware and P7 maintained that they are not aware of IK.

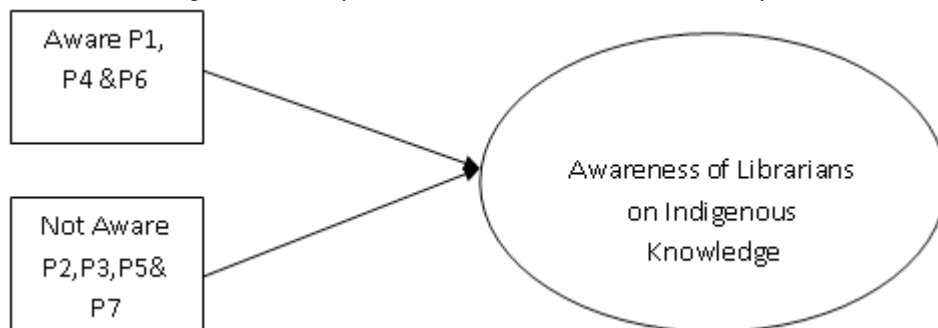


Figure 1: Awareness on Indigenous Knowledge

Research Question 2: Do you provide access to Indigenous Knowledge in the public libraries of North western states of Nigeria?

Response

P1 stated that they have access to IK while P2, P3, P4, P5, P6 and P7 all revealed that they do not have access to indigenous Knowledge.

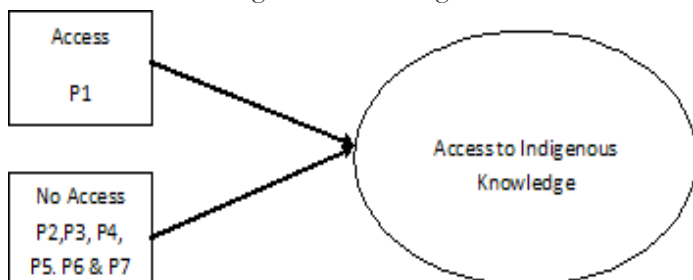


Figure 2: Access to Indigenous Knowledge

Research Question 3: Does your library engage into the practice of preserving Indigenous Knowledge in the public libraries of North western states of Nigeria?

Response

P1 stated that they preserve IK by recording them on CD's, P2 lamented that they don't preserve IK but very soon they will adopt the practice of preserving IK, P3 added that they do not practice preserving IK at all, P4 maintained that; their Library does not preserve IK but in the process of adopting the system any moment because of it's relevance. Similarly, P5 admitted that they do not preserve IK at all while P6 stated that; it would have been a good idea, but unfortunately, they do not preserve this knowledge in their library and P7 revealed that they do not engage into this practice but they really want to be trained on how to document and preserve it.

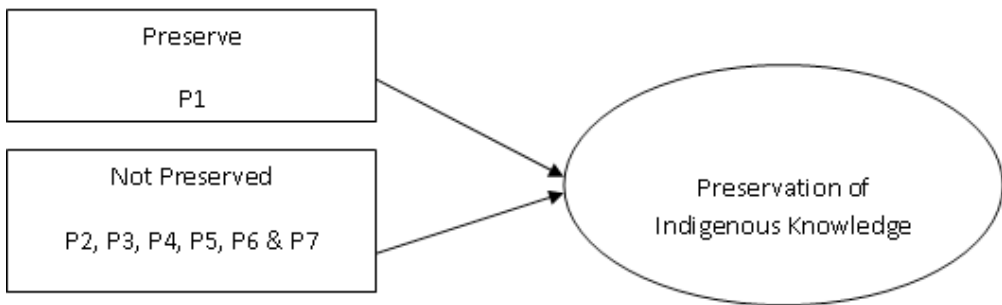


Figure 3: Preservation of Indigenous Knowledge

Research Question 4: What challenges are associated with librarians on the preservation of Indigenous Knowledge in the Public Libraries of the North Western States of Nigeria?

Response

P1 revealed that the challenges of IK are; lack of awareness from the authors, inadequate computer and scanners for digitization, lack of encouragement from the indigenous authors from the state government and poor power supply, P2 was of the view that; since they are not aware of IK and don't preserve it, they wouldn't know the challenges associated with it and P3 maintained that; they know nothing about IK and due to that they don't have access to it neither do they preserve it but it would be a very good idea if they are able to acquire knowledge on its preservation and do the needful. Similarly, P4 stated that, they lack the skills and therefore need capacity development as such attending workshops, seminars and conferences would be a very good option so as to move on with the pace of development, P5 also opined that inadequate fund, inadequate training and poor ICT skills are the major challenges of IK while P6 admitted that; poor funding, inadequate training and retraining and lack of motivation by the government are challenges confronting IK and as such they need to acquire more knowledge in this area and P7 stated that; funding is the major problem, they also lack awareness on what IK is, coupled with inadequate training for them to be vast in Knowledge.

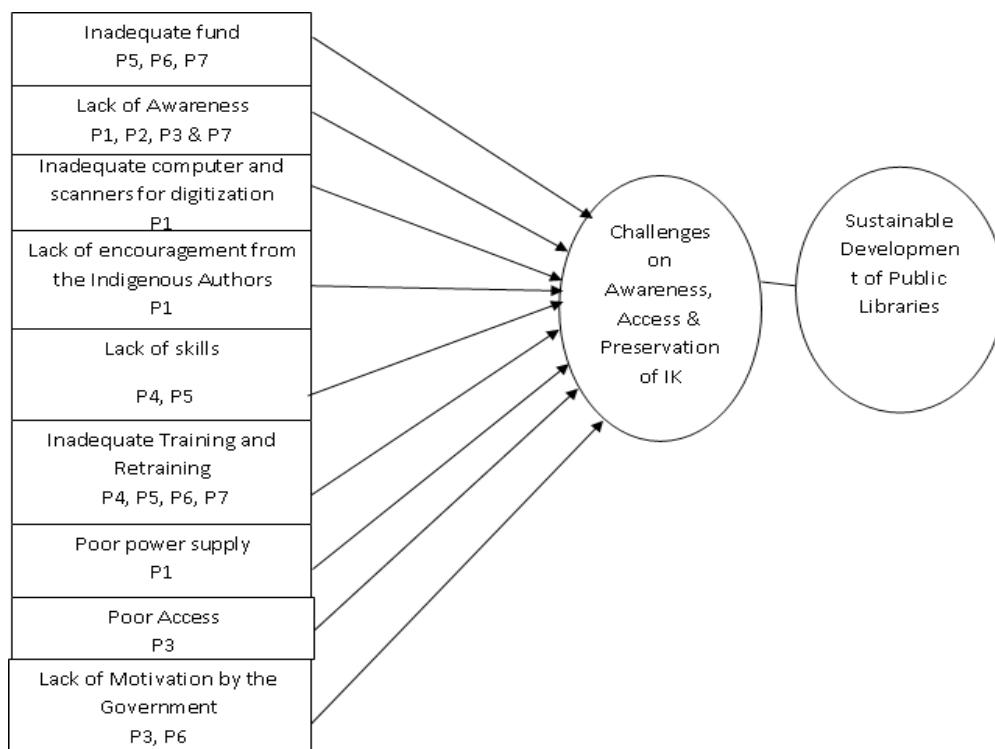


Figure 4: Challenges associated with the awareness, access and preservation of IK

The data presented in figure 4 revealed the various challenges associated with the awareness, access and preservation of IK in public libraries of the North Western states of Nigeria.

6 Discussion of findings

On Awareness, the data collected with regard to the discussions with the participants, the responses were that; majority of the participants admitted that they are not aware of the concept of IK while only few attested that they are aware of it. This shows that the level of awareness of the concept of IK is very poor in the public libraries of the North Western states of Nigeria. However, this finding is contrary to the finding of Jangkhohao and Bikika (2021) which revealed that all working personnel are aware of the importance of indigenous knowledge preservation in the library. However, the finding is also in line with the finding of Abubakar (2021) which revealed that librarians in Katsina state public library are not aware of what IK is. This by implication could be a weakness of these librarians as they need to be vast in whatever area that comes within the field of librarianship. There is therefore the need for these librarians to acquire more skills and knowledge on the preservation of IK and for the sustainable development of public libraries in the North Western States of Nigeria.

On access, the data collected with regard to the discussions with the participants and base on the questions asked, the responses were that; P2, P3, P4,P5, P6 and P7 all revealed that they do not have access to preserving IK while only P1 admitted having access to it. This showed that access to preserving IK in the public libraries of the North Western States of Nigeria is to a certain extent very poor which needs to be taken into consideration and given much attention to. This by implication shows that librarians have not been active in ensuring

that they have access to these IK. Okore, et. al. (2009) was in support that: though there is so much IK in different indigenous communities of the developing world, the availability of such knowledge does not mean its accessibility or use. Libraries can promote access to IK by creating an environment which permits face-to-face forums and network formation to discuss and debate on issues that might be useful to members of the communities. Thus, the need for librarians to find means of accessing IK so as to preserve them for use and for the sustainable development of Public Libraries.

On the practice of preserving IK, the data collected with regard to the discussions with the participants, the data showed that; librarians in the public libraries of the North Western States of Nigeria do not preserve IK in the public libraries but they showed much interest towards preserving it as they were much concerned about preserving it for the sustainable development of the public libraries in the North Western States of Nigeria. This is contrary to the findings of Jangkhohao and Bikika (2021) which asserted that many academics and development professionals are yet to appreciate the value of indigenous knowledge as a valid mode of learning, research and application for sustainable development and socio-economic transformation of the rural community and the society at large. This shows that the librarians are ready to take up the responsibility of engaging into the practice of preserving IK for the sustainable development of public libraries.

On challenges, the data collected revealed that librarians in this library are bedeviled with a lot of challenges with regard to indigenous knowledge because they are not even aware of what IK is all about. They also lack training in the area and have not been opportune to attend seminars, workshops and conferences so as to be vast in knowledge and practice as well as develop their skills on the practice therefore they need capacity building. Similarly, inadequate fund was a major challenge because with adequate fund; the librarians would have been in a better chance to acquire more skills and knowledge in the area.

The findings of this study is in line with the Findings of Abubakar (2021), which revealed that inadequate fund, lack of awareness on what IK is all about, lack of training in the area and inability to attend seminars, conferences and workshops are some of the challenges associated with the awareness, access and preservation of IK. Similarly, the finding is also in line with the finding of Jangkhohao and Bikika (2021) and Okore et.al. (2004) which confirmed that inadequate fund and ICT infrastructures, poor storage facilities, man power shortage, time demanding etc. are some of IK problems identified by this study. This study revealed that inadequate training and retraining of librarians, inadequate funding, poor awareness, lack of motivation, poor skills, poor power supply, poor access and lack of infrastructures were some of the problems affecting the preservation of Indigenous knowledge in the libraries under study. This therefore showed the need for adequate training and retraining of librarians, provision of adequate fund, provision of infrastructures, man power and many more to ensure proper preservation of IK in the public Libraries of the NWSN.

7 Conclusion

Librarians in the Public Libraries have been playing significant role in the preservation of knowledge but the preservation of IK these libraries have not been appropriately put in place because there is lack of awareness on the concept of IK, poor access to the Knowledge, not into the practice of preserving IK and is still faced with a lot of challenges. It is therefore worthy to note that it is only through preservation that IK can be accessed by the future generation of users which if not properly documented, the knowledge would be lost. Hence,

the need for librarians to be more enlightened so as to enhance awareness, accessibility and preservation of IK for posterity and for the sustainable development in public libraries in the North Western States of Nigeria.

8 Recommendations

The study recommends that:

- Librarians should provide several means of enlightening the public on the importance of preserving Indigenous Knowledge for example organizing enlightenment campaigns.
- Access to IK should be seen as a priority in the libraries. Librarians should therefore be in the best position to find means of having access to the knowledge from the people within the community so that it could be preserved for the future generation of users.
- There is need for adequate training and retraining of Librarians so that they could be well skilled and more knowledgeable in the aspect of preservation of Indigenous Knowledge.
- The Government should support libraries by providing adequate fund to enable easy access and practice of preserving IK.

References

- Abubakar, H.S. (2021). Awareness and Perception of Librarians towards the Preservation of Indigenous Knowledge for Sustainable Development in Public Library in Katsina State. Ahmadu Bello University Library Complex International conference proceedings of 2021 international conference held on the 1st – 3rd November, 2021. (P: 223-231)
- Adeniyi, I. A., & Subair, R.E. (2013). Accessing Indigenous Knowledge Resources in Libraries and the Problems Encountered by Librarians Managing Indigenous Knowledge in Oyo State, Nigeria. *Library Philosophy and Practice (e-journal)*. Paper1988. (Online), <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2391&context=libphilprc>
- Anyira, I. E., Kelvin, O., & Nwabueze, A. (2010). The Role of Libraries in the Preservation and Accessibility of Indigenous Knowledge in the Niger Delta Region of Nigeria. *Library Philosophy and Practice (e-journal)*. 387. <http://digitalcommons.unl.edu/libphilprac/387>
- Jain, P., & Jibril, L. (2016) Expanding Library Services for Indigenous Community Posterity: A Case of Selected Public Libraries in Botswana. <http://creativecommons.org/licenses/by/4.0>
- Jangkhohoa, H., & Bikika, L. (2021). Libraries in Preservation and Accessibility of Indigenous Knowledge: A Study of University Libraries in North East, India, *Library Philosophy and Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/524>
- Mholongo, M. (2020). Harnessing Indigenous Knowledge through Community Involvement in Public Libraries in South Africa. *LIBRI*, 70 (4). <http://doi.org/10.151/libri-2019-0194>
- Okore, A. M., Ekere, J. N., & Eke, H. N. (2009). Promoting Access to Indigenous Knowledge in Digitize Age: Libraries as Facilitators. Libraries Create Future: A paper presented at the Nigerian Libraries Association 47th Annual General Conference 2009, Ibadan, Oyo State, from 26-31 July 2009.
- Owolabi, K. A., Ovwasa, D. E., Ajayi, T. B., & Odewale, M. O. (2021). Preservation and Use of Indigenous Knowledge Practices in Public Libraries in Nigeria. *Public Library Quarterly*, 41 (5), 485-502.
- Stevens, A. (2008): A Different Way of Knowing: Tools and Strategies for Managing Indigenous Knowledge. *Libri* 58: 25–33. http://www.librisjournal.org/pdf2008_pp25-33.pdf

35. Mainstreaming Digital Platforms in Curating Indigenous Knowledge for Sustainable Development in Kenya

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Abstract

The rapid evolution of digital platforms is an opportunity for custodians of indigenous knowledge (IK) to utilise digital spaces to enhance IK for promoting sustainable development in Kenya. IK refers to skills, systems, and practices developed and used by indigenous people over generations to sustain livelihoods, manage natural resources and preserve cultural heritage. Safeguarding IK in Kenya involves recognising, respecting, and protecting the IK for posterity. Unfortunately, indigenous communities in Kenya continue to be ignored and forgotten in policy. Therefore, implementing the Sustainable Development Goals (SDGs) should include protecting IK. The objectives of this paper are to (i) describe the digital platforms currently used in Kenya to curate IK; (ii) analyse the effectiveness of digital platforms in preserving and disseminating IK; and (iii) propose recommendations for policymakers to consider when integrating digital platforms in curating IK and implementation of SDGs in Kenya. The study employed a mixed-methods approach, combining qualitative and quantitative data collection methods. Quantitative data was collected through bibliometrics analysis. Qualitative data was collected using a systematic literature review. Data was collected from Google Scholar using Harzing's "Publish or Perish" software, analysed using Microsoft Excel, Notepad, and VOSviewer, and presented using tables, graphs, and figures. The study findings would be helpful in providing recommendations to inform policymakers on the importance of using digital platforms to curate IK for the promotion of SDGs in Kenya. The study demonstrates that digital platforms can be used to promote the sharing of knowledge and best practices amongst different indigenous communities in Kenya and for policymakers to enact and review policy frameworks on the use of digital platforms to prevent IK from potential loss or exploitation. The research is original in scope and coverage.

Keywords: Innovation, community-led development, human rights, emerging trends.

1 Introduction

Indigenous knowledge (IK), also referred to as local or traditional knowledge, is often described as being unique to a given society. It means the skills, systems, and practices developed and used by indigenous people over generations to sustain livelihoods, manage their natural resources, and preserve the community's cultural heritage (Berkes & Turner, 2020). According to Ford et al. (2020), IK is deeply rooted in the land, health, spirituality, livelihoods, and environment setups of indigenous people.

In September 2015, 195 member states of the United Nations unanimously agreed on implementing the Sustainable Development Goals (SDGs). The UN report (2022) describes the SDGs as an ambitious, transformational agenda that promises to address complex problems facing the global community, including high levels of poverty, discrimination, and inequalities. The 17 goals and 169 targets were designed to guide and influence national policy

frameworks relating to sustainable development up to the year 2030. Sandoval-Rivera (2020) argued that IK is relevant to the achievement of sustainable development agendas in any country because it provides an opportunity for different stakeholders to reflect on the diverse meanings of IK as understood by different people in that country. However, Djohossou et al. (2023) note that the SDGs greatly missed anchoring IK and the territories of indigenous people across all the goals. Only Goal 2 on ending hunger (target 2.3) and Goal 4 on inclusive and equitable education (target 4.5) have targets that specifically include indigenous people.

In Kenya, the 2010 Constitution recognises culture as the foundation of the nation, obligates the State to promote the use of indigenous languages, and recognises the role of indigenous technologies in the development of the nation. Further, Berkes and Turner (2020) have observed that in Kenya, IK is integral to the achievement of the SDGs, particularly through the use of traditional ecological knowledge to manage natural resources and provide a basis for community-led decision-making. For instance, the Maasai community has developed extensive knowledge of animal husbandry, while the Kalenjin community has developed unique techniques for cultivating crops on steep slopes. Nonetheless, Okuro and Anyona (2016) emphasised that a critical impediment to the development and utilisation of IK is that it is mainly viewed as being inferior, primitive, or outdated. Otieno et al. (2020) opine that with globalisation, IK is increasingly facing the threat of exploitation by Western influence, and there is a risk of losing valuable knowledge and expertise. A good example highlighted by Chepchirchir et al. (2019) is the indigenous products commonly known as *kiondo* (Kikuyu traditional basket) and *kikoi* (unique Kenyan shawl commonly worn by the Masai and Swahili people), which despite being weaved and used in Kenyan communities was “stolen” and protected under Japanese patent rights. In addition, young people are abandoning their traditional ways of life and adopting Western practices, as noted by Nyamweru (2020), leading to a decline in the transmission of IK from one generation to another. Digital platforms such as social media, mobile applications, and digital archives, therefore, present a unique opportunity to not only curate and safeguard IK but also to protect IK from exploitation, extractivism and extinction (Strohm et al., 2020).

2 Rationale and objectives of the study

Indigenous knowledge, practised by different local communities in Kenya, is an essential component of cultural heritage that has been passed down from generation to generation in the form of stories, rituals, and practices (Djohossou et al., 2023). Scholars (Kibe, 2021; Kwanya, 2022; Muigua, 2021; Muthee et al., 2019) have argued that for decades, IK has proven to be beneficial to local communities that have benefited from the application of IK in traditional medicine, agricultural productivity, climate adaptation techniques, environmental management, self-identification, and other areas that are important for the development and sustenance of societies. However, Djohossou et al. (2023) have stressed that IK remains unrecognised, unprotected, and is at risk of being lost due to cultural erosion and Western colonial influence. Moreover, Kotut and McCrickard (2022) argue that even though technology has the potential to connect indigenous communities with their local knowledge, there is a high probability of technology, including digital media platforms, undermining community agency. The design of the SDGs largely ignored local knowledge, as pointed out by Djohossou et al. (2023), leading to a further undervaluing of IK. This study argues that the utility function of IK in today’s world warrants its curation and dissemination using digital platforms to inspire young people who are the majority users of digital platforms as well as contribute to building sustainable communities in Kenya.

The objectives of this paper are to describe the digital platforms currently being used in Kenya to curate IK, analyse their effectiveness in preserving and disseminating IK, and make recommendations that policymakers and development practitioners could consider for integrating digital platforms in curating IK and implementing SDGs in Kenya.

Information and data in the extant literature on indigenous knowledge, utilisation of digital platforms, and sustainable development were reviewed from scholarly resources, including books, journals, reports, and social media platforms.

3 Literature review

In the 21st century, people have more interest in technology. Guo and Boonyarutkalin (2023) state that the progress of society and the innovation of technology have led to the elevation of the protection of cultural heritage to a national strategy. Kareti et al. (2022) observe that the preservation of indigenous knowledge is essential for a community's or a country's long-term growth and helps to address poverty by using conventional ways to manage health and natural resources. Masenya (2022) notes generally that IK is a vital resource which must be preserved because of its valuable input in the management of sustainable development. Globally, the UN Declaration of the Rights of Indigenous Peoples (UNDRIP) recognises the respect for indigenous knowledge, cultures and traditional practices as it contributes to sustainable and equitable development and proper management of the environment. World organisations such as the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the World Intellectual Property Organisation (WIPO) are mandated to promote the preservation of indigenous knowledge. The International Federation of Library Associations and Institutions (IFLA) Statement on Indigenous Traditional Knowledge (2002) recognises that "*Indigenous traditional knowledge is "vulnerable," because it is exploitable and has been exploited, and because of the loss of elders and the significant decline in emphasis on the transmission of this knowledge to younger generations in the face of pressures for modernisation*". At the regional level, the African Regional Intellectual Property Organisation (ARIPO) is mandated under the Swakopmund Protocol on the Protection of Traditional Knowledge and Expression of Folklore to protect the holders of traditional knowledge against any infringement of their rights and protect expressions of folklore against misappropriation, misuse and unlawful exploitation. In Kenya, the Protection of Traditional Knowledge and Cultural Expressions Act was enacted by Parliament in 2016 to provide a framework for the protection and promotion of traditional knowledge and cultural expressions. According to this Act, the national government is mandated *to consult with the relevant county government to establish and maintain a comprehensive Traditional Knowledge Digital Repository, which shall contain information relating to traditional knowledge and cultural expressions that have been documented and registered by county governments*. The National Museums of Kenya (NMK) is a state corporation established by an Act of Parliament as a multi-disciplinary institution whose role is to collect, preserve, study, document and present Kenya's past and present cultural and natural heritage.

However, Mdhluli et al. (2021) observe that indigenous knowledge is fading away slowly within society, and it is at risk of becoming extinct and held in the hearts of senior people in a particular community, who find it difficult to pass it on to younger generations and other interested younger people.

Dlamini and Ocholla (2018) suggest that as technology changes rapidly, there is an urgent need to manage IK with what is available, either traditional or modern technologies, rather than waiting for proper digital platforms, as the focus should be on tools that promote oral

interaction such as audio-visual technologies. Institutions in charge of curating and preserving IK should adopt digital platforms to collect, package, preserve and disseminate IK (Balogun & Kalusopa, 2021). A study by Dlamini (2017a) established that digital platforms are ranked as effective tools in recording or capturing IK and also revealed that videos and cameras were the predominant tools used to record and preserve IK.

As of January 2022, the *Digital 2022* report by DataReportal reported that there were 23.35 million internet users in Kenya, 11.75 million social media users, 9.95 million were Facebook users, and 9.29 million were YouTube users. Digital platforms can be used to record, share and preserve IK, including social media platforms such as Facebook, YouTube and podcasts. These platforms have built-in features for a user to record in real-time and upload IK-related content, including text, photos, videos, and audio, as well as make social connections with people across geographic communities. However, although most social media do not require technical skills or training, they are limited to only people who can read and write in the English language, those with access to the Internet and those with the required gadgets like smartphones, laptops, tablets or computers.

Wamugi et al. (2018) recommend that IK-related institutions implement more IK management systems using emerging technologies such as social networking platforms. Concerted efforts by State and non-state actors are needed to support indigenous communities in meaningfully accessing, using, and benefiting from digital platforms for the curation and preservation of IK in Kenya.

From the study reviewed, it showed that there is a need to integrate appropriate digital platforms for preserving, managing, and sharing IK. Indeed, digital platforms can be used to make IK accessible to future generations (Masenya, 2022), protect it from intellectual theft (Mdhluli et al., 2021), and allow individuals to publish and contribute knowledge directly using their indigenous languages (Lillehaugen, 2019). Further, the authors argue that the youth label the use of digital platforms as an appropriate measure that has the potential of breeding new 'opportunities for development agencies, businesses, non-governmental organisations (NGOs), and information agencies, including schools and libraries, to partner with rural communities, national governments, and social entrepreneurs to create, manage and preserve knowledge and skills that are unique to indigenous communities.

4 Research methodology

The study applied a mixed-methods research approach that combines qualitative and quantitative methods. Kwanya (2022) views mixed-methods research as the roadmap for collecting, analysing, and interpreting quantitative and qualitative data. The research used bibliometrics methods for quantitative data collection and analysis. Alsharif et al. (2020) explain that bibliometric analysis can provide valuable insights into the research trends and patterns in a particular field on the outputs of academic publications. Further, Kwanya (2020) emphasises that bibliometric analysis as a tool helps to measure the number of publications, citations, and visibility of the research work.

Additionally, a systematic literature review (SLR) was used to analyse qualitative data. Kwanya et al. (2021) define SLR as a methodical process of identifying, evaluating, and synthesising written scholarly work. Yang et al. (2021) adds that SLRs are typically carried out with an unbiased perspective.

The publications on digital platforms in curating IK for sustainable development in Kenya were analysed. The documents to be analysed included books, journal articles, theses, and

conference papers. The documents were identified from Google Scholar using Harzing’s “Publish or Perish” software. Google Scholar was chosen by the researchers as it is a free scholarly literature retrieval source with no restrictions and provides a quick way to acquire documents published in different fields (Kwanya et al., 2021). The keywords and phrases used to retrieve data included “digital platforms”, “curation of indigenous knowledge”, “sustainable development goals”, and “Kenya”. The data was analysed using descriptive statistics and content analysis. This was done using Microsoft Excel, Notepad, and VOSviewer version 8.

5 Findings of the Study

A systematic literature review was used to conduct searches on Google Scholar using Harzing’s Publish or Perish software program. The keywords used for the search included variables in the paper’s title (mainstreaming digital platforms, curating indigenous knowledge, sustainable development, Kenya). The search, which was conducted between 23rd and 27th May 2023, resulted in a total of 200 publications. Further screening was conducted as per the PRISMA checklist (see Appendix A) so as to refine the research scope and relevance. A total of 191 publications met the inclusion criteria and were deemed relevant to the study. The nine publications that did not meet the inclusion criteria were excluded on the basis of not having a date of publication, which meant they were ineligible by automation tools. For purposes of recency, the authors also added a limitation to the study, such that only materials published between the years 2019 and 2023 were included. A total of 38 publications were excluded since they were published between 1995-2018. The total number of publications selected by the authors for a systematic literature review was 153.

5.1 Number of publications on digital platforms in curating IK for sustainable development in Kenya

The data before screening had 200 publications. As per the analysis, the findings showed that the first and oldest publication was published in the year 1995 and authored by the *International Development Research Centre (Canada)*, with the title “*Missing Links: Gender Equity in Science and Technology for Development*”. The cleaned data had 153 research publications on digital platforms in curating IK for sustainable development in Kenya. The limitation that the authors used was that they only had recent publications published from 2019 to 2023, as shown in Figure 1, on the publication trends.

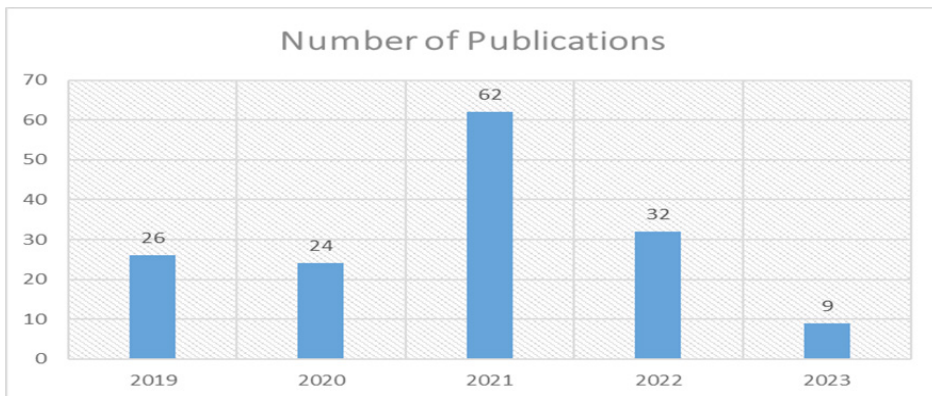


Figure 1: Trends of publications on digital platforms in curating IK for sustainable development in Kenya

5.3 Common themes/ phrases on digital platforms used in curating IK for sustainable development in Kenya

From the analysis of keywords in the titles of the publications, “indigenous knowledge” was the most common phrase, with nine appearances. This was followed by sustainability and Sub-Saharan (7), sustainability development, opportunity, implementation (6), challenges (5), technology, Open Science (4), ICT, framework, digital revolution, climate change, food system and trend (3), impact and adoption (2) and agroforestry (1). These themes, as shown in Figure 3 below, indicate that most of the research has been conducted on subjects around indigenous knowledge, especially in the Sub-Saharan region. They are also around themes in sustainability development, opportunity, and implementation.

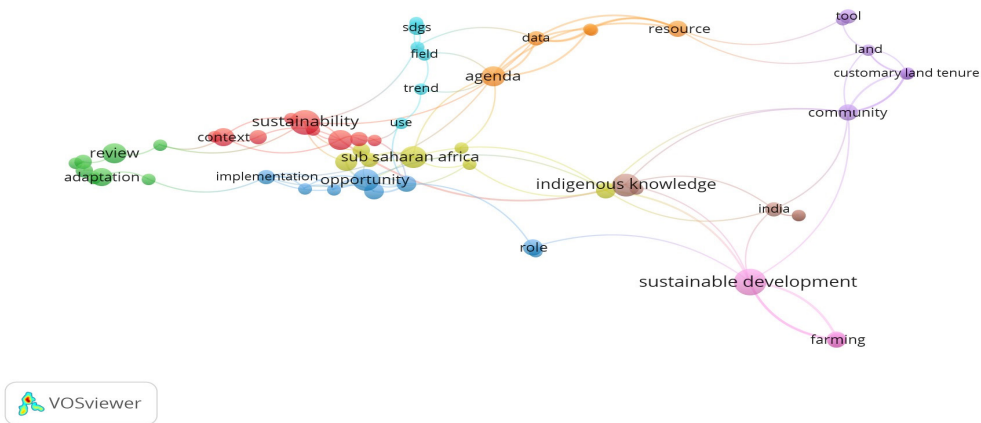


Figure 3. Common themes/ phrases on digital platforms used in curating IK for sustainable development in Kenya

5.4 Most influential articles on digital platforms in curating IK

From the analysis of Harzing’s Publish or Perish software programme, in the study above, the authors observed that the most cited source was a journal article by *Fritz et al. (2019)*, titled *Citizen Science and the United Nations Sustainable Development Goals* with a citation mark of 368 (92.00 per year) as shown in Table 2 below.

Table 2: Top 5 citation

Cites	Authors	Title	Year
368	S Fritz, L See, T Carlson, M Haklay, JL Oliver...	Citizen science and the United Nations’ sustainable development goals	2019
192	R Clark, J Reed, T Sunderland	Bridging funding gaps for climate and sustainable development: Pitfalls, progress and potential of private finance	2018
133	R Read, B Taithe, R Mac Ginty	Data hubris? Humanitarian information systems and the mirage of technology	2016

127	RA Heidkamp, E Piwoz, S Gillespie, EC Keats...	Mobilising evidence, data, and resources to achieve global maternal and child undernutrition targets and the Sustainable Development Goals: an agenda for action	2021
118	C Bobel, IT Winkler, B Fahs, KA Hasson, EA Kissling...	The Palgrave handbook of critical menstruation studies	2020

5.5 Digital platforms that are currently used in Kenya to curate IK

From all the 153 publications under review, the authors noted that none explicitly outlined digital platforms that are currently used in Kenya to curate IK. However, as indicated in the literature review (section 2.0), a study by Dlamini (2017b) established that digital platforms are ranked as effective tools in recording or capturing IK, with videos and cameras being the predominant tools. Additionally, Wamugi et al. (2018) in their study noted that the Government of Kenya, in recognising the economic, social and cultural value of IK, has established vital institutions to manage and preserve IK in Kenya, which include the Kenya National Archives and Documentation Service (KNADS), National Museums of Kenya (NMK), Kenya National Library Service (KNLS), and the Kenya Medical Research Institute (KEMRI). The authors, therefore, sought to augment the findings through a random observation of organic interactions on digital platforms of these institutions that are specifically mandated to curate and preserve IK in Kenya, as shown in Table 3.

Table 3: IK Institutions digital platforms

Digital platforms/ IK Institutions URL Links		Observations
KNADS		
Facebook	https://web.facebook.com/profile.php?id=100088334606807	<ul style="list-style-type: none"> • Not regularly updated. • Has 387 likes and 418 followers.
Twitter	https://twitter.com/kenyaarchiveshq	<ul style="list-style-type: none"> • Not regularly updated. • Has 18 followers.
Youtube		<ul style="list-style-type: none"> • Could not find a YouTube channel.
Instagram	https://www.instagram.com/kenyanationalarchives/	<ul style="list-style-type: none"> • Not regularly updated. • Has 603 followers and 22 posts.
Website	https://www.archives.go.ke/	<ul style="list-style-type: none"> • Not regularly updated – copyright dated 2022.
NMK		
Facebook	https://web.facebook.com/museumsofkenya	<ul style="list-style-type: none"> • Regularly updated. • Has over 19,000 followers.
Twitter	https://twitter.com/museumsofkenya	<ul style="list-style-type: none"> • Regularly updated. • Has 9,546 followers.
Youtube	https://www.youtube.com/@NationalMuseumsOfKenya1	<ul style="list-style-type: none"> • It is not regularly updated. It was last updated one year ago, as shown in the video “Tana River Freshwater Ecosystem Documentary.” • It has 328 subscribers and 63 uploaded videos.
Instagram	https://www.instagram.com/museumsofkenya/	<ul style="list-style-type: none"> • Regularly updated. • Has 6,720 followers.

Digital platforms/ IK Institutions URL Links		Observations
Website	https://museums.or.ke/	<ul style="list-style-type: none"> • Regularly updated.
KNLS		
Facebook	https://web.facebook.com/KNLSKenya	<ul style="list-style-type: none"> • Regularly updated. • Has over 6,500 followers.
Twitter	https://twitter.com/knlsmedia	<ul style="list-style-type: none"> • Regularly updated. • Has 5,006 followers.
Youtube		<ul style="list-style-type: none"> • Could not find a YouTube channel
Website	https://www.knls.ac.ke/	<ul style="list-style-type: none"> • Digitisation services provided to the public. • It has a virtual library: https://vtabu.knls.ac.ke/
KEMRI		
Facebook	https://web.facebook.com/kemrikenya	<ul style="list-style-type: none"> • Has 27,000+ followers.
Twitter	https://twitter.com/KEMRI_Kenya	<ul style="list-style-type: none"> • Regularly update. • Has over 51,000 followers.
Youtube	https://www.youtube.com/@kemri5302	<ul style="list-style-type: none"> • It is not regularly updated—the last update was eight months ago, a video titled “Maisha ni Health.” • It has 370 subscribers and 18 videos uploaded.
Website	https://www.kemri.go.ke/	<ul style="list-style-type: none"> • Regular updated.

5.6 Successful projects in Kenya where digital platforms have been used to curate IK

A thorough screening of the literature review conducted showed that no publication highlighted a successful project in Kenya where digital platforms had been used to curate IK between 2019 and 2023. However, for purposes of this study, the authors deemed it proper to review publications on the website of one of the most popular indigenous institutions in Kenya, the National Museums of Kenya (NMK), whose mandate is to collect, preserve, study, document and present Kenya’s cultural and natural heritage. NMK holds the world’s largest collection of Kenya’s cultural and natural heritage, accessible in its 23 state museums and 375 gazetted heritage sites and monuments distributed across Kenya’s 47 counties (NMK, 2019).

According to Google Arts and Culture (2019), NMK partnered with Google to digitise cultural collections in a project titled *Utamaduni Wetu: Meet the People of Kenya*. The project presents high-resolution images and videos of cultural artefacts that tell the stories of 28 communities as a way of preserving and also promoting Kenya’s diverse communities and vibrant cultures. Recently, in February 2023, the National Museums of Kenya partnered again with Project Fuel. This non-profit uses participatory and community-led communication tools to digitise *Maasai: Wisdom of a Community*. This a curation of more than 430+ high-resolution images, 29 illustrations, and 55+ expertly curated exhibits that contribute to preserving the cultural heritage and indigenous knowledge of the Maasai community’s language, legends, folktales, jewellery and livelihoods (Mahugu, 2023). Furthermore, the author continues to observe that the ongoing NMK digitisation projects have been described by the Cabinet Secretary in the Ministry of Tourism, Wildlife & Heritage, Kenya, Hon. Peninah Malonza, as “This body of work is yet another demonstration of how collaborating on digital transformation is making

culture and heritage universally accessible while preserving it for future generations and driving greater interest in tourism.”

5.7 The benefits of preserving and disseminating IK on digital platforms for sustainable development in Kenya

From observation of the findings, the authors note that there is no study done about preserving and disseminating IK on digital platforms for sustainable development in Kenya. However, from the 153 papers reviewed, the authors noted that only 3 of the papers highlight the benefits of using mobile digital platforms, such as the use of SMS and social media platforms to disseminate agricultural and climate-related information, resulting in improved productivity and diversified income sources.

“Smartphone apps would provide farmers with information on local crop pests, weather risks and market opportunities; these are already used in Kenya” (von Braun et al., 2023, p. 5).

“In Kenya, Kirui et al. (2013) report that the use of mobile money in rural areas increased input use by 95%, agricultural commercialisation by 37%, and annual household incomes by 71%. Suri and Jack (2016) estimate that the M-PESA mobile money service in Kenya helped 194,000 households escape poverty and diversify income sources” (Benfica et al., 2023, p. 428).

*“A recent example is an initiative set up in 2018 through collaboration between Kenya’s Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALFC) and Precision Agriculture and Development (PAD) to disseminate advisory messages relating to the fall armyworm (*Spodoptera frugiperda*) (Bakirdjian, 2020). The initiative has grown to provide actionable advice for ten crops and has demonstrated broadscale uptake by reaching over half a million farmers; in an additional pilot study on the fall armyworm, in collaboration with PRISE, 59% of 6,000 farmers who received timely SMS pest alert warnings self-reported changing their management practices with positive outcomes (Mbugua et al., 2021)” (Taylor et al., 2023, pp. 446-447).*

“online activity allowed GROW to reach 7.8 Million people, including through public events, social media posts and videos and free Massive Open Online Courses (MOOCs)” (Ajates et al., 2020, p. 6).

From the literature reviewed, the authors note that none of the screened publications analysed the role of technology or digital platforms in Kenya to promote and disseminate IK for SDGs implementation. However, the authors observed that a publication by Masenya (2022) analysed policy, techniques, and technologies being employed to document and preserve indigenous knowledge in rural communities in South Africa.

5.8 Institutional frameworks and policies to support the integration of IK in SDGs implementation in Kenya

From the literature reviewed, the authors observed that different scholars have assessed the integration of SDGs to varying degrees in sustainable innovation, intangible cultural heritage, and the overall achievement of the SDGs. The significance of traditional practices and indigenous knowledge systems in the context of sustainable development as well as for the timely realisation of the SDGs is evident in different African countries (Tanzania, Mozambique, Ethiopia, Ghana and DRC) as noted by Priyadarshini and Abhilash (2019) in Figure 4.

Table 1
 Indigenous knowledge/traditional practices from the continents of Africa, Asia and Europe contributing towards the cause of SD (UNESCO, 2017a; UNESCO, 2017b; UNESCO, 2019; World Bank, 2004).

Region/Tribal Communities	Traditional Knowledge/Practices	Characteristic features promoting sustainability
Africa Various districts of southern Tanzania such as Marambo, Mbonde and Kitangari.	Organisation of rural seed fairs on an annual basis for improvement in quality of seeds being produced	Increasing convergence between farmers and research organisations Increasing agricultural productivity, food availability and income of farmers
Bunzula, Palate, Machava, Nhancuma, and Nhabanga families of Zimline in southern Mozambique	Harvesting of mussel colonies found on the surface of rock formations in the Indian ocean	Sustainable resource management through combination of indigenous knowledge systems and community involvement
Ethiopia	Community based social financing systems known as Eder	Sustainable community level organisation contributing in the sectors of health, education and built infrastructure
Buem community in the Jasikan District of Ghana	Indigenous system of conflict management	Sustainable ideologies centred around the principles of meditation, fairness, justice and institutional trustworthiness for solving conflicts
Northern Angola, Southern Congo and the Western Democratic Republic of Congo	Indigenous knowledge employed for manufacturing sugar cane wine	Commercial development of locally manufactured products targeting sustainable consumption and production patterns

Figure 4: Indigenous knowledge/ traditional practices from Africa

Source: Priyadarshini and Abbilash (2019)

6 Discussion

The findings showed there was a higher increase in publications in 2021 compared to the other years under review. The increase could be because 2021 was a year after the COVID-19 pandemic, and researchers were inevitably using online platforms such as social media. The drop from 2022 to 2023 was also observed and could have been attributed to the fact that the year is still ongoing, and more publications may be in press waiting to be published.

The findings indicated that the most highly used and cited sources were journals from the websites (HTTP) and in the form of “pdf” and “book.” These sources showed that most of the research has been documented in journal articles and books downloaded in PDF format.

One of the common themes that VOS Viewer picked was the term “India”, which is often regarded as one of the most highly-rated countries with a rich heritage of indigenous knowledge. For example, India has a long and rich history that dates back thousands of years. Throughout its history, it has been a centre for intellectual pursuits, scientific advancements, and philosophical explorations, resulting in the accumulation of extensive indigenous knowledge in various fields such as medicine, astronomy, mathematics, agriculture, and spirituality (Jha & Sahay, 2023).

In terms of citation, it is worth noting that Bonzi and Snyder (1991) argue that citations can be impartial, meaning a high indicator does not necessarily mean more influence. Nonetheless, these authors hold the opinion that a research product’s high citation counts in terms of its signifies, superior quality and impact. In addition, in this paper, the authors believe that the quality of the research works can be assessed using the most cited paper. Haghigat and Hayatdavoudi (2021) argue that the use of citations as a proxy of research excellence is well documented in the scientific literature.

Wyber and Garrido (2019) argue that if there is one dominant feature of the sustainable development agenda, it is the faith in ICTs as a “silver bullet” and the high level of trust in the power of technology based on several successful projects where mobile phones or computers have been used to achieve goals. The authors further assert that focusing on digital information and neglecting other types, for example, indigenous knowledge, leads to the loss of wider areas and sources of information and knowledge.

The findings by De Reuver et al. (2018) reveal that digital platforms serve as software-based online infrastructures designed to enable seamless interactions and transactions among various

user groups, including producers, customers, and communities. As shown in the findings in section (4.3), the digital platforms that are currently used to share indigenous knowledge include social media platforms such as Facebook, Twitter, Instagram, and YouTube, as they act as virtual spaces where users can engage in a wide range of activities, for example, sharing resources, and leveraging the power of technology to facilitate communication and collaboration. In the study by Solomon and van Klyton (2020), the significant role played by digital platforms is to foster economic growth, enable innovation, and enhance social connectivity in the digital era.

Kavu et al. (2022) reveal that digital platforms provide new opportunities to preserve and indigenous cultures and languages as they have capabilities, for example, digital video and recording devices, storage capacities like online databases and communication tools like the Internet. In addition, a study by Shiri et al. (2022) showed that digital platform applications bear the potential to generate and share indigenous narratives, stories, and experiences as a source of meaning that is lived and made transparent in everyday relations, rituals, and activities.

7 Conclusion

In conclusion, the mainstreaming of digital platforms in curating IK for sustainable development in Kenya presents an opportunity to transform IK institutions. By leveraging technology to preserve, share, and utilise IK, institutions can promote cultural diversity, empower indigenous communities, and foster sustainable development that is rooted in local wisdom and values. It is through such inclusive and collaborative approaches that we can build a more equitable and sustainable country. It is worth noting that this study relied on bibliometrics approaches and a systematic literature review using Harzing's Publish or Perish software programme to examine the use of digital platforms in curating IK. This limited information and evidence is available on institutional websites and other search databases. There is a need for further studies to substantiate the existence of digital platforms currently being used by diverse indigenous communities in Kenya. In addition, there is a need for awareness amongst the indigenous communities on the importance of digitising IK for posterity. Critically, IK institutions ought to seek ethical consent from the communities, not only to dignify these communities as the rightful custodians and knowledge holders of IK but also to counter any likely resistance to digitising initiatives.

8 Recommendations

From the literature reviewed by the authors, it is evident that there is no comprehensive overview of institutional frameworks that exist in Kenya to support the integration of IK in the implementation of SDGs. As such, scholars interested in analysing and documenting contextual works on digital platforms used to preserve IK should focus on the multi-disciplinary interlinkages of the largely unaddressed concepts of integration of IK and SDGs in Kenya.

In addition, *the Protection of Traditional Knowledge and Cultural Expressions Act*, No. 33 of 2016, states that the “national government shall, in consultation with the relevant county government, establish and maintain a comprehensive Traditional Knowledge Digital Repository which shall contain information relating to traditional knowledge and cultural expressions that have been documented and registered by county governments.” As such, the Government of Kenya needs to avail resources to IK institutions in charge of safeguarding IK to incorporate a wide range of digital platforms to curate and preserve IK in Kenya.

IK institutions should partner with researchers and academicians to curate and document their successful IK digitally enabled projects on Google Scholar for more visibility.

References

- Alsharif, A. H., Salleh, N. O. R. Z. M. D., & Baharun, R. (2020). Bibliometric analysis. *Journal of Theoretical and Applied Information Technology*, 98(15), 2948-2962. Bibliometric analysis. Journal of Theoretical and Applied Information Technology, 98(15), 2948-2962.
- Balogun, T., & Kalusopa, T. (2021). A framework for digital preservation of Indigenous knowledge system (IKS) in repositories in South Africa. *Records Management Journal*, 31(2), 176–196.
- Benfica, R., Chambers, J. A., Koo, J., Nin Pratt, A., Falck-Zepeda, J. B., Stads, G., & Arndt, C. (2023). Food system innovations and digital technologies to foster productivity growth and rural transformation. In *Springer eBooks* (pp. 421–437).
- Berkes, F., & Turner, N. J. (2020). Knowledge, learning and the resilience of social-ecological systems. In *Handbook of Resilience in Social-Ecological Systems* (pp. 3–22). Edward Elgar Publishing.
- Bonzi, S., & Snyder, H. (1991). Motivations for citation: A comparison of self-citation and citation to others. *Scientometrics*, 21(2), 245–254.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- De Reuver, M., Sørensen, C., & Basole, R. C. (2018). The digital platform: a research agenda. *Journal of information technology*, 33(2), 124-135.
- Djohossou, P., Bulbul, S., & Hendrix-Jenkins, A. (2023). The community-led worldview of systems change: a framework centering local knowledge and aspirations in pursuit of transformational sustainability and resilience. Part 1. *Knowledge Management for Development Journal* 7(1/2), 86–106.
- Dlamini, P. N. (2017a). Applying the knowledge creation model to the management of indigenous knowledge research. *Inkanyiso: Journal of Humanities and Social Sciences*, 9(1), 75–86.
- Dlamini, P. N. (2017b). *The use of information and communication technology tools in managing indigenous knowledge in the province of KwaZulu-Natal, South Africa* (Doctoral dissertation, University of Zululand).
- Dlamini, P., & Ocholla, D. N. (2018). Information and communication technology tools for managing indigenous knowledge in KwaZulu-Natal Province, South Africa. *African Journal of Library, Archives & Information Science*, 28(2), 137-153.
- Ford, J. D., King, N., Galappaththi, E. K., Pearce, T., McDowell, G., & Harper, S. L. (2020). The resilience of indigenous peoples to environmental change. *One Earth*, 2(6), 532–543.
- Google Arts and Culture. (2019). *Utamaduni Wetu: Meet the People of Kenya* project. <https://artsandculture.google.com/asset/utamaduni-wetu-meet-the-people-of-kenya-musa-omasi/iQ-F9IxzDvOzhVw?hl=en>
- Guo, T., & Boonyarutkalin, T. (2023). Using digital technology to protect the traditional cultural heritage of Laosicheng Village. *RES MILITARIS*, 13(2), 1352-1361.
- Haghighat, M., & Hayatdavoudi, J. (2021). How hot are hot papers? The issue of prolificacy and self-citation stacking. *Scientometrics*, 126, 565-578.
- Jha, A. K., & Sahay, S. (Eds.). (2023). *Aspects of Science and Technology in Ancient India*. Taylor & Francis.
- Kareti, S. R., Rajpoot, V. S., & Ramar, H. H. (2022). A module for digital conservation of medicinal plants used by tribal communities living in selected villages of Anuppur district, Madhya Pradesh, Central India. *VINE Journal of Information and Knowledge Management Systems*
- Kavu, S., Kajongwe, C., & Ebhuoma, E. E. (2022). Climate change experts' perspective on the role of indigenous knowledge systems in climate change adaptation in Southern Africa. In *In-*

- Indigenous Knowledge and Climate Governance: A Sub-Saharan African Perspective* (pp. 67-80). Cham: Springer International Publishing.
- Kibe, L. (2021). The Role of Indigenous Knowledge in Attaining Kenya's Vision 2030: A Literature Review. *Regional Journal of Information and Knowledge Management*, 6 (2), 110–124.
- Kotut, L., & McCrickard, D. S. (2022, April). Winds of Change: Seeking, Preserving, and Retelling Indigenous Knowledge Through Self-Organised Online Communities. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (pp. 1–15).
- Kwanya, T. (2020). Publishing and perishing? Publishing patterns of information science academics in Kenya. *Information Development*, 36(1), 5–15.
- Kwanya, T. (2022). “Mixed methods and quality of postgraduate research: a Kenyan perspective”, in *Handbook of Research on Mixed Methods Research in Information Science*, IGI Global, pp. 147–172.
- Kwanya, T., Kogos, A.C., Kibe, L.W., Ogolla, E.O. and Onsare, C. (2021). “Cyber-bullying research in Kenya: a meta-analysis”, *Global Knowledge, Memory and Communication*, Vol. 71 Nos 4/5, pp. 208-229.
- Lillehaugen, B. D. (2019). Tweeting in Zapotec: Social media as a tool for language activists. *Indigenous interfaces: Spaces, technology, and social networks in Mexico and Central America*, 201-226.
- Mahugu, J. (2023, February 18). The Maasai are now digital. *The Sunday Standard*. <https://www.standardmedia.co.ke/business/lifestyle/article/2001467431/the-maasai-are-now-digital>
- Masenya, T. M. (2022). Digital Preservation of Indigenous Knowledge in South African Rural Communities. In *Handbook of Research on Protecting and Managing Global Indigenous Knowledge Systems* (pp. 317-340). IGI Global.
- Mdhuli, T. D., Mokgoatsana, S., Kugara, S. L., & Vuma, L. (2021). Knowledge management: Preserving, managing and sharing indigenous knowledge through digital library. *HTS Theologiese Studies/Theological Studies*, 77(2).
- Muigua, P. D. (2021). Revisiting the Place of Indigenous Knowledge in the Sustainable Development Agenda in Kenya. *Journal of cmsd*, 7(2).
- Muthee, D. W., Kilemba, G. G., & Masinde, J. (2019). The Role of Indigenous Knowledge Systems in Enhancing Agricultural Productivity in Kenya. *Eastern Africa Journal of Contemporary Research*, 1 (1), 34-45.
- National Museums of Kenya. (2019). Biennial Report (2017-2019). National Museums of Kenya.
- Nyamweru, C. (2020). Indigenous knowledge, innovation, and sustainability in Africa. In *Sustainable Agriculture Reviews* (pp. 71–91). Springer.
- Okuro, O. O., & Anyona, S. B. (2016). Indigenous knowledge and technology development in Kenya: Challenges and opportunities. *Journal of Scientific and Innovative Research*, 5(1), 14-21.
- Otieno, J. A., Kamau, G. N., & Nyongesa, M. K. (2020). Indigenous knowledge systems in Africa: a case study of the Kalenjin community in Kenya. *International Journal of Humanities, Social Sciences, and Education*, 7(2), 11-20.
- Pido, D., Khamala, M., & Pido, O. (2019). Decolonizing ‘Technology’ In Kenyan Higher Education and Implications for Development. In *A New Kind of Development in Africa*. Maurice N Amutabi, ed. Nairobi: CEDRED. Pp. 91 – 103.
- Priyadarshini, P., & Abhilash, P. C. (2019). Promoting tribal communities and indigenous knowledge as potential solutions for the sustainable development of India. *Environmental Development*, p. 32, 100459.
- Sandoval-Rivera, J. C. A. (2020). Environmental education and indigenous knowledge: Towards the connection of local wisdom with international agendas in the framework of the Sustainable Development Goals (SDGs). *Diaspora, Indigenous, and Minority Education*, 14(1), 14-24.

- Shiri, A., Howard, D., & Farnel, S. (2022). Indigenous digital storytelling: digital interfaces supporting cultural heritage preservation and access. *International Information & Library Review*, 54(2), 93–114.
- Solomon, E. M., & van Klyton, A. (2020). The impact of digital technology usage on economic growth in Africa. *Utilities Policy*, p. 67, 101104.
- Strohm, K., Kiptot, E., & Muchapondwa, E. (2020). Indigenous knowledge and innovation in Ken'ya's pastoral communities: A review of the literature. *African Journal of Range & Forage Science*, 37(1), 1-8.
- Taylor, B., Tonnang, H. E. Z., Beale, T., Holland, W., Oronje, M., Abdel-Rahman, E. M., ... & Murphy, S. T. (2023). Leveraging data, models, and farming innovation to prevent, prepare for, and manage pest incursions: delivering a pest risk service for low-income countries. *Science and Innovations for Food Systems Transformation*, 439.
- UN General Assembly, *transforming our world: the 2030 Agenda for Sustainable Development*, Resolution adopted by the General Assembly on 25 September 2015, [without reference to a Main Committee (A/70/L.1)], Seventieth session, Agenda items 15 and 116, 21 October 2015.
- United Nations General Assembly. (2015). Transforming our world: the 2030 agenda for sustainable development, outcome document of the United Nations summit for the adoption of the post-2015 agenda, RES/A/70/L.1.
- von Braun, J., Afsana, K., Fresco, L. O., & Hassan, M. H. A. (2023). Food systems: seven priorities to end hunger and protect the planet. In *Science and innovations for food systems transformation* (pp. 3-9). Cham: Springer International Publishing.
- Wamugi, S. M., Kemoni, H. N., & Mwai, N. W. (2018). Management and use of indigenous knowledge in selected public institutions in the Nairobi City County, Kenya. *Regional Journal of Information and Knowledge Management*, 3(2), 21-29.
- Yang, L., Zhang, H., Shen, H., Huang, X., Zhou, X., Rong, G., & Shao, D. (2021). Quality assessment in systematic literature reviews: A software engineering perspective. *Information and Software Technology*.

36. Popularising Traditional Games and Sports Amongst the Luo Youth to Preserve Indigenous Knowledge

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Abstract

For a traditional community to be productive and competitive, traditional games and sports were part and parcel of the indigenous communities. With globalisation, communities have embraced modern games, thereby pushing traditional games into oblivion. The study investigated how traditional games and sports can be popularised to attain sustainable development goals through indigenous knowledge among the Luo youth. The objective of the study was to identify traditional games and sports among the Luo community in Kenya, analyse the socioeconomic benefits of traditional games to the youth, investigate the level of acceptance of the games among the youth, examine the factors that influence the acceptance of traditional games among the youth, and recommend strategies to popularise traditional games amongst the Luo youth. The target population for the study was 40 participants drawn from Siaya, Kisumu, Homa Bay, and Migori counties, predominantly inhabited by the Luo community, using purposive sampling. The study used a qualitative survey to collect data from community and youth leaders from the three county governments. Key informant interviews were also conducted with departments of sports and culture in the four county governments. The data were analysed and reported using descriptive statistics. The findings of the study revealed the unpopularity of traditional games and sports amongst the Luo youth in Kenya. Ten traditional games and sports were identified. The findings of the study may be used to articulate the socioeconomic benefits of traditional games and sports, specifically for youth.

Keywords: *Indigenous games, indigenous knowledge, infotainment, indigenous communities, Luo, Kenya*

1 Introduction

Culture is widely accepted and thought to define and establish the foundation for every given society. Man is a product of culture since societies have employed various cultural aspects to handle various issues to survive. Culture, according to Bennett (2017), is the underlying assumptions and beliefs held by members of society. Culture is defined as a collection of practices and behaviours that a person acquires through the process of socialisation; it varies by class, status, ethnicity, and gender (Crego, 2003). To understand how and why some people act in specific situations, it is necessary first to understand the social and cultural contexts in which they were raised and socialised; distinctive cultural components such as customs, games, dancing, and music encouraged socialisation towards such identification (Hainey et al., 2016). According to Trivedi (2014), no society or ethnicity has ever existed without its specific cultural elements. Societies have been recognised by their cultural representations. As a result, every culture has made attempts to conserve its cultural legacy by not only keeping it alive but also passing it along from generation to generation. However, Crego (2003) postulates that

Luo cultural values have been lost, damaged, and twisted, putting their existence in danger. Before the establishment of the European colonial system in Kenya, these cultural values were found in abundance among the tribal societies of East Africa (Wanderi, 2011).

Following the arrival of Europeans and the subsequent imposition of Western culture, Africans were trained to abandon their traditional values, which they began to perceive as uncouth and wicked (Wanderi, 2011). According to Kenyatta (2015), one traditional cultural aspect widespread throughout Africa was games and sports, which were intimately entrenched in the communities' culture and were part and parcel of everyone's way of life. This demonstrates that games were important and served an important social-cultural function in society. Wanderi (2011) expresses concern about the possibility of these ancient games being extinct because they are no longer performed. There is an urgent need to elevate traditional games as a fundamental feature of humanity that has ensured the community's survival throughout the years (Kenyatta, 2015). These cultural aspects were designed to help people learn skills that they will need in the future, '*tuk miyo gi wuoro*' which was a role play with girls playing the 'mother' while boys played the 'father'. These activities aided in the learning of skills necessary for children's steady growth and maturation into adults. Girls imitate their mothers by playing "babies" with dolls made of clay or maize cobs. The dolls were given female names like *Anyango*, *Atieno*, and *Annor*, among others.

The purpose of the study was to gather information from respondents on how to popularise traditional games and sports among the youth in the Luo community for the preservation of indigenous knowledge.

2 Literature review

Protecting and promoting traditional sports and games (TSG) as sporting practices and intangible cultural assets is a critical task for the future growth of sports and society. Physical education, physical exercise, and sports are valuable and appealing because of their diversity (Mwendwa, 2014). Traditional and indigenous games, dances, and sports, as well as their current and emergent forms, represent the rich cultural history of the world and must be safeguarded and nurtured (UNESCO, 2015). When foreign cultures were introduced, Kenyans' indigenous cultural practices were condemned as inadequate and substandard, and they were gradually substituted by foreign cultures deemed to be superior to those already in existence. As a result, it is critical for the Luo Nyanza region to protect and develop traditional sports and games (TSG) because participating in traditional games helps young people connect with their roots and identities. Culture is a habit that we learn by being part of a certain group or society (Bennett, 2017). Teens learn a way of doing things by growing up with a certain group of people. They acquire ideas, values, and behaviours from their environment through a process known as enculturation (Dash, 2004). Jones (2022) said that culture is the best thing humans have accomplished, as it helps people understand themselves. To do this, they need to know their own culture and appreciate different cultures (Kenyatta, 2015). Humans are distinguished from other members of the animal world by our reliance on culture as our primary survival mechanism. Mwendwa (2014) says that there is a need to encourage traditional games because teenagers in indigenous African societies receive traditionally based knowledge through games and sports. These games and sports are essential for future engagement in group activities and professional life, and they can promote social cohesiveness within communities.

There were games for kids, teens, and adults (Wanderi, 2011). According to (Gundani et al., 2008). Children acquire community ways of living through play imitations from an early age. Games were viewed as a way of educating children. Skidding, high jump, hide and seek, and climbing sports were among the simple traditional games and sports played by kids; involvement in such children's play activities served as a solid basis for more challenging activities marked by youthful participation (Wanderi, 2011). Ajua, javelin, wrestling, swimming, racing, and tug of war, among others, were complex and mainly played by adults. Participation in these games helped youngsters relax and socialise while also improving cardiovascular development, as well as speed and agility. Girls played games focused on future domestic responsibilities, but boys' activities resembled drills and training in preparation for service as community warriors.

3 Research gap

This study looked at the traditional *Luo* games played by the native population, whose origins may be traced to a period before the British colonists introduced Western games. The activities under discussion include those that were engaged up to the 1960s, or even later, before the official acceptance of Western games and sports. The urgent necessity to locate and record these games to preserve them in written records and make their potential contribution to contemporary society a reality served as the driving force behind this work. One of the main reasons for the decline of traditional games and sports amongst the Luo youth is a lack of awareness and exposure. Many young people are not aware of the existence of these games and sports, let alone their significance. With the growing popularity of modern sports and technology, traditional games and sports are often seen as outdated and uninteresting. This has resulted in a lack of interest and participation amongst the youth, leading to the gradual disappearance of these cultural practices. The Luo community was the subject of the study since it is one of the communities whose traditional games have not been well investigated and recorded. The study's objective was to close this knowledge gap.

4 Rationale and methodology of the study

Crego (2003) postulates that physical play is an essential component of children's natural growth; it encourages youngsters to interact with others, think critically, solve issues, develop, and, most importantly, have fun. It is critical to maintain the traditional games that our forefathers passed down to us since they include vital local wisdom; today's children prefer to play sophisticated electronic games over traditional ones, which do not aim to preserve the indigenous knowledge of the Luo community youth. As a result, games are a significant vehicle for conveying societal values. Modern games are mainly played on electronic devices like computers and cell phones. Because they are played so often, modern electronic games promote addiction in youngsters. This is detrimental to their mental and physical well-being. The study, therefore, aims to encourage parents, county governments, schools, and policymakers to promote traditional games and sports to prevent youths from accessing unnecessary materials on the internet and play traditional games and sports to uphold the values and traditions to preserve the indigenous knowledge of the Luo community youth.

The descriptive survey research design was employed in this study. The study's goal was to gather information from respondents on ways of popularising traditional games among the Luo youth. Descriptive research determines and reports on the current state of affairs. It defines potential behaviour, attitudes, values, and qualities (Kumari et al., 2023). It is best

suiting to historical descriptions of phenomena related to the Luo traditional games. The primary source of information used by the researcher was gathered through interviews. The target population was 40 participants, 10 in each county (Kisumu, Homa Bay, Siaya, and Migori) predominantly inhabited by the Luo community. The purposive sampling method was used to collect data from 25 participants in the interview, using unstructured interviews to collect data from 21 participants. The study used a qualitative survey (unstructured interview) to collect data from selected community leaders and youth leaders from the three county governments as key informant participants. Face-to-face structured interviews were also conducted with four heads of sports and culture departments in each county government. The data was analysed and reported using thematic and content analysis.

5 Findings

A total of ten (10) games were recognised and documented (ajua, wrestling, tug of war, boat racing, swimming, dance contest, hide and seek, high jump, javelin, and racing game). Girls played while assisting their elder sisters and mothers with home tasks, and boys entertained themselves while grazing in the fields by indulging in amusing pastimes. Children did not idle or indulge in naughty activities as a result of their engagement in play. Modern games and technology have impacted traditional games and sports. However, thanks to the county government, according to the findings, the counties are attempting to popularise traditional games and sports among the Luo youths because they are aware of their potential to attain sustainable development.



Figure 1: The Luo traditional games and sports

Yua Tol (Tug-of-War)

This physical challenge game was mentioned by a total of 18 (45%) responders from Luo Nyanza of Kisumu, Homa Bay, Siaya, and Migori. They agreed on the game’s description, participants, equipment, and significance. The players in the game were young men who were divided into two teams for the competition. Each squad had the same amount of players

of the same height. The number of boys on each team was determined by the amount of boys available. The competition took the shape of a contemporary tug-of-war, with teams competing by tugging a rope, and the team that lost was the one whose first person on the rope passed the centre line painted on the ground. The tournament was won by the team that won the most pulls. This game was crucial for the recreation and training of young men in endurance when fighting or doing complex tasks.

Amen (Wrestling)

This game was described by 17 (42.5%) respondents from Luo Nyanza of Kisumu, Siaya, Homabay, and Migori, who agreed on all aspects of the game. Before colonisation, wrestling was one of the most popular sports in Africa. Wrestling served as a source of pride for individuals and even tribes. From the findings, it is evident that youths are not familiar with traditional wrestling. According to the community, a “man is said to be a man only when he has efficiently and effectively handled tough moments.” The goal of the game was to see who was the strongest among the contestants, with the winner being determined by toppling the opponent. The winner was selected by counting how many times each person fell. The overall champion was granted the title “*Tbuon*”, which means “Warrior.” The game was extremely beneficial in terms of physical training and fostering a sense of competitiveness and success. It was also utilised to select the strongest males who would be relied on for communal defences, and women loved being married by the strongest man for protection.

Ringo (Racing)

8 (20%) respondents named these games, which both males and girls enjoyed. The respondents agreed on the racing events, which included various distances. They said that races among youngsters were a daily occurrence. These races were held in a variety of locations, including roads and paths either downhill or uphill, as well as homesteads. The running track was marked by various elements such as trees, homes, and plants. Children participated in a variety of races, including contemporary relays, in which they used sticks as batons. The winner was selected based on speed and endurance while running the prescribed distance. The races were extremely important in improving the players’ physical condition, notably their speed and endurance.

Baa Tong (Javelin)

9 (22.5%) respondents noted and described the game *Baa Tong* (Javelin). It was mostly performed by boys, who used a long stick with a sharp metallic end called a spear (*tong*). It was done on a level surface/ground with a runway with a scratch line designating the throwing point, similar to the contemporary javelin. It had a maximum of Eight participants and a minimum of two. Only one participant was permitted to throw at a time. After the javelin had landed, the players had to wait for the remainder of the players to take their turns. The winner was determined by measuring the distance travelled by the javelin. The game was crucial in developing young togetherness, unifying disparate clans, relaxing, and imparting the throwing skills required during defines.

Dum (High jumps)

10(25%) respondents from Luo Nyanza mentioned the game. It was played exclusively by men. It was similar to a contemporary high jump, except it was performed on sand-filled ground during the dry season. The competitors leapt above the predetermined height. Both spectators and competitors were not permitted to do the leap if the turn was not theirs,

to place anything that might damage the competitor while landing, to disrupt the jumping competitor by entering the running zone, or to enter the landing area. The person who leapt the highest height was declared the winner. This game was important in teaching participants how to flee from their enemy when they were assaulted. It also made competitiveness among the players easier.

Tuk Pondo, Brikicho (Hide and Seek)

20 (50%) respondents mentioned *Tuk Pondo* (hide and seek) game. Young children, according to these respondents, played the game. The participants concealed themselves in houses, grass, ditches, trees, thickets, and shrubs. The youngsters that participated would be divided into two groups. They decided, as a group, to begin by hiding or looking. As the other party moved into hiding, the members of the seeking group were blindfolded or closed their eyes. They would count up to fifty at the same time, after which the concealing group would answer by yelling “*Podi*,” signalling that they were not ready. When one’s hide-out was discovered, they would yell “*Tipo*” (you have been spotted), and that person would join that group in pursuit of their friends. *Tuk Pondo* promoted fitness due to its nature of running and concealing, consequently empowering components such as endurance, agility, flexibility, and speed. The game also improved listening and timing abilities.

Miel (dance contest)

Miel (dance contest) originated from the ancestors of the Luo community and was mentioned by 12 (30%) respondents from across Homa Bay, Siaya, Kisumu, and Migori. It was played by young men and women looking for marriage partners. It was done in sisal skirts and shorts that were nicely ornamented with red on top and white or black on the bottom. It was conducted on fields that had been cleaned and demarcated for contests. They competed by dancing, and the best dancer received a present. The best dancer was named the champion. The dancing competition provided participants with aesthetic value, coordination as they danced together, and overall fitness. It offered a venue for people to find future companions.

Ajua

Traditionally, *Ajua* gaming boards were constructed of intricately carved wood. The games were popular in Homa Bay, Kisumu, and Siaya, with 15 (37.5%) respondents mentioning them. The most common *ajua* game has two ranks, each with two rows of six holes and two storage pits. At the start of the game, there are 48 pieces in total; the 48 pieces are dispersed evenly in the 12 cells at the start of the game. To make a move, a player picks up all the pieces in a cell in his/her row and moves counter-clockwise around the board, from his/her row to the opponents, and back again, depositing them, one at a time, in each cell that he/she passes over, without skipping, until the pieces are depleted. This game was important for memory development, problem-solving, and planning a strategy to defeat an opponent.

Go Abal (Swimming)

13 (32.5%) respondents mentioned this game. It was played in water reservoirs such as dams and ponds by both boys and females (*rowere*). Competitors gathered at one end of the water reservoir in preparation for the command to begin. Interfering with or disrupting other contestants resulted in their disqualification. *Go abal* encouraged togetherness and sociability and provided participants with swimming and life-saving abilities, which were extremely valuable in dealing with environmental calamities.

Piem mar Yiedbi (Boat racing)

The findings indicate that this game was and is still played using boats and is a popular water sport. A popular game among communities living beside a lake, such as Lake Victoria, this game was mentioned by 23 (57.5%) respondents in total from Siaya, Migori, Kisumu, and Homabay. Both youngsters and adults (*rowere*) with boat rowing and fishing expertise participated in the game. The Boat contest is a side-by-side rowing contest held on the lake. The Boat Race is conducted annually and is contested by crews from various groups. Because the game is played in the water, participants must maintain strict discipline. Boat racing promoted socialisation and gave participants boat rowing and life-saving skills on the water, which were highly useful in coping with natural disasters.

Table 1: Illustrating popular traditional games

S/No.	Games	Distributed	Returned	Familiar with the game	Popularity
1	Boat racing	40	35	23	57.5%
2	Hide and seek	40	35	20	50%
3	Tug of war	40	32	18	45%
4	Wrestling	40	30	17	42.5%
5	Ajua	40	34	15	37.5%
6	Swimming	40	20	13	32.5%
7	Dancing	40	27	12	30%
8	High jump	40	18	10	25%
9	Javelin	40	16	9	22.5%
10	Racing	40	15	8	20%

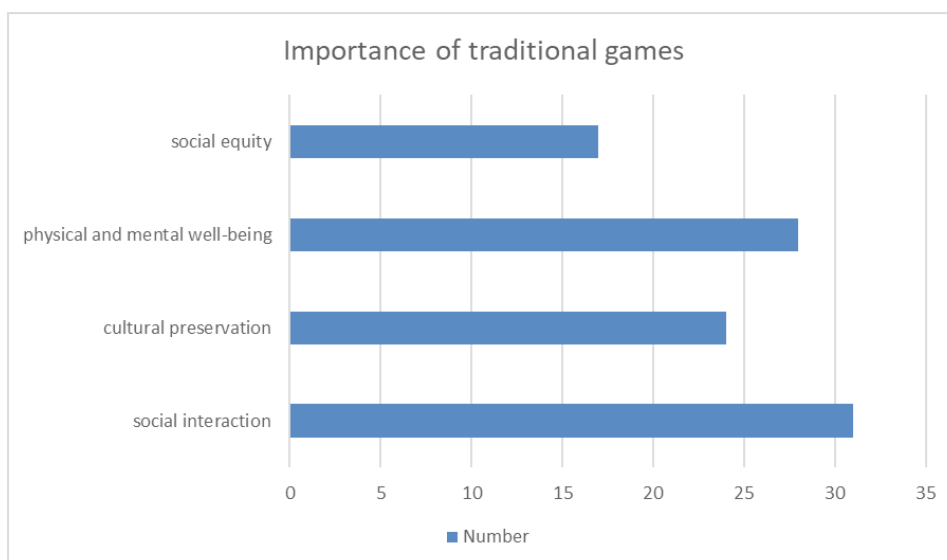


Figure 2: The importance of traditional games to the participants and the community

5.1 Popularising the traditional games of the Luo

Popularising traditional games is an excellent approach to maintaining cultural heritage while also encouraging healthy and social activities (Brown et al., 2020). Traditional games have vanished from the lives of modern youngsters and are now unfamiliar to them. They are no

longer a part of a modern child’s natural surroundings. Many traditional games, however, have vanished, and those that remain fear extinction. Globalisation, migration, and societal changes are all major elements of this trend. For many years, UNESCO has been tasked by its Member States to strengthen worldwide collaboration in conserving and improving traditional and indigenous sports. Each household should be encouraged to spend time teaching their children traditional games,” said one participant. The Education, Gender, Youth, Sports, Culture, and Social Services Office emphasised several techniques used to popularise traditional games among Luo youths. Cultural festivals and community events are the techniques used to popularise indigenous games. The County administration of Homa Bay, for example, held a Luo cultural event called “Piny Luo Extravaganza”. Seasonal celebrations such as Christmas festivities or New Year’s Eve celebrations are also being conducted in the villages, and various traditional games are being played.

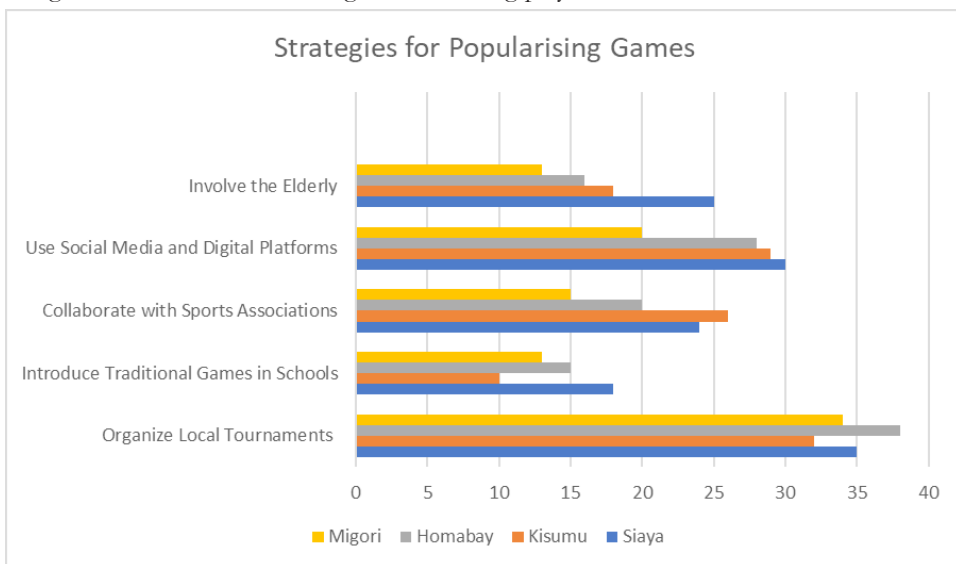


Figure 3: Strategies for Popularising the traditional games

6 Discussion

The study’s findings demonstrated that the Luo community’s traditional games were essential to both the players and the community. More precisely, the rules that were used during play. Physical abilities, which were required for personal involvement, are essential for community survival. This finding is consistent with Munyao’s (2010) discovery that a community’s existence is dependent on the empowerment of its people in terms of overall physical health. Hence, participation in traditional sports is more than just enjoyment. Farming needed much energy because it was done by hand. As a result, the community required physically strong people who could carry out their responsibilities effectively. Results showed that involvement in traditional games was a significant way for participants to improve their physical fitness. This fitness was thus required for both the individual and the community as a whole.

Furthermore, for players to participate in an activity, they have to develop self-control, maturity, and cooperation with others. Traditional games were also acknowledged to have provided a platform for the socialising process since players interacted at individual, family, and group levels while participating in play activities. Participation drew individuals together,

laying the groundwork for teamwork at both the group and community levels. These findings are consistent with Kenyatta's (2004) theory in that involvement results in the development of a wide variety of abilities, such as leadership, decision-making, and communication. Sporting activities teach youths about many techniques for expanding their knowledge through promoting physical, mental, emotional, and social growth. Crego (2003) reports that athletics, dance, and traditional games improve effective communication abilities and community belonging. Pro-social characteristics such as sharing and caring are rapidly fading as a result of changing social views and difficult times of societal discord, with virtual games capturing the attention of children and adults, resulting in a low preference for playing physical games. The current trend of gadget-based games leads to diminishing socio-cultural development, making it vital to revive the culture of playing traditional games to build humanitarian qualities in young children throughout their early developmental phases. When youths play in groups, they naturally articulate and negotiate appropriately with their friends in needy circumstances. Traditional games relieve intellectual or emotional stress by releasing the oxytocin hormone, which promotes pro-social behaviour, empathy, and good feelings. It was revealed that indigenous gaming activities mixed with social conduct were extremely beneficial for developing social behaviour among young pupils.

7 Conclusion

From the findings, the authors concluded that Luo has traditional games that were mentioned by the participants who contributed to this study. They also concluded that the traditional games mentioned are no longer being practiced regularly as before. Traditional games hold significant relevance in various aspects of society, culture, and personal development. Traditional games are not just nostalgic pastimes; they are valuable assets to society. They contribute to cultural preservation, physical and mental well-being, social cohesion, and personal growth. Efforts to promote and pass down these games are essential for maintaining cultural diversity and promoting a healthy life. The authors recommended the following approaches based on the findings to help in the popularisation of traditional games and sports.

8 Recommendations

- The National Government Ministry of Education, Science, and Technology should support the participation and preservation of traditional games by stressing cultural values that should be taught from preschool through higher education and also strengthening joint efforts in traditional game research and teaching, as well as enabling their performance at various forums.
- Introduce traditional games to the next generation by incorporating them into the school curriculum.
- Increase awareness and interest in traditional games by using social media, websites, and online forums. Share instructional videos, articles, and tutorials to educate others on how to play these games.
- Create mobile applications that imitate classic games to make them more accessible to a larger audience. Gamification has the potential to make these games more enjoyable for younger generations.

References

- Bennett, J. W. (2017). *The ecological transition: cultural anthropology and human adaptation*. Routledge.
- Crego, R. (2003). *Sports and Games of the 18th and 19th Century*. U.S.A.: Greenwood Publishing Group. <http://www.books.google.co.ke>
- Dash, K. N. (2004). *Invitation to Social and Cultural Anthropology*. New Delhi, India: Atlantic Publishers and Distributors (P) Ltd. <http://www.google.books.co.ke>
- Gundani, M. P. D., Makaza, D., Amusa, L. O., Mugandani, S. C., Kanji, M., & Tapera, E. M. (2008). Mnggwayi: a stick-throwing game of the Kalanga people of Zimbabwe: traditional game. *African Journal for Physical Health Education, Recreation and Dance*, 14(4), 495-513.
- Hainey, T., Connolly, T. M., Boyle, E. A., Wilson, A., & Razak, A. (2016). A systematic literature review of games-based learning empirical evidence in primary education. *Computers & education*, pp. 102, 202–223.
- Jones, I. (2022). *Research methods for sports studies*. Routledge.
- Kenyatta, J. (2015). *Facing Mount Kenya: The traditional life of the Gikuyu*. East African Educational Publishers.
- Kumari, S. K. V., Lavanya, K., Vidhya, V., Premila, G. A. D. J. S., & Lawrence, B. (2023). *Research methodology* (Vol. 1). Darshan Publishers.
- Brown, N., McIlwraith, T., & de González, L. T. (2020). *Perspectives: An open introduction to cultural anthropology* (Vol. 2300). American Anthropological Association.
- Munyao, R. K. (2010). The traditional games of the Akamba of Kenya. *Unpublished Master's Thesis, Kenyatta University, Kenya*.
- Mwenda, P. W. (2014). *B. ED ARTS* (Doctoral dissertation, Kenyatta University).
- Trivedi, E. M. a. L. (2014). ASIANETWork Exchange: A Journal for Asian Studies in the Liberal Arts Full Issue PDF Spring 2014 Volume 21 Number 2. *The ASIANetwork Exchange: A Journal for Asian Studies in the Liberal Arts*, 21(2). <https://doi.org/10.16995/ane.127>
- Wanderi, M. P. (2011). *The Indigenous games of the people of the coastal region of Kenya: A cultural and educational appraisal*. African Books Collective.

37. Promoting the Potentials of Participative Management: A Catalyst for Regulating Indigenous Libraries in Africa

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Abstract

This paper highlights what modern information professionals need to rethink: the need to integrate the potential of participative management in the regulation of indigenous libraries as a catalyst for effective information services. Information needed to actualise this paper was gathered from secondary sources of data, which were textbooks, journal articles, conference papers, and online sources. The paper, therefore, employs the conventional content analysis approach (desk research method). It adopts the analysis of existing documents that contain information about the phenomenon under study. It also highlights the contribution of user participation in management, recognising both the need and right of users to be involved. Among other things, concepts of users' participation, library productivity, policymaking, the effect of non-participation and challenges associated with user participation in policymaking, particularly in African indigenous libraries, were briefly highlighted. The paper concludes that regulating libraries with the aid of modern management practices in the COVID-19 era represents an initiative that helps to build new opportunities for achieving effective information services, especially in developing countries. The paper further recommends the positive disposition of library management towards user participation in policymaking. More importantly, enlightenment programmes for user communities on their right to be involved in the library policymaking, provision of monetary and other incentives to clientele so as to encourage them to sustain interest in the participation, training of library workers as a way of equipping them on their policymaking role and liberalisation management structure so as to allow for greater participation among others.

Keywords: *User participation, library regulation, indigenous knowledge, Africa*

1 Introduction

Libraries are responsible for the selection, acquisition, organisation, preservation and dissemination of intellectual contents of human practices, experiences and recorded knowledge. Hence, they can engage leaders and other local citizens who are considered to hold indigenous information. This can assist the libraries in repackaging the indigenous knowledge in a format that will be usable by different groups of users. Therefore, Indigenous libraries are such libraries that have always played a nucleus role in the preservation of cultural heritage. From antiquity, which was owned by rulers/kings, it served as archives for the documents of royal families, genealogy charts, private medical records, military histories, and other personal records (Kamba & Abba, 2019). Indigenous knowledge, according to Yusuf and Olusegun (2015), is a homegrown knowledge that enables communities to make sense of who they are and to interact with their environment in ways that sustain life. According to Chepchirchir et al. (2019), all knowledge can be considered indigenous in as much as it pertains to a particular geographical location. In his attempt to identify the characteristics of indigenous knowledge,

Sharma (2014) described it as locally bound to a specific area, culture and context-specific, non-formal knowledge, orally transmitted and generally not documented, dynamic and adaptive, holistic in nature, closely related to survival and subsistence for many people and basis for local-level decision making in Agriculture, Health care, food preparation, education, natural resource management and host of other activities in rural communities.

2 User Community participation and the regulation of indigenous knowledge

Participation means meaningful involvement rather than muscular activity, and it motivates people to contribute. According to the Concise Oxford English Dictionary (2002), the word 'Involvement' means a cause to experience or participate in an activity or situation. Participation encourages people to contribute to goals and share responsibility for them (Bamidele & Comfort, 2013). Participation in policymaking creates an environment in which people have an impact on decisions and actions that affect their productivity.

Obiero et al. (2023) remarked that processing indigenous knowledge involves its acquisition, evaluation, organisation and preservation. The acquisition of indigenous knowledge will be a waste of effort if the acquired knowledge is not adequately preserved for posterity and ease of access. Thus, community member participation is a style of management recognising both the need and right of members to be involved in the process, which extends their influence into "new" areas of organisational decision-making and which are less "distributive in their concern and orientation and more concern with the joint determination and resolution of problems.

Stakeholder involvement in decision-making is sometimes referred to as 'participative decision-making' or participative management. It is a management and leadership philosophy about how stakeholders are enabled to contribute to continuous improvement and the ongoing success of the parent organisation. Horsford (2013) added that active participation has been seen as a key element in securing acceptance of new policies and proposed changes. To buttress this point, Adam (2007) opined that access to indigenous knowledge cannot be achieved without bringing libraries into the scene because they are one of the building blocks of the local information and knowledge infrastructure.

In Pakistan, the Masood Jhandeer Research Library has the richest collection of manuscripts and rare books. The library is owned by a dedicated team of book lovers who are working hard without any external funds and resources for the development of the library (Kamba & Abba, 2019).

3 Regulating indigenous library

Adam (2007) described Indigenous Knowledge in profound detail. They shared beliefs and rules with regard to the physical resources, social norms, health, ecosystems and culture, as well as the livelihood of the people who interact with the environment both in rural and urban settings. Das and Sarkhel (2016) identified the management of Indigenous Knowledge as that which involves a set of interrelated activities such as identification, collection, codification, documentation, organisation, preservation, transfer, linkage, application, preservation, dissemination and sharing of knowledge on indigenous community livelihood and their ecosystems.

The word policy encompasses the set of fundamental principles and associated guidelines, formatted and enforced by the governing body of an organisation, to direct and limit its actions

in pursuit of long-term goals. Policymaking also permeates all aspects of the management processes. The importance of policymaking can never be overemphasised. Knowledge users need to be involved in managerial decisions that have a significant effect on knowledge use. Moreover, according to Greenfield (2004), an organisation that values member participation considers listening to what employees have to say as important as setting goals. The user community wants to know that not only are they listened to, but also that their ideas are acted upon where possible and their participation becomes a staple of the library culture.

Scholars like Azadehdel et al. (2013) itemised the benefits of participative management, including social and economic aspects of involvement. The social aspects of involvement include awareness of the goals and efforts to achieve them, increased creativity, increased futurist spirit, staff cooperation to solve various problems of the organisation, cooperation in organisational changes, and increased responsibility. The economic aspects of participation include higher cooperation in production, improving quality and quantity of production, waste reduction, optimal use of the equipment, cooperation in solving economic problems and reducing conflicts.

Riege and Lindsay (2006), the benefits of stakeholder involvement in policymaking include promotion and growth of services, diversifying services, supply conditions, continuous improvement, increasing individual and organisational efficiency, increasing job security, increasing user satisfaction, promoting cooperation and collaboration method, enhancing motivation and spirit of work, reduced absenteeism and poor work atmosphere promotion spirit of creativity and innovation, and improving communication between managers and employees.

Several benefits to participation have been identified. These include yielding the best results and leading to self-discovery and human integrity, improving human capital through education, providing appropriate strategy for the integration of independent tasks, and making it possible for employees to share in the improvement of work performance.

4 Indigenous libraries productivity

Library productivity can be derived from individual stakeholder performance, which refers to tasks accomplished by individuals. Therefore, the user's contribution could be an effort in an extraordinary circumstance. It includes personal discipline or his good standing with the ethics or laws of the library. It includes users' ability to carry out the task of supervising and accomplishing or following the library goal and respond effectively to external and internal factors without derailing from his/her task.

It is imperative for African library managers to establish a work environment that promotes employee interaction, task performance, and the overall attainment of the library's goals. Allowing users to be involved in the design of policies affecting them is one way of providing a conducive environment and motivation for knowledge dissemination.

In addition, Kirkpatrick (2006) emphasised the importance of building and maintaining rapport in the workplace. Rapport here means establishing good working relationships that promote mutual trust and respect between management and stakeholders. It entails meeting member needs and wants according to legally acceptable standards. Managers can create rapport in the workplace by involving subordinates in their day-to-day policymaking processes.

5 Policymaking and library productivity

Managing Indigenous knowledge will promote its use and revive society's rich cultural heritage (Obiero et al., 2023). Policymaking is one aspect of library decision-making. A decision is a choice whereby a person or group of persons form a conclusion about a situation. Decision-making is, however, the point at which plans, policies and multifarious organisations are established. Policymaking aims to channel human behaviour towards a future goal.

Library managers may sometimes consider choosing what, who, when, where, and, most of the time, how to do things. Indigenous people in a community must not only be motivated to do their best but also inspired to continuously strive for total improvement in their library services. This can only be achieved through effective communication between library management and potential users.

Productivity is the relationship between the output of goods and services of workers of the organisation and the input of resources, human and non-human, used in the production process. In other words, productivity is the ratio of output to input. The higher the numerical value of this ratio, the greater the productivity. For effective productivity in information organisations, Ogechi (2012) noted that management should improve the degree of stakeholder involvement in decision-making. This is because if employees participate adequately in the organisational decision-making, especially with regard to policies, it will result in high productivity in that organisation. This could also be transferred to indigenous library users so that library managers can frequently meet with the patrons to discuss the services. This will help to widen the users' knowledge and increase their understanding of decision-making as it affects their information use.

Furthermore, to encourage effective users to participate in regulating indigenous libraries, management must operate a two-way communication flow. Library staff should always remember that such participation does not relieve them of their authority or responsibility for making decisions.

Productivity is seen as the measure of how resources are being brought together in organisations and utilised to accomplish a set of results. It is viewed as the instrument for continuous progress and of constant improvement of activities. Scholars like Obadan and Odusola (n.d) stated that productivity measures the relationship between the quantity and quality of goods and services produced and the quantity of resources needed to produce them. Therefore, the management of indigenous libraries in Africa should try to develop a discussion forum among users, and decisions should be referred to these forums. In this way, users will develop a perception of common goals and the required productivity expected from them. Also, the desires and wishes of every community member must be measured against the library's goals and objectives. This eventually influences the policymaking process in every formal organisation.

Libraries are intermediaries that play a pivotal role in diffusing innovations from Indigenous Knowledge in line with the identified information needs of the community. Making Indigenous knowledge accessible to the community assists people who perhaps are lost in traditional ethics and practices. Librarians need to note that the degree to which a user is involved in policymaking depends to a great extent on his background and training. If a user has no background on the subject being discussed or has no knowledge and competence with respect to the problems, then his opinion and suggestion will have less value. Therefore, libraries should design appropriate methods of improving users' backgrounds so as to be able

to contribute meaningfully to the policymaking process of their library. However, in spite of the poor background, users' advice and opinions can still provide information in the area of concern.

6 The effect of stakeholder participation on organisational policymaking

Productivity is the driving force behind an organisation's growth and profitability. Thus, productivity can be applied at any level, whether for individuals, work units, or organisations like finance institutions of the modern world. It is obvious to note that, like every organisation, users expect knowledge workers to do the work that is set before them. Thus, Indigenous knowledge covers the broad spectrum of life (Ayandokun & Okechukwu, 2022). However, the trend has changed. Library professionals expect more from their users than simply doing what is put before them. However, with the rise of such theories as "participative management" and with increasing recognition, those knowledge users have something valuable to contribute. Many information organisations are actively seeking ways to get users more involved in the design of policies affecting them. The user, on the other hand, expects to be asked how he feels about his enjoyed service as easy, better and faster. The reason for this change is that information professionals have discovered that there are tangible values in soliciting and using the ideas of information users at all levels.

Anyadike (2013) stated that productivity is a measurement or calculation between input and output. Inputs are the amount of resources such as human resources, money, time, physical, technological and effort spent working in the organisation, while output is the result. If the inputs are equivalent to the outputs, the worker is considered productive (Ikeanyibe, 2009). For instance, Japan's success in the business world is attributed to stakeholder involvement in policymaking, which is shared at all levels of management. It is observed that decision-making in Japanese firms is focused on defining issues rather than on finding solutions. Similarly, in the United States, industrial democracy is practised, and customers are encouraged to buy shares in companies, thereby enabling them to have a say in the management of their organisation.

However, participatory management is popular in other developed countries like Britain, Yugoslavia, and Germany. In Britain, participation in policymaking is known as joint co-consultation, while in Germany, it is known as co-determination.

In Nigeria, for instance, the federal military government recognised significant involvement and sometimes invited the entire citizenry to decide whether to accept an IMF loan. After a heated debate by "well-meaning" Nigerians, the idea was cancelled.

Growth in productivity provides a significant basis for adequate provision of services, thereby improving the welfare and enhancing organisational progress. An organisation with high productivity is often characterised by a very high capacity utilisation (optimal use of resources), high standard of living and social progress. User participation is an action that helps in providing effective services to libraries. Effective participation provides an opportunity to share information, evaluate customers, solve problems, and generate new ideas for members. Once libraries effectively strengthen participation, they will more likely hear comments in order to improve service provisions. Effective participation means that personnel have a certain amount of job autonomy.

In addition, Kashani and Shahsavarani (2015) confirmed that participative management impacts staff ability, staff performance clarity, organisational help, staff incentive, staff performance evaluation, organisation validity, and environment.

7 Need for participative management in regulating African indigenous libraries

Indigenous knowledge is challenging to manage due to its nature and diverse forms (Kwanya, 2020). The Diversity in Knowledge of various cultures, beliefs, practices and interactions emanating from various ethnic groups accumulated over time through the practice or experience of indigenous people or groups such as farmers, herbalists, singers, educators and petty traders need dire management, which involves acquisition, organisation, preservation, accessibility and dissemination. However, the policymaking process lays the foundation for a successful organisation. Horsford (2013) concluded that it is essential for any organisation, especially an organisation that affects not just its employees but also the economic, social, and political well-being of a country, its people, and the public officers in the decision-making process. These would allow the stakeholders to buy into the policies as proposed by the management and thus make the execution easier. Thus, motivation and morale will increase, and the spin-off will be higher productivity and lower turnover.

Indigenous knowledge is a cheaper form of knowledge that has existed with indigenous people for centuries (Ayandokun & Okechukwu, 2022). Participative management in libraries should go a long way in ensuring that patrons have a clearer understanding of the policy's content through open and free dialogue. This ensures the policy's execution is effective because the users feel that it is a policy initiated, developed, and brought by them, and they are part of every step.

It could also be noted that the non-participation of users in library policymaking yields a number of negative effects on library productivity and increases high policy breaches. Also, lack of or poor user participation in the decision-making process leads to a low level of user commitment towards library regulations. Therefore, if an indigenous library user is given full consideration in participative management, it will strengthen his commitment and would consider regulating the library essential.

8 Challenges faced in participation in policymaking

Despite some evidence of the existence of participative management in Africa, some people are of the view that real participatory management does not exist and cannot exist due to underdevelopment, inexperience in the democratic process, and political and economic instability caused by frequent changes in economic policy. Also, the negative attitude of library workers to work does not encourage participatory management. The workers are more interested in what they will get in terms of salaries and other employment benefits than the job itself.

Participation in these organisations remains elusive. Most of these organisations are controlled by and depend on their parent bodies for policies and decisions. However, in some information organisations, it goes to the extent that some top managers fail to delegate, as they do not go on leave, where some go they are on working leave, still attending work; some, while on leave, lock up certain documents in their drawers, thus, making such pending till they resume, whereas participative management involves nothing more than sharing information with subordinates

9 Conclusion

Research on leadership styles has exposed stakeholders' desire for involvement in policy-making in their various organisations. Information users are important elements in the accomplishment of their library's goals and survival. They are in a better position to know the problems they encounter in doing particular tasks and how best to solve them.

It appears that the challenge of getting maximum support from subordinates remains a regulatory problem for librarians in Africa. Library professionals have been making serious attempts to proffer the best way to get user communities to do their best. It is, therefore, imperative for indigenous libraries in Africa to identify factors that enhance user involvement with modern regulatory practices. One such factor is the management's participation in policymaking with the users so as to improve their productivity.

10 Recommendations

This paper, therefore, advocates that a lot needs to be done to change the current negative disposition of library management towards user participation in policymaking. More importantly, the current obstacles against effective participation could be tackled through enlightenment programmes for user communities on their right to be involved in management policymaking, provision of monetary and other incentives for patrons to encourage them to sustain their current interest in the participation, training of library workers in the management function as a way of equipping them on their policymaking role and liberalisation management structure so as to allow for greater participation in organisation policymaking.

References

- Adam, L. (2007). Information and communication technologies, knowledge management and indigenous knowledge: Implications to livelihood of communities in Ethiopia. In *a Workshop on "The Role of ICT in Preserving and Disseminating Indigenous Knowledge"*, Addis Ababa.
- Anyadike, N. O. (2013). "Human Resource Planning and Employee Productivity in Nigeria.
- Ayandokun, A. A. & Okechukwu, I. C. (2022). Incorporating Indigenous Knowledge Practices into Modern Academic Practices for Sustainable Development: The Roles of the Public and Academic Libraries. A Compendium of 2022 Conference papers of NLA held at Abuja, 3rd to 8th July, 2022.
- Azadehdel, G., & Chegini, & Delshad (2013). Effective Employees Participation and Organisational Outcomes. *Arabian Journal of Business and Management*, 1(9), 1-7.
- Bamidele, M. A. & Comfort, E. Workers participation in Decision Making and Job Satisfaction among University Academic Staff" *International Researchers* vol. 2 no. 2 June 2013.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Das, P., & Sarkhel, J. K. (2016). Documentation of Tacit Indigenous Medicinal Knowledge (TIMK): Issues and perspective in present era. *Indian J Nat Prod Resour*, 2(4), 956-960.
- Davilt, L., Murray, S., & Terzali, A. (2008). The Role of Indigenous Knowledge in Computer Education in Africa. *International Federation for Information Processing*. Vol. 281pp 287-294.
- Greenfield, W. M. (2004). Decision Making and Employee Engagement. *Employment Relation Today* 31 no.2 retrieved 28th March 2011 from: <http://www.employee/engagement/>

articles.

- Horsford, M. (2013). Active Employee Participation in the Public Service Decision Making Process: A Public Servant Perspective JOAAG, vol 7 No. 2
- Ikeanyibe, O. M. (2009). Principles and Practices of Public Personnel Administration: A Nigeria perspective. Onitsha Perfect Image.
- Kamba, M. A. & Abba, M. A. (2019). Preservation of Cultural Heritage and Indigenous Knowledge Sustainability in Nigeria: The Role of Private Libraries. A Conference Paper presented at the 57th National Conference/AGM held at Petroleum Training Institute, Warri-Delta State, 28th July to 2nd August 2019.
- Kashani, F., & Shahsavarani, H. (2015). “The Impact of Participative Management on the Performance of Tehran Regional Water Company’s Staff” *Journal of Applied Environmental and Biological Sciences*, 5(2)63–70, 2015.
- Kirkpatrick, D. L. (2006). *Improving Employee Performance Through Appraisal and Coaching (2nd ed.)*, Chicago: American Management Association.
- Kohode, O. (2016). Indigenous Knowledge and Sustainable Development in the Novel of Daniel Fagunwa. Munich, GRIN Verlag. Retrieved from: <https://www.grin.com/document/337707>.
- Kwanya, T. (2020). Stigmatisation of indigenous knowledge: The case of night-running in western Kenya. *Journal of Religion in Africa*, 48(4), 376-392.
- Obadan, M. I. & Odusola, A. F. (n.d) “Productivity and Unemployment in Nigeria”. Ibadan: National Centre for Economic Management & Administration (Ncema).
- Obiero, K. O., Klemet-N’Guessan, S., Migeni, A. Z., & Achieng, A. O. (2023). Bridging Indigenous and non-Indigenous knowledge systems and practices for sustainable management of aquatic resources from East to West Africa. *Journal of Great Lakes Research*, 49, S128-S137.
- Ogechi, O. (2012). “The Impact of Employee Participation in Decision Making in Nigerian Public Sectors (A case study of Power Holding Company of Nigeria (PHCN) Enugu). Unpublished thesis.
- Riege, A., & Lindsay, N. (2006). Knowledge management in the public sector: stakeholder partnerships in the public policy development. *Journal of knowledge management*, 10(3), 24-39.
- Sharma, A. K. (2014). Indigenous Knowledge Communication in the 21st Century. *International Knowledge of Digital Library Services* 4(1),128-135.
- Yusuf, I. T., & Olusegun, K.J. (2015). Management of Indigenous Knowledge (Ifa and Egungu) in Osun State, Nigeria. *Library Philosophy and Practice*.

38. Protection of the Luo settlement patterns as a form of cultural heritage at Thimlich Ohinga Archaeological site

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Abstract

The evidence of an indigenous cultural tradition is manifested in human behaviour and artefacts. Human behaviour, which is tacit knowledge, forms much known indigenous knowledge. Indigenous cultural tradition is deeply rooted in social structures, and they affect how members of a society relate. Thimlich Ohinga (a Luo word meaning “a fortress of a large dense forest”) exemplifies Luo’s settlement traditions and social structures. It protects a rich tradition which is predominantly tacit but of high value. Given the uniqueness and rich tradition of Thimlich Ohinga, the study sought to unearth details of the protection of the Luo settlement patterns and cultural heritage. The research objectives included assessing the significance of the Luo settlement patterns as a form of cultural heritage at the Thimlich Ohinga Archaeological site, establishing mechanisms employed in protecting Luo settlement patterns as a form of cultural heritage at the Thimlich Ohinga Archaeological site, and identifying challenges faced in the protection of Luo settlement patterns as a form of cultural heritage at Thimlich Ohinga Archaeological site. This study adopted a descriptive qualitative design with face-to-face interviews with twelve stakeholders working at the site and four elders from the community to establish the efforts put in place to protect Luo settlement patterns at Thimlich Ohinga. The study findings indicated that Thimlich Ohinga holds spiritual, social and economic significance to the Luo community, and the lack of proper buffer zone demarcations is a significant threat to the survival of the cultural heritage site. This study contributes to the scholarly understanding of indigenous settlement patterns and highlights the need for robust policies and strategies to protect and preserve indigenous cultural heritage, particularly settlement patterns.

Keywords: *Architecture, conservation, continuity, culture, identity, indigenous knowledge, traditions*

1 Introduction and background

Heritage comes in many shapes, as does the use. It can be intangible or tangible, whereby intangible forms include memories, emotions, values and practices, while tangible forms include places, structures and landscapes. Settlement patterns, which are the focus of this study, frequently reflect the regional cultural history (Nilson & Thorell, 2018). Traditional settlement patterns and cultural legacy are interrelated components of human history and development. Cultural heritage is the legacy of tangible items (cultural property) and intangible characteristics that a group or civilisation has inherited from the past. It is a concept that offers a link between the past and the future (Yang & Yang, 2019; Zhao & Long, 2020).

Since they brim with priceless knowledge, traditional settlements serve as testaments to the history of human civilisations and as a shared resource for people (Yang & Yang, 2019). Traditional settlement is defined as rural homogeneous buildings, complex with distinctive architectural, structural, social or historical aspects that must be preserved due to their distinct and valued nature (Vythoulka et al., 2021). Traditional settlement patterns are influenced by factors such as

geography, climate, availability of resources, historical events and social, economic and political climate since they serve as the fundamental building block and core element of human habitation, vividly illustrating the interdependence of humans and nature (Zhao & Long, 2020). In addition, ecologically sustainable development in traditional settlements has gained prominence across nations due to urbanisation, industrialisation and globalisation (Yang & Yang, 2019).

Similarly, spatial patterns of human habit impact cultural heritage (Yang & Yang, 2019). A place's physical surroundings and spatial layout can influence people's interactions, communication and expression of their cultural identities. These spatial patterns equally affect the transmission of cultural practices from one generation to another, as indigenous architecture often reflects traditional ways of life (Vythoulka et al., 2021).

In order to provide sustainable environmental, economic and social advantages, safeguarding cultural heritage assets is necessary (Vythoulka et al., 2021). According to Yang and Yang (2019), sustainable development is fulfilling the needs of the people in the modern world without endangering the needs of future generations. Traditional settlements, therefore, deserve to be protected and preserved because of their distinctive and valued qualities, as called out in SGD 11.4 (UN, 2015).

Thimlich Ohinga is a UNESCO World Cultural Heritage site that offers a remarkable illustration of Luo's social structure and settlement customs. It safeguards a rich tradition that is largely unwritten yet holds great importance. Unlike modern settlement patterns, which are mainly influenced by Western values, these traditional settlement patterns focus on the balance of microcosmos and microcosmos (Putra, 2021). Currently, few settlement developments incorporate the balance of nature and 'green' development concept, a situation which impend the achievement of SGD 11.10 on supporting the construction of sustainable and resilient structures using local materials in the least developed countries, mainly by providing financial and technical aid (UN, 2015). This study aims to investigate the protection of the Luo settlement patterns and cultural heritage due to its singularity, wealth of history and potential for driving sustainable development. The following objectives, therefore, guide the study: Establish practices employed in protecting Luo settlement patterns as a form of cultural heritage at Thimlich Ohinga Archaeological site; Assess the significance of the Luo settlement patterns as a form of cultural heritage at Thimlich Ohinga Archaeological site; identify challenges faced in the protection of Luo settlement patterns as a form of cultural heritage at Thimlich Ohinga archaeological site; and suggest solutions to the challenges experienced in the protection of the Luo settlement patterns as a form of cultural heritage at Thimlich Ohinga archaeological site.

2 Contextual setting

The Thimlich Ohinga archaeological site is 46 kilometres northwest of Migori Town in the Nyanza Region. It occupies 21 hectares with a 33-hectare buffer zone surrounding it. It is a prime example of the cultural tradition of large dry stone walled fortifications constructed by pastoral communities that persisted in the Lake Victoria basin from the 16th to the mid-20th century. The word "Thimlich" is a Luo word for perilous jungle. The Lake Victoria region has several 'things' or 'things' representing earth/stone constructed towns or enclosures in the Dholuo or Luo language. Thimlich Ohinga is one of the biggest complexes built in the sixteenth century CE.

Thimlich Ohinga consists of a network of enclosures that served as homes for cattle, farms, and craft businesses. Kakuku, Koketch, and Koluoch are the names of the three additional enclosures, with K'ochieng being the principal enclosure. Homesteads, herds of livestock, and small artisan businesses are operated out of the inside enclosures and minor extensions

next to each enclosure. The Ohinga are thought to have primarily been responsible for safeguarding communities and animals, but they also created social structures and ancestry-based relationships (NMK, 2023).



Figure 1: Main entrance to K'Ochieng' enclosure

Source: Researcher



Figure 2: Part of K'Akuku enclosure

Source: Researcher

3 Literature review

Settlements worldwide meet people's basic needs, especially shelter, security and comfort. The practical establishment of homes through the selection of sites, planning and construction differs from country to country (Barau et al., 2015). Lately, rural settlements have undergone significant changes in response to dramatic socioeconomic shifts (Xu et al., 2023). Traditional architecture is fast disappearing in most parts of Africa due to neglect and lack of understanding of its importance (Ikudayisi & Odeyale, 2023). In essence, modern forms of housing development can still integrate traditional architecture and settlement patterns to blend and shape modern forms of settlements in general (Bikam & Chakwizira, 2021).

Indigenous settlement patterns hold immense significance as a form of cultural heritage. They uniquely express indigenous cultures and encompass various elements that reflect indigenous knowledge, practices and relationships with the environment. Nocca (2017) indicates that cultural heritage showcases social, economic, and environmental processes and further expresses a society's culture, identity, and religious beliefs. Traditional settlements also mirror a close tie to the indigenous land and environment, reflecting a deep connection and understanding of the local ecosystem. These are embodied in the harmonious co-existence with nature through sustainable land management practices, resource utilisation strategies and adaptation to specific environmental conditions (Fatorić & Egberts, 2020). This connection improves the quality of life as it extends to communal cohesion through the powerful symbolic and aesthetic dimensions of heritage (Nocca, 2017), evident in indigenous governance systems and how communities have organised themselves.

Indigenous settlement patterns link the past, present and future of communities. They express and maintain indigenous communities' values, traditions, cosmologies and social structures (Nocca, 2017). Such is portrayed through its precise representation of indigenous communities' distinct ways of life, traditions and beliefs as reflected in indigenous architectural styles, materials and spatial arrangements. These unique values foster a sense of pride and identity among indigenous people and continuity in sustainability through preservation.

Fusco Girard and Vecco (2021) state that cultural heritage is summarised into intrinsic values and instrumental benefits. Intrinsic values, in this case, include aspects such as the source of knowledge, identity, distinctiveness, and bequest as they relate to the handing over heritage to future generations. The instrumental benefits are categorised into aspects like economic benefits in terms of regeneration and tourism (Kim et al., 2019; Zhuang et al., 2019), area benefits such as improved profile; community benefits such as local pride; and individual benefits such as jobs (Aisyah, 2023; Rosilawati et al., 2020). There exists a strong tie between the sustainability of cultural heritage and the proper conservation of heritage resources (Melnick et al., 2017). The protection of cultural heritage is a trend affecting the world and a cultural hotspot concerning governments, people, and various international and regional organisations (Shirvani Dastgerdi et al., 2020).

Mekonnen et al. (2022) indicate that thoughtful stakeholder involvement and community participation are paramount for safeguarding cultural heritage. They further cite that cultural heritage conservation strategies like maintenance, preservation, restoration, reconstruction and adaptation may be applied as conservation measures subject to the level of impact.

In Kenya, the conservation of heritage sites is governed by the National Museums and Heritage Act of 2006, which provided for the establishment of the National Museums of Kenya (NMK), a body mandated to protect and conserve cultural heritage, among other obligations (Njuguna

et al., 2020). Some approaches that must be considered individually or holistically by NMK to protect cultural heritage include cleaning, repair, preservation, enhancement, conservation, restoration, rehabilitation, reconstruction and demolition (Field et al., 2014).

While the significance of cultural heritage is immense, there are challenges which are experienced in the process of its protection. Nocca (2017) indicates that conflicts and disagreements (in terms of values, interests and beliefs) if it is not well managed can represent an obstacle in the achievement of heritage outcomes to produce benefits to each involved stakeholder. Differences are inevitable. Therefore, they need to be acknowledged and respected to mitigate possible conflicts. Additionally, buffer zones should be well-demarcated to minimise conflicts (Bykova & Dyachkova, 2021).

Abebe and Gatisso (2023) observed that the factors affecting heritage in Africa include environmental pressures, uncontrolled urban development, warfare and communal conflicts, poverty, lack of political will, lack of awareness of the value of heritage, low levels of funding, inadequate expertise and equipment, lack of inventories, insecurity due to rioting, illicit trafficking, clandestine excavation and outright looting advances. Heritage conservation is also faced with challenges of globalisation pressures that favour common branding and standardisation, technological advances that change patterns of work and living, and religious and ethnic intolerance leading to war and destruction (Egoreychenko et al., 2020). Mekonnen et al. (2022) averred that cultural heritage preservation faces challenges such as lack of proper management, monitoring and evaluation, lack of funds and stakeholder involvement, urbanisation, settlement programs and agricultural practice, poor government concern and professional commitment, poor attitude towards cultural heritage and low level of community concern, vandalism and illicit trafficking, low promotions of cultural heritage and natural catastrophes like invasive intervention and climate change.

Mekonnen et al. (2022) reported a lack of conservation officers, collaboration and awareness of the importance of cultural heritage and economic recession as some of the challenges experienced in heritage conservation in Malaysia. In a Kenyan context, Chemeli et al. (2021) allude that challenges experienced in cultural heritage preservation are due to increased extreme weather events associated with climate change. Njuguna et al. (2020) asserted that the lack of a clear legal framework for the conservation of vernacular architecture, previous haphazard conservation efforts, lack of precise management, documentation and preservation policies and low levels of public sensitisation on the heritage challenges the protection of built heritage in Kenya.

According to ICOMOS (2018), the ratified charter on the built vernacular heritage argues that successful protection and appreciation of vernacular heritage depends on the involvement and support of the community, as well as the continuing use and maintenance of the heritage. The charter further stipulates the need to protect the rights of the communities to maintain their living traditions. Njuguna et al. (2020) proposed the need for cultural heritage mapping, the development of local conservation principles and practices by a team of professionals, the development of a compilation of cultural architecture, training of specialised skills necessary in the conservation of living heritage and immediate protection of living heritage against the decay.

Fatorić and Seekamp (2017) categorised the solutions to the challenges experienced in managing cultural heritage into technical, institutional and financial solutions. The institutional solutions include enhancing collaborative partnerships, developing central policy and establishing more

supportive political advocacy. The suggested technical solutions encompassed increased climate change and cultural heritage-related research, strengthening the technical capacity for climate change adaptations and disaster preparedness and increased funding for research and technical skills.

The reviewed literature, shaped by the study variables, overlooks the precise protection needs of the indigenous settlement patterns as part of cultural heritage preservation for sustainability. Consequently, this study seeks to investigate the protection of the Luo settlement patterns as a form of cultural heritage at the Thimlich Ohinga Archaeological site with an emphasis on achieving sustainable development.

4 Methods and procedure

The research adopted descriptive qualitative methods to investigate the protection of the Luo settlement patterns as a form of cultural heritage at the Thimlich Ohinga Archaeological site. A qualitative design was selected since the research elicited depth and complexity that aimed to unearth individual experiences within the context of the study.

The research employed a purposive sampling method for the twelve staff working at the heritage site and four elders from the Kakuku, Koketch, Koluoch and K'Ochieng clans. Data was collected through semi-structured individual face-to-face in-depth interviews. In order to successfully engage the elders, the researcher translated the questions to Dholuo after realising that not all the respondents were proficient in English.

To ensure validity and consistency in the interview process, a standard procedure was applied to each respondent in conducting the interview. The procedure involved defining what the research is about, detailing the interview process, explaining the role of the interviewer, and finally developing a rapport with the respondent. For flexibility, the interview schedule consisted of open-ended questions, which allowed probing and better interaction between the interviewer and respondents.

The interview schedule included components like the values of the settlement patterns as a form of heritage, the challenges in the protection of Luo settlement patterns, and appropriate strategies for conservation.

The interviews were conducted at the heritage site at a date of mutual agreement between the researcher and respondents. Each interview session, spanning 25 to 30 minutes, was conducted with adherence to ethical considerations. Data was tape-recorded with consent obtained from the participating respondents. The tape-recorded data was transcribed and analysed through thematic coding. The emergent themes were further discussed in the findings.

5 Results and discussions

The study findings are presented according to the thematic areas covered in the research objectives. The interviewees are coded as 'Respondent' with each numbered from one to sixteen for anonymity and confidentiality. For instance, 'respondent 1' and 'respondent 2'.

5.1 Practices employed in protecting Luo settlement patterns

This study revealed that regular inspection and monitoring, conducting condition surveys, restoration of the walls, and legal protection are employed to protect Luo settlement patterns. Respondent 8 indicated that the whole heritage site is always under regular inspection and monitoring to ensure any anomalies are corrected immediately. Respondent 4 mentioned that

condition surveys are periodically done to assess the level of vegetation growth, the condition of the walls, and everything else within the enclosures. Respondent 15 pointed out that in the past, various projects have been done to restore the state of some parts of the previously ruined walls. Respondent 2 indicated that Kenyan laws legally protect the heritage site since it is a national monument, giving examples of the National Museums and Heritage Act, Cap 216 of 2006 and Government Land Act, Cap 280 of 2010.

“Each person is assigned a different section to maintain. We take note and report whenever anything happens to the wall or any part of the site.” Respondent 8

“Periodically, experts come to see the place and survey the conditions of the walls. They advise us, which is how we have maintained this place.” Respondent 4

“Actually, these walls have been restored several times. Sometimes, the stones fall, and we arrange them back to the wall. We have some parts that are yet to be repaired.” Respondent 15

“The laws of Kenya protect the heritage site under the National Museums and Heritage Act, Cap 216 and the Government Land Act, Cap 280.” Respondent 2

Similar findings are displayed by Themistocleous et al. (2018) in a study that indicated diagnosis, monitoring, mitigation and preservation as some of the best practices for protecting cultural heritage. Hughes and Lamont (2018) approve that the Kenyan constitution, in article 11(1), is recognizant of culture as the basis of the nation and as the cumulative development of the Kenyan people and consequently giving provision to its protection. Similarly, Shchedrin (2020) explores a comprehensive approach to restoring historical and cultural monuments, emphasising the importance of a holistic restoration process.

5.2 Significance of the Luo settlement patterns as a form of cultural heritage

This study found that spiritual significance, belongingness and identity, social values, economic benefits, and sources of pride are significant to the Luo settlement patterns. Respondent 10 stated that the heritage site connects to the spiritual world since they know that their ancestors built and lived there, which motivates them to keep the site sacred. Respondent 8 noted that the site is a source of identity and belonging to the community. It serves as a validation of the various cultural practices currently carried out by the community. Respondent 14 indicated that the site serves as a meeting place for community members and connects the various communities whose ancestry passed through the ‘Ohinga’ as they all have a responsibility to ensure its wellbeing. Respondent 9 noted that Thimlich Ohinga has created jobs in different capacities since it started receiving tourists. The respondents further indicated that they are hopeful for more economic benefits in the future. Respondent 1 indicated that the community derives much pride from the heritage site. When the site is well protected, cultural continuity is assured amidst Westernisation since the future generation will constantly be reminded of the Luo cultural practices.

“Elders and even religious groups still come to hold prayers from here. You know, these walls are still standing because everyone knows they are sacred...” Respondent 10

“My children and grandchildren have been here several times. I can attest that they learnt much of the Luo culture from this place. I know that they know more than most people do...” Respondent 8

“This place is owned by more than one community, and it unites us. Sometimes, different groups come here to hold meetings. Like women groups around here...” Respondent 14

“I work here. My village borders this site, and more people work here, too. A local also owns this canteen,

and they make good money when visitors are many...” Respondent 9

“Thimlich is our own, and I am glad we still care for it. Even the outside world has noticed it. I have met many great people just because of Thimlich...” Respondent 1

The findings align with Nocca (2017), emphasising that cultural heritage is a source of pride, identity, and religious beliefs within a society. Additionally, Rosilawati et al. (2020) and Aisyah (2023) underscore the economic benefits of adequately managing cultural heritage. Similar conclusions are drawn in studies by (Kim et al., 2019) and Fatorić and Egberts (2020), which provide valuable insights into the significance of cultural heritage as a sustainable tourism resource.

5.3 Challenges experienced in the protection of Luo settlement patterns

The research identified the significant challenges faced in protecting Luo settlement patterns: illegal access, lack of buffer zone demarcations, inadequate financial allocation, limited government support, and inadequate training for the personnel involved. Respondent 6 stated that the heritage site was illegally accessed by people who come to fetch firewood, graze cattle and harvest the sisal growing on the land owned by the heritage site, resulting in damage to the heritage. The respondent noted that all the community members understood the reason for the restricted access and portrayed defiance. Respondent 13 noted that while some parts of the site have demarcated buffer zones, some are yet to be demarcated. Respondent 6 added that the importance of buffer zones cannot be overlooked, given their role in ensuring the site’s integrity and sustainability. Respondent 2 indicated that limited funds were allocated for managing the heritage site, which affected how much they could undertake within the site. The respondent also added that more funds could help put in place important amenities to make the place more tourist-friendly, hence leading to sustainability. Respondent 5 noted that not all the personnel protecting the heritage site were adequately trained. The respondent also expressed that this could deface the uniqueness of the heritage site.

“The fence has been broken down, and nowadays people harvest firewood and stones from here...” Respondent 6

“The site buffer zone area is not well marked on this side. I only hope the museum keeps its word and does the demarcation because it is one of the promises it gave us...” Respondent 13

“We are lacking funds to finance our projects. We have always desired to have water, electricity and amenities to enable us to host campers who have shown much interest in this place, but funds are failing us...” Respondent 2

“I need to be trained. Then I will also train younger people. That is the only way this site will survive. At least an annual workshop for everyone who works here will be great...” Respondent 5

These findings are in tandem with Mekonnen et al.’s (2022) findings that lack of funds and improper management affected the state of cultural heritage. Mekonnen et al. (2022) concur that inadequate skills in managing cultural heritage, limited funding, and insecurity are some factors that affect cultural heritage in Africa. Similarly, these findings agree with Bykowa and Dyachkova (2021), who emphasised the importance of clear buffer zone demarcations to protect cultural heritage from loss and destruction.

6 Conclusions

In conclusion, Cultural heritage is the foundation of all societies. While it varies from place to place, its protection to enrich and edify the present and future generations is imperative to achieving sustainable development goals. Being one of Kenya’s seven UNESCO heritage

sites, Thimlich Ohinga needs protection from any threats to its existence. Based on the objectives and findings, there are efforts by the locals and the government to protect Luo settlement patterns at Thimlich Ohinga. However, much can still be done to augment the current efforts. The study also concludes that efforts to protect Luo settlement patterns are met by challenges such as illegal access, incomplete buffer zone demarcations to enhance security, limited government support, inadequate financial allocation for managing the site, and inadequate training on heritage protection and management to the personnel involved.

7 Recommendations

The study suggests that collaboration among local communities, government entities, UNESCO, and the private sector is essential to successfully finalising the buffer zone's demarcation. Erecting robust fences is recommended as a protective measure for the heritage site, aiming to prevent unauthorised access and illegal activities. Additionally, the government and UNESCO should provide supplementary financial support to sustain the deficit financial budget of the Thimlich Ohinga Cultural Heritage Site. Finally, there is a need for proper training on heritage protection and consequent awareness of the place of heritage in our wellbeing.

References

- Abebe, A. H., & Gatisso, M. M. (2023). The conservation and preservation challenges and threats in the development of cultural heritage: The case of the Kawo Amado Kella Defensive Wall (KAKDW) in Wolaita, Southern Ethiopia. *Heliyon*, 9(9), e18839. <https://doi.org/10.1016/j.heliyon.2023.e18839>
- Aisyah, S. (2023). Implications of Planning and Management for Sustainable Cultural Heritage Tourism Development in Malaysia. *Advances in Tourism Studies*, 1(2), 65–71. <https://doi.org/10.47492/ats.v1i2.18>
- Barau, A. S., Maconachie, R., Ludin, A. N. M., & Abdulhamid, A. (2015). Urban morphology dynamics and environmental change in Kano, Nigeria. *Land Use Policy*, pp. 42, 307–317. <https://doi.org/10.1016/j.landusepol.2014.08.007>
- Bikam, P., & Chakwizira, J. (2021). *Influence of traditional settlement patterns on urban design and planning: A case study of Zaria, Nigeria*. 31(2), 66–77.
- Bykova, E., & Dyachkova, I. (2021). Modelling the Size of Protection Zones of Cultural Heritage Sites Based on Factors of the Historical and Cultural Assessment of Lands. *Land*, 10(11), 1201. <https://doi.org/10.3390/land10111201>
- Chemeli, A., Njoroge, J. M., & Agufana, P. B. (2021). Climate Change and Immovable Cultural Heritage in Kenya: Impact and Response Strategies. In W. Leal Filho, J. Luetz, & D. Ayal (Eds.), *Handbook of Climate Change Management* (pp. 1–22). Springer International Publishing. https://doi.org/10.1007/978-3-030-22759-3_91-1
- Egoreychenko, A. B., Nikolaeva, Y. V., Bogolyubova, N. M., Portnyagina, M. D., & Fokin, V. I. (2020). *Unesco World Heritage In The Face Of Global Challenges And Threats*. 1695–1704. <https://doi.org/10.15405/epsbs.2020.10.05.223>
- Fatorić, S., & Egberts, L. (2020). Realising the potential of cultural heritage to achieve climate change actions in the Netherlands. *Journal of Environmental Management*, 274, 111107. <https://doi.org/10.1016/j.jenvman.2020.111107>
- Fatorić, S., & Seekamp, E. (2017). Securing the Future of Cultural Heritage by Identifying Barriers to and Strategizing Solutions for Preservation under Changing Climate Conditions. *Sustainability*, 9(11), 2143. <https://doi.org/10.3390/su9112143>

- Field, B., Booth, A., Plott, I., & Gerrish, K. (2014). Using the Knowledge to Action Framework in practice: A citation analysis and systematic review. *Implementation Science*, 9(1), 172. <https://doi.org/10.1186/s13012-014-0172-2>
- Fusco, G. L., & Vecco, M. (2021). The “Intrinsic Value” of Cultural Heritage as Driver for Circular Human-Centered Adaptive Reuse. *Sustainability*, 13(6), 3231. <https://doi.org/10.3390/su13063231>
- Hughes, L., & Lamont, M. (2018). Cultural rights and constitutional change. *African Studies*, 77(2), 159–170. <https://doi.org/10.1080/00020184.2018.1452852>
- Ikudayisi, E., & Odeyale, T. (2023). *Designing for Cultural Revival: African Housing in Perspective*. 24(4). <https://doi.org/10.1177/1206331218825432>
- International Council on Monuments and Sites (ICOMOS). (2018). *Charter on the Built Vernacular Heritage*. Retrieved from International Council on Monuments and Sites (ICOMOS). Mexico: ICOMOS 12th General Assembly. Retrieved from http://www.icomos.org/charters/vernacular_e.pdf
- Kim, S., Whitford, M., & Arcodia, C. (2019). Development of intangible cultural heritage as a sustainable tourism resource: The intangible cultural heritage practitioners’ perspectives. *Journal of Heritage Tourism*, 14(5–6), pp. 422–435. <https://doi.org/10.1080/1743873X.2018.1561703>
- Mekonnen, H., Bires, Z., & Berhanu, K. (2022). Practices and challenges of cultural heritage conservation in historical and religious heritage sites: Evidence from North Shoa Zone, Amhara Region, Ethiopia. *Heritage Science*, 10(1), 172. <https://doi.org/10.1186/s40494-022-00802-6>
- Melnick, R. Z., Kerr, N. P., Malinay, V., Burry, O., & Burry-Trice, O. (2017). *Climate Change and Cultural Landscapes: A Guide To Research, Planning, and Stewardship*. <https://doi.org/10.13140/RG.2.2.31516.39044>
- National Museums of Kenya. (2022, May 23). *Thimlich Ohinga*. Retrieved March 12, 2023, from National Museums of Kenya: <https://museums.or.ke/thimlich-ohinga/>
- Nilson, T., & Thorell, K. (2018). *Cultural Heritage Preservation: The Past, the Present and the Future*. Halmstad University Press.
- Njuguna, M. B., Wahome, E. W., & Deisser, A. M. (2020). The Role of the National Construction Authority in the Conservation of Vernacular Architectural Heritage. *East African Journal of Engineering*, 2(1), 23–32. <https://doi.org/10.37284/eaje.2.1.178>
- Nocca, F. (2017). The Role of Cultural Heritage in Sustainable Development: Multidimensional Indicators as Decision-Making Tool. *Sustainability*, 9(10), 1882. <https://doi.org/10.3390/su9101882>
- Putra, I. G. P. A. (2021). Revitalising the cultural identity of Bali through spatial planning in Denpasar. *International Journal of Interreligious and Intercultural Studies*, 4(2), 98–116. <https://doi.org/10.32795/ijius.vol4.iss2.2021.1733>
- Rosilawati, Y., Rafique, Z., Habib, S., & Nurmandi, A. (2020). *Cultural Psychology, Social Identity, and Community Engagement in World Heritage Conservation Sites*. 25(7). <https://doi.org/10.5281/zenodo.400960>
- Shchedrin, P. (2020). A comprehensive approach to restoring historical and cultural monuments (example of the mansion of A. A. Polovtsov). *E3S Web of Conferences*, p. 164, 05015. <https://doi.org/10.1051/e3sconf/202016405015>
- Shirvani, D. A., Sargolini, M., Broussard Allred, S., Chatrchyan, A., & De Luca, G. (2020). Climate Change and Sustaining Heritage Resources: A Framework for Boosting Cultural and Natural Heritage Conservation in Central Italy. *Climate*, 8(2), 26. <https://doi.org/10.3390/cli8020026>
- Themistocleous, K., Danezis, C., Frattini, P., Crosta, G., & Valagussa, A. (2018). Best practices for monitoring, mitigating, and preserving cultural heritage sites affected by geo-hazards: The

- results of the PROTHEGO project. In K. Themistocleous, D. G. Hadjimitsis, S. Michaelides, V. Ambrosia, & G. Papadavid (Eds.), *Sixth International Conference on Remote Sensing and Geoinformation of the Environment (RS&Gy2018)* (p. 68). SPIE. <https://doi.org/10.1117/12.2503915>
- United Nations. (2015). *Sustainable Development Knowledge Platform*. Retrieved December 26, 2022, from United Nations: <https://sustainabledevelopment.un.org/post2015/transformingourworld>
- Vythoulka, A., Delegou, E. T., Caradimas, C., & Moropoulou, A. (2021). Protection and Revealing of Traditional Settlements and Cultural Assets, as a Tool for Sustainable Development: The Case of Kythera Island in Greece. *Land, 10*(12), 1324. <https://doi.org/10.3390/land10121324>
- Xu, Y., Zhang, R., Wu, W., Xu, C., Yu, C., Chen, D., & Liu, Y. (2023). Dynamic changes and driving factors of rural settlements at the county level in a rapidly urbanising province of China from 2000 to 2020. *Frontiers in Environmental Science, 11*, 1213548. <https://doi.org/10.3389/fenvs.2023.1213548>
- Yang, R., & Yang, D. (2019). Traditional Settlements Study on Sciences of Human Settlements in Erhai Lake Region. *IOP Conference Series: Materials Science and Engineering, 592*(1), 012170. <https://doi.org/10.1088/1757-899X/592/1/012170>
- Zhao, Y., & Long, B. (2020). Study on Human Settlement Environment in Dai Traditional Villages of Different Regions. *IOP Conference Series: Earth and Environmental Science, 568*(1), 012035. <https://doi.org/10.1088/1755-1315/568/1/012035>
- Zhuang, X., Yao, Y., & Li, J. (2019). Sociocultural Impacts of Tourism on Residents of World Cultural Heritage Sites in China. *Sustainability, 11*(3), 840. <https://doi.org/10.3390/su11030840>

39. Publishing Trends on Indigenous Knowledge Research in Kenya (2000 – 2023): A Bibliometric analysis

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Abstract

Indigenous knowledge plays a critical role in Kenya's socioeconomic development. Consequently, there has recently been greater appreciation and scholarly discourse on indigenous knowledge in Kenya and beyond, making it a popular and quickly expanding area of research. Despite the discourse on the subject, an updated study has yet to be conducted to map the publishing trends and research orientations on Indigenous knowledge in Kenya. This paper sought to establish and describe the pattern of research production and publications in indigenous knowledge in Kenya to provide a basis for future research. The study used a quantitative research design and a bibliographic analysis to examine the metrics of indigenous knowledge publications in Kenya as indexed by Google Scholar. The data for the study was retrieved by searching keywords "Indigenous Knowledge" or "traditional knowledge" using Harzing's Publish or Perish (POP) software. This search obtained 114 articles relevant to keywords published from 2000 to 2013. The data revealed that Indigenous Knowledge research witnessed an irregular increase year after year. The study indicated that, compared to high-impact, peer-reviewed databases, more articles on indigenous knowledge (IK) were located in local repositories. This indicates a progressive increase in the number of publications on IK in Kenya. The bulk of the examined papers focused on climate change, with articles on meteorology, medicinal plants, and conflicts between humans and wildlife coming in second and third. The results provide benchmarking data that can be used to drive future research, collaborations, and initiatives aimed at utilising the rich knowledge systems entrenched in Indigenous cultures for the good of society and the advancement of knowledge.

Keywords: *Indigenous knowledge, traditional knowledge, informetrics, Kenya*

1 Introduction

According to Chepchirchir et al. (2019), indigenous knowledge is indigenous people's distinct and traditional knowledge systems, practices, and beliefs intricately linked to their spirituality, social structures, and sense of responsibility toward the environment. It is passed down through generations within particular indigenous communities. When people and communities stay in a particular region or territory, they accumulate vast amounts of indigenous knowledge about distinct languages, cultures, social structures, and spiritual beliefs. As such, Indigenous knowledge is deeply rooted in Indigenous communities' cultural, social, and spiritual traditions and encompasses various aspects of life, such as Medicinal and healing practices, farming practices, spirituality, and governance, among others (Cajete et al., 2023; Wildcat, 2005). Indigenous knowledge is integral to indigenous cultures and identities as it reflects a community's unique perspectives, histories, and ways of life. It encompasses

the understanding, skills, and wisdom accumulated by indigenous peoples over thousands of years. This knowledge encompasses various domains: agriculture, medicine, ecology, natural resource management, traditional technologies, spirituality, oral traditions, arts, and social systems. As such, Indigenous communities have developed a deep understanding of local ecosystems, sustainable resource management practices, and traditional ecological knowledge.

While there is no single, universally accepted definition, indigenous knowledge has been defined to refer to the cumulative body of knowledge, practices, innovations, and cultural expressions developed and sustained by host communities over generations and passed down through songs, ceremonies, protocols, and ways of life. As such, Indigenous knowledge is associated with the host communities and thus the cultural and intellectual property rights and not individuals (Greenwood & Lindsay, 2019). Unlike Conventional knowledge, derived from scientific research, formal education systems, and documented knowledge, Indigenous knowledge is rooted in Indigenous communities' cultural traditions and experiences, passed down through generations orally and through lived experiences.

Indigenous knowledge was essential to host societies in the past, especially concerning governance, food security and agriculture, health and traditional medicine, and cultural preservation and identity. Communities in many nations continued to rely on, appreciate, and employ indigenous knowledge until their way of life and governance started being distracted by external influences like colonisation, globalisation, intermarriage, and rural-urban migration. According to Bosch and Griesel (2019), cultural assimilation, colonisation, globalisation, and poor documentation practices are just a few factors contributing to the loss of traditional lifestyles and significant amounts of indigenous knowledge. As such, many indigenous communities have experienced forced displacement, loss of language and cultural identity, and disruption of their traditional ways of life. This has erased knowledge systems and practices that were once vital for their survival and well-being. During colonialism, the use of Indigenous knowledge was disrupted by criminalising cultural practices, limiting freedom of movement, forcing relocation, separating children from their families, destroying relational worldviews, and marginalising Indigenous lives. (Greenwood & Lindsay, 2019). Protecting and preserving indigenous knowledge is urgently necessary to save indigenous peoples' rapidly disappearing rich culture and heritage, retain cultural practices, and fortify their cultural identities.

Indigenous knowledge has recently drawn more attention since it is increasingly appreciated for its capacity to address many issues affecting the world and humanity today. Many organisations now recognise the importance of indigenous knowledge and its potential contributions to sustainable development, biodiversity conservation, and cultural preservation. Mawere (2014) argues that conserving and reviving indigenous knowledge is crucial for both the host communities and the larger global community's efforts to conserve biodiversity, promote sustainable development, and preserve cultural variety. The same argument is made by Ankrah et al. (2022), who contend that innovative knowledge provides insightful analysis and opposing opinions on pressing social concerns like food and water security, climate change, and chronic illnesses. Conflict resolution, land use, biodiversity preservation, and understanding how people and the environment interact are covered. On their part, Fongod et al. (2014) contend that the retention of Indigenous knowledge can make significant contributions to scientific inquiry, particularly in areas like ethnobotany, ecology, and traditional medicine (Kwanya, 2015).

According to Diop and Asongu (2022), the number of publications in various academic

fields has gradually risen due to technological improvements, information accessibility, and academic cooperation. This trend is also seen in the Indigenous knowledge discipline because of the recent increased realisation and reliance on indigenous knowledge. Organisations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Development Programme (UNDP), World Bank, and various foundations support research projects related to indigenous knowledge. They provide financial assistance, technical expertise, and policy guidance to promote the recognition, protection, and promotion of indigenous knowledge worldwide (Woodfield et al., 2023). Further, there is increased advocacy and support by governments, host communities, and organisations for better knowledge systems that recognise, protect, and promote.

Despite greater recognition, there is a vast disparity between regions and countries in Africa and other continents. However, according to Ezeanya-Esiobu (2019), Africa is making more progress in Indigenous knowledge than other continents because Africa has a rich indigenous diversity, communities have used indigenous knowledge since time immemorial, and there is a growing appreciation for the importance of preserving cultural heritage and traditional knowledge. According to Kwanya's and Kiplang'at's (2016) bibliometric study, interest in IK has increased more than ever before due to technological advancements, expanded funding opportunities, collaborative networks, academic incentives, and societal challenges; however, the amount of research is still growing significance of interdisciplinary research has also played a significant role in the recent uptick in research activities and output. This research spans various disciplines, including anthropology, ethnobotany, environmental science, indigenous studies, linguistics, and more. Universities and research institutes often have departments or centres dedicated to indigenous studies or interdisciplinary research on traditional knowledge. They may receive funding from various sources, including government grants, private foundations, and philanthropic donations. Academic funding aims to advance understanding of indigenous knowledge, promote collaboration between researchers and indigenous communities, and integrate traditional knowledge into mainstream academic disciplines.

Now that there is more research and attention given to IK, there is a need to identify patterns of ongoing research in order to identify knowledge gaps and areas that require further investigation, avoid duplicating efforts and focus on novel aspects or unanswered questions, Identify opportunities for collaboration among researchers, and inform policy and decision-making processes among others. Understanding the patterns of ongoing research in a country contributes to a comprehensive understanding of the research landscape, facilitates collaboration, promotes efficient resource allocation, and supports evidence-based decision-making. It helps researchers, policymakers, funding agencies, and institutions work towards advancing knowledge, addressing societal challenges, and maximising the impact of research efforts.

2 Theoretical framework

The Social Construction of Technology (SCOT) paradigm guided the study. The SCOT theory highlights the social and cultural variables that affect the development and adoption of technology (Bijker, 2015). The research articles on indigenous knowledge in this study can be seen as a type of technology created and changed by many social actors, institutions, and environmental conditions. The study can better understand the social, cultural, and power dynamics that affect the publication patterns on indigenous knowledge research in Kenya by using the SCOT theory as a theoretical framework. This paradigm enables a thorough examination of the social construction of indigenous knowledge publications and its

consequences for the nation's preservation, advancement, and promotion.

3 Rationale of the study

In Kenya, indigenous knowledge plays a significant role in various fields, including agriculture, medicine, conservation, and resource management. Much academic discourse is happening in academia, government entities, commercial entities, and even non-governmental organisations. Despite the increased interest and the ongoing debate on Indigenous knowledge, there needs to be more knowledge about the publishing trends and research outputs related to indigenous knowledge in Kenya. With a better understanding of publication patterns and trends, researchers may unknowingly work on similar or identical research questions, saving time and resources such as funding, equipment, and personnel. This duplication of efforts reduces overall efficiency and can delay scientific progress due to limited access to specialised expertise, inconsistent data, a lack of peer review, and diminished originality and innovation, among other factors.

With a comprehensive understanding of the existing literature, it becomes easier to identify gaps, track progress, and promote further research in this area. Additionally, policymakers, researchers, and funding agencies need more evidence-based insights to support and prioritise initiatives that preserve and promote indigenous knowledge. A bibliometric analysis was conducted to investigate the publishing patterns of indigenous knowledge research in Kenya to fill this knowledge gap. The study examined pertinent publications to identify their authors, connections, citation patterns, and subject areas to gain insights into the present status of publishing trends.

The objectives of the study are to analyse the publication trends in indigenous knowledge research in Kenya using bibliometric analysis and to identify gaps and opportunities for future research in indigenous knowledge in Kenya based on the analysis of publication trends.

4 Methodology

The study adopted a quantitative approach as data on publications on indigenous knowledge in Kenya was retrieved from the Google Scholar database using the *publish or perish tool* for bibliometrics analysis. According to Harzing (2010), this tool is a software that helps scholars examine their academic impact and citation metrics by collecting data from a variety of sources, including Google Scholar, Microsoft Academic, Scopus, and other academic databases, to provide a comprehensive set of metrics including the number of publications, total citations, and the h-index. Advanced search using a variation of relevant keywords related to indigenous knowledge and Kenya was used to capture a wide range of publications, which was performed using the *publish or perish tool*. The search was limited to articles with 'Indigenous Knowledge', 'Traditional Knowledge', and 'Kenya' in the title and the Keywords. The period covered by the search was 2000–2023. Due to the discussion surrounding the Millennium Development Goals and later the Sustainable Development Goals, which both identify indigenous knowledge as an essential pillar in development, particularly in developing countries, the era covered by the search was deemed appropriate. The *publish or Perish tool* was then used to download the relevant metrics of the publication from 2000 to 2023. The retrieved information was summarised in the following themes: CitesAuthors, Year, Source Publisher, and DOI, among others. The *publish or Perish tool* results were then copied to Excel in Microsoft Word for further analysis. The data was then interpreted to identify patterns,

clusters, influential authors/institutions, thematic areas, and citation impact. Because the search was restricted to articles containing citations and patent data and the phrases ‘Indigenous Knowledge,’ ‘Traditional Knowledge,’ and ‘Kenya’ in the title, some articles may have been overlooked. Google Scholar database was preferred over other databases because the subject is relatively new. However, unlike other databases maintained by academic publishers, Google Scholar’s content is automatically generated and relies on algorithms to index and rank results. As a result, it may include some low-quality or non-peer-reviewed sources. All retrieved data was evaluated, reported, and discussed anonymously to guarantee compliance with ethical considerations and data protection.

5 Findings

The findings of the study are presented and discussed in the sections hereunder.

5.1 Publication trends in indigenous knowledge in Kenya

This section provides the results of a search conducted on July 21, 2023, using the *Publish or Perish tool*. The findings and analysis were restricted to publications published between 2000 and 2023, as shown in Table 1.1; the findings were then downloaded into an Excel file for further examination.

Table 1: Publication trends in Indigenous knowledge

Citation Metrics	Quantity
Publication Years	2000-2023
Citation years	(23) 2000-2023
Publications	114
Citation	884
Publications per year	4.95
Cites Per year	38.43
Cites per publication	7.75
Authors per publication	2.01
H Index	13
G Index	28

In reference to Table 1, the oldest publication was in 2000, and the latest was in 2023. In total, 114 publications were attributable to the search, confined to articles with the words ‘Indigenous Knowledge’ and ‘Kenya’ in the title. This translates to an average of 4.95 papers per year. The results also show that all the retrieved publications had received 884 citations, thus giving an average of 38.43 citations each year with 7.75 citations per paper. On average, every author had 2.01 authors per publication. From the findings, the h-index, which measured the productivity and impact of a researcher’s work, was at 13, while the G Index, which is an extension of the h-index and considers the distribution of citations, was at 28.

Despite growing recognition of the importance of indigenous knowledge in contemporary research and policy-making, the volume of research output as per this analysis still needs to

be higher compared to other disciplines. The relatively low volume of indigenous knowledge research established in this study is similar to the Chepchirchir *et al.* (2019) study, which attributes it to a variety of factors, many of which have their roots in historical, social, and academic contexts, such as colonialism, Western Dominance in Academia, language barriers, and inadequate funding for research in many developing nations. There is, therefore, a need to decolonise academia, incorporate diverse knowledge systems, involve indigenous communities in research, and increase funding for research on indigenous knowledge. Collaboration and mutual respect between researchers and indigenous communities are essential for fostering more equitable and inclusive research practices.

5.2 Number of publications per year

The study aimed to identify publication trends to forecast growth and get valuable insights into indigenous knowledge research. Figure 1 depicts the pattern for the analysis.

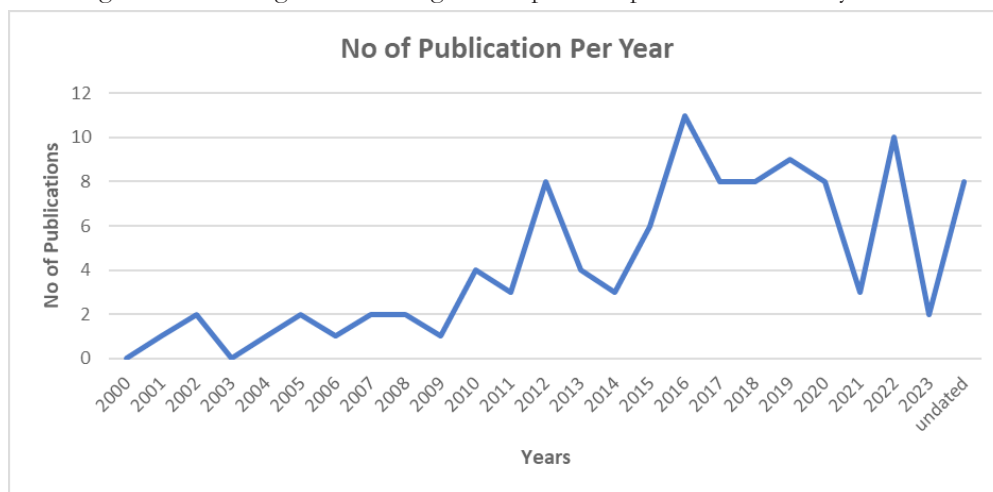


Figure 1: Number of publications per year

As indicated in Figure 1, an analysis of the findings demonstrates a progressive increase in the number of publications on indigenous knowledge in Kenya.¹ The most were published in 2017 (11 publications), followed by 2022 (10 publications) and 2012 (8 publications). Despite the gradual increase, the number of publications fluctuated, with 2003 reporting the lowest (0 publications), 2009 (1 publication), 2021 (3 publications), and 2023 (3 publications). On average, there are about four publications published in a year, as seen in Table 1.

5.3 Publishers of the Indigenous Knowledge Publications

To better understand the publishers of Indigenous knowledge from Kenya, the researcher analysed the top 10 publishers of the retrieved publications as indexed in Google Scholar. The findings were then arranged from the first UON Repository to the last Taylor Francis and Routledge, as shown in Figure 2.

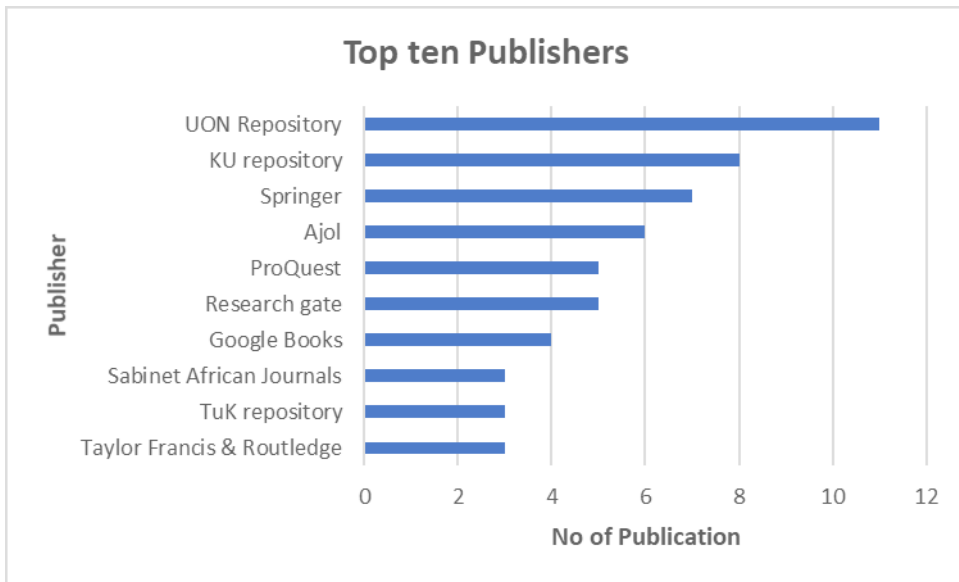


Figure 2 Top 10 publishers

According to the data, the University of Nairobi Repository had 11 publications, followed by Kenyatta University Repository with 8, Pringer with 7, and AJOL with 6. ProQuest and Research Gate were in the centre, with five publications, while Google Books had 4. Sabinet African Journals, TUK repository, and Taylor Francis & Routledge each had 3. Publications.

5.4 Articles with the highest number of citations in the field of Indigenous Knowledge

As shown in Table 2, a rigorous review of the top 20 cited publications might reveal trends such as the impact of collaborations, disciplines with more significant academic discourse, the annual citation per author, publications, and author count.

Table 2: Disciplines and Top 20 Cited Publications

Cites	Discipline	Publication Year	Age	Cites Per Year	Cites Per Author	Author Count
321	Climate Change	2010	13	24.69	64	5
68	Meteorological	2011	12	5.67	34	2
52	Medicinal plants	2012	11	4.73	26	2
29	Human-wildlife conflict	2012	11	2.64	10	3
24	Sustainable Development	2014	9	2.67	12	2
23	Research	2010	13	1.77	8	3
23	Climate change	2021	2	11.5	8	3
22	Medicine	2005	18	1.22	11	2
19	Food Security	2011	12	1.58	19	1

Cites	Discipline	Publication Year	Age	Cites Per Year	Cites Per Author	Author Count
15	Wildlife management	2016	7	2.14	5	3
15	Education & development	2011	12	1.25	15	1
14	Climate Change	2013	10	1.4	14	1
14	Child development	2016	7	2	14	1
13	Social development	2019	4	3.25	4	3
13	Climate change	2013	10	1.3	13	1
13	Land management	2017	6	2.17	13	1
12	Sustainable Development	2007	16	0.75	12	1
12	Research	2016	7	1.71	6	2
12	Ecology	2020	3	4	3	4
11	Agricultural productivity	2019	13	11	2.75	4

According to Table 2, the publication with the most citations was 321. The publication, titled Climate Change, was written by five authors and was released in 2010. This was followed by articles on meteorology, medicinal plants, and human-wildlife conflict in 2011 and 2012, respectively. Thirteen of the twenty publications had multiple authors. The papers covered many topics, but climate change, sustainable development, agriculture, and the environment stood out.

6 Discussions

The increased trend could imply steady interest and investment growth. It is clear from the results that the number of publications on IK is still generally low. However, the linear graph shows that as the year progresses (x-axis), the number of publications (y-axis) steadily rises. These findings are in tandem with Kwanya (2015), who noted growing recognition of the value of Indigenous knowledge and efforts to preserve and protect it. This indicates a growing acknowledgement of the richness and value of indigenous knowledge in the recent past, as IK has been found to complement and enrich Western scientific knowledge in several areas, like medicinal properties of plants, biodiversity conservation, and adaptation to changing environmental conditions. These findings are in line with those of Chepchirchir et al. (2019), who also established that there is a growing recognition of the importance of preserving this knowledge as part of the cultural identity of these communities. Despite the increase in IK, Nakitare et al. (2024) pointed out that the country's inadequate legal infrastructure ensures that indigenous and local communities are adequately recognised, compensated, and involved in decision-making processes related to the use and commercialisation of traditional knowledge. As such, there is fear that many communities are still being exploited.

From the findings, there are more publications in repositories than high-impact peer-reviewed publications. The presence of more articles in repositories suggests that there is a greater interest in IK in the country. This suggests that preserving and sharing this priceless knowledge involves greater ownership, cultural context, and accessibility. However, the

fact that the sources are primarily repositories could also imply that the research deposited is in the form of a thesis that has not yet been published or publications in low-quality, lesser-known, or new journals that do not meet the inclusion criteria of reputable journals, conferences, or books. According to Martn-Martn et al. (2021), Google Scholar's content inclusion criteria are more permissive than other academic databases, such as Scopus and Web of Science, which have tight content inclusion criteria. There were also some publications from the Sabinet African Journals. This suggests that it is simpler for African journals to publish indigenous knowledge because of its relevance to the local context, with language and cultural understanding. This could be because Many African governments and groups are now actively advocating for more Indigenous knowledge study and investment across the continent (Ezeanya-Esiobu, 2019). This could also be explained by the fact that most IK is documented in languages that are only widely spoken in the local community. As such, local repositories may be more likely to publish materials in these languages, making them accessible to those who understand and can benefit from them.

From the findings, there were more publications on Climate Change, followed by Meteorological, Medicinal plants, Human-wildlife conflict and Sustainable Development, among others. According to Griggs and Reguero (2021), Climate change is increasingly seen as one of the most pressing global challenges of our time, as evidenced by extreme weather events, rising sea levels, and other observable impacts of climate change; there is a sense of urgency among scientists, policymakers, and the public to address this issue promptly. As such, there has been heightened discourse and research in the recent past on how to mitigate the effects of climate change. These findings also show the importance of Indigenous knowledge in solving climatic challenges.

Further analysis showed that the highly cited publication had five authors and was published 13 years ago. This implies that collaborations, as proposed by Abramo et al. (2009), boost the visibility of research. This is further illustrated by the fact that the most recent publication with more citations had three authors and that most articles with a single author were the least cited. Further analysis revealed a citation pattern across the retrieved publications that justifies the importance of collaborations, collaborative networks, and prominent collaborative relationships within Kenya or with international partners.

7 Conclusions

The bibliometric analysis of publishing trends on Indigenous Knowledge Research in Kenya from 2000 to 2023 has provided valuable insights into the research's growth, focus, and impact in this critical field. The analysis reveals a noticeable increase in research output related to Indigenous Knowledge in Kenya in the past two decades. The interdisciplinary nature of research, collaboration among scholars, and the shift toward practical applications underscore the importance of Indigenous Knowledge in addressing contemporary challenges. There is a need to recognise the significance of Indigenous Knowledge systems, respect traditional wisdom, and continue supporting research and initiatives that empower indigenous communities and contribute to the broader well-being of society.

8 Recommendation

Because of the value associated with indigenous knowledge, indigenous knowledge recognition and research are likely to continue. This study recommends the following.

- There is a need for a framework and resources to document and share all ongoing Indigenous knowledge research to promote cultural preservation, empowerment, understanding, collaboration, and the interchange of practical ideas between indigenous people and the broader society.
- They are increasing engagement and dialogue between Indigenous knowledge holders and academic researchers to combine traditional and academic knowledge systems. Both perspectives can complement each other and lead to more comprehensive understandings.
- The findings of this study can drive future research, collaborations, and initiatives that aim to use the rich knowledge systems entrenched in Indigenous cultures for the good of society and the advancement of knowledge.

References

- Abramo, G., D'Angelo, C. A., & Di Costa, F. (2009). Research collaboration and productivity: Is there a correlation? *Higher education*, 57, 155-171.
- Ankrah, D. A., Kwapong, N. A., & Boateng, S. D. (2022). Indigenous knowledge and science-based predictors reliability and its implication for climate adaptation in Ghana. *African Journal of Science, Technology, Innovation and Development*, 14(4), 1007-1019.
- Bijker, W. E. (2015). Technology, the social construction of. *The international encyclopedia of communication*. (Second Edition). Elsevier. PP 135-140.
- Bosch, S., & Griesel, M. (2019). Towards the digital documentation and preservation of indigenous knowledge in the African Wordnet. *Horak, A., K. Osolobe, A. Rambousek and P. Rychly (Eds.)*, 17-27.
- Cajete, G., Dithlake, K., Kiewitt, K., Keibl, T., Lutz, R., & Schirilla, N. (2023). Indigenous Knowledge–Indigenous Science. *Geteiltes Wissen–Wissensentwicklung in Disziplin und Profession Sozialer Arbeit*, 91.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Diop, S., & Asongu, S. A. (2022). Research productivity: Trend and comparative analyses by regions and continents. *Journal of the Knowledge Economy*, pp. 1–19.
- Ezeanya-Esiobu, C. (2019). *Indigenous knowledge and education in Africa* (p. 115). Springer Nature.
- Fongod, A. G. N., Ngoh, L. M., & Veranso, M. C. (2014). Ethnobotany, indigenous knowledge and unconscious preservation of the environment: An evaluation of indigenous knowledge in South and Southwest Regions of Cameroon. *Int. J. Biodivers. Conserv.*, 6(1), 85-99.
- Greenwood, M., & Lindsay, N. M. (2019). A commentary on land, health, and Indigenous knowledge (s). *Global Health Promotion*, 26(3_suppl), pp. 82–86.
- Griggs, G., & Reguero, B. G. (2021). Coastal adaptation to climate change and sea-level rise. *Water*, 13(16), 2151.
- Harzing, A. W. (2010). *The publish or perish book*. Melbourne, Australia: Tarma Software Research Pty Limited.
- Kwanya, T. (2015). Indigenous knowledge and socioeconomic development: Indigenous tourism in Kenya. In *Knowledge Management in Organisations: 10th International Conference, KMO 2015, Maribor, Slovenia, August 24-28, 2015, Proceedings 10* (pp. 342–352). Springer International Publishing.

- Kwanya, T., & Kiplang'at, J. (2016, July). Indigenous knowledge research in Kenya: a bibliometric analysis. In *Proceedings of the 11th International Knowledge Management in Organizations Conference on The Changing Face of Knowledge Management Impacting Society* (pp. 1-7).
- Mawere, M. (2014). *Culture, indigenous knowledge and development in Africa: Reviving interconnections for sustainable development*. Langaa RPCIG.
- Nakitare, J., Otike, F., & Mureithi, L. (2024). Harnessing the economic value of indigenous knowledge in Kenya: a qualitative review of the legal framework. *Global Knowledge, Memory and Communication*.
- Wildcat, D. R. (2005). Indigenising the future: Why we must think spatially in the twenty-first century. *American Studies*, 46(3/4), 417–440.
- Woodfield, P. J., Ooi, Y. M., & Husted, K. (2023). Commercialisation patterns of scientific knowledge in traditional low-and medium-tech industries. *Technological Forecasting and Social Change*, p. 189, 122349.

40. Roles of Public Libraries in the Preservation of Indigenous Knowledge of Artisans for Sustainable Development in Kano State, Nigeria

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Abstract

The preservation of indigenous knowledge of artisans should be given due consideration by public libraries in Nigeria, taking into cognisance the paucity of literature. Nigeria is blessed with artisans such as those in tannery industries, but unfortunately, little attention was given to their preservation and documentation in some public libraries. However, this paper was limited to local tanners in Kano State. The purpose of the paper was to identify the sources of acquiring the IK, the means of transmission, and the challenges associated with the preservation and documentation of such knowledge. A quantitative research methodology was adopted, and a questionnaire was used in the data collection process. A sample of sixty (60) respondents was selected randomly from the total population of the registered local tanners with the Kano State Ministry of Commerce. So, sixty (60) copies of the questionnaire were distributed to the respondents, out of which 56 copies were filled out and returned, giving a response rate of 93%, which was found adequate for the study. The findings of the study revealed that the majority of the respondents acquired the IK of tannery from family sources and on-the-job training; the means of transmission of IK was through oral transmission, as indicated by the majority of the respondents. The challenges associated with the preservation of IK were inadequate education, lack of interest among the new generations, and unfamiliarity with the libraries as preservation centres, among others. The paper highlighted how the public libraries could preserve the knowledge for sustainable development. The research demonstrated originality, which will contribute to the new knowledge.

Keywords: *Documentation, local tanners, Kofar Wambai, local knowledge*

1 Introduction

Indigenous knowledge is essential because it is a means of sustainable development used to sustain the community and its culture. Therefore, paying attention to the preservation and documentation of such knowledge in public libraries can always be emphasised. Indigenous knowledge is the local knowledge that is unique to a culture or society, which is usually passed from generation to generation. Other names for it include: 'local knowledge', 'folk knowledge', 'people's knowledge', 'traditional wisdom' or 'traditional science'. As such, placing value on such knowledge could strengthen cultural identity and the enhanced use of such knowledge to achieve social and development goals, such as sustainable agriculture, affordable and appropriate public health, and conservation of biodiversity (Makinde & Shorunke, 2013).

The public library is charged with many responsibilities, all of which are channelled towards the purpose of making information accessible and available for the users. Unlike other libraries, the public library, without any discrimination, serves all categories of information users in society: children, adults, males and females, students, prisoners, artisans, workers and everybody from all walks of life. In line with this, Grevling and Zulu (2009) stated that the

public library, for instance, has been an appropriate anchor partner in Indigenous Knowledge system-related programmes because of the stability of its position both within the community and within the government structure through which it is established.

The main focus of this paper was on the roles of public libraries in the preservation of indigenous knowledge of local tanners as artisans for sustainable development in Kano state. The tannery factories are the oldest and most prominent suppliers of local leather. Historically, Kano has been the home of well-tanned animal skins for decades, and its famous tannery is at Kofar Wambai. However, the evolution of modern tanneries in Bompai, Sharada, and Challawa industrial estates, as well as the recent global economic downturn, have reduced the activities and works of this local tannery. Some of the traditional communities and local people with this vital and important indigenous knowledge are becoming older day by day while some are dying. This, therefore, necessitated the need to carry out this research. Thus, indigenous knowledge can enhance core values to prevent social ills, and the development of African indigenous knowledge can solve many of the challenges that have bedevilled Africa and its people (Ogundokun, 2019).

The main objective of the study was to identify the roles of public libraries in the preservation of indigenous knowledge, and other specific objectives were to identify the sources of acquiring the IK by the local tanners in Kano state, identify the means of transmission of IK among the local tanners in Kano state; and find out the challenges that were associated with the preservation and documentation of the indigenous knowledge of the artisans in Kano state.

2 Review of related literature

Relevant and related literature on the roles of public libraries, the concept and significance of indigenous knowledge, preservation of indigenous knowledge, and sustainable development was reviewed.

2.1 Roles of public libraries

A Public library is a place where citizens access information and ideas irrespective of their age and educational background; it helps to empower people in the enrichment, development and orientation towards inculcating national pride and a proper sense of national culture. Consequently, Public libraries are established to serve the community where it is located; they have the most heterogeneous users as there is no restriction as to who can use the library. Public libraries have a significant role to play in the development of society; apart from being a place of recreation, they are also essential institutions of informal and continuing education for the people. It is an institution where people have opportunities to strengthen social and mental value for the development of society. The role of public libraries, according to Sultana et al. (2018), is to acquire information, store it, and disseminate it to the citizens, as well as social development, individual development, and community development.

The libraries are no longer regarded as mere storehouses where books are kept under the care of custodians. They offer different services to different sectors of the community free of charge (Ahmad, 2021). Public libraries are also considered as local gateways to information for individual and social development. They make vital contributions toward the educational, cultural, social, and recreational development of the communities and enhance democratic values among people. However, the roles of public libraries in the present society, as described by Maurya (2016), are:

- a. Economic development: Information has become crucial and the fifth factor in the production of materials. It is identified as a driver of economic growth and productivity. For national and sustainable development, economic growth depends upon updated and new information. In the spread of new and updated information, public libraries play a very important role through their services.
- b. Informal and continuing education: Public libraries have a significant role and opportunity to spread education. They provide information and educational opportunities free to all people, regardless of their socio-economic status. They also help in continuing education by providing a common discussion forum.
- c. Recreation and leisure opportunities: Public libraries give people the opportunity to use leisure time for amusement, education, and skill development. They also organise quiz hours, puppet shows, videos, etc. to better use leisure time. Consequently, public libraries play a very important role in people's lives, allowing them to have recreational and pleasant leisure activities.
- d. Cultural exchange and engagement: Public Libraries are social institutions where members of different communities with different religions and social practices come together to meet and understand each other, which subsequently leads to social harmony and national integration. They organise activities like dramas, lecture series, debate competitions, and book exhibitions to enhance and advertise their services.
- e. Promotion and preservation of local culture and history: Public Libraries preserve oral histories, historical artefacts, and monographs relevant to the local community, preserve and restore maps and paintings, digitalise vital records and try to create records of oral history. It also helps in the promotion of local culture through its different promotional activities.
- f. Promotion of democratic values: Public libraries play an essential role in promoting democratic values, where people are treated equally, irrespective of their social, religious, and economic status. Democratic values do not differentiate between members of the society; every member has equal value, whether he/she is from the royal family, bureaucratic family, or common man of the society.
- g. Help in women's empowerment: Public libraries provide equal opportunities to all sexes. Women, whether they are career women or housewives, get a place for discourse to explore opportunities, which may be educational, social, childcare, or exposure to the rest of the world.
- h. Personality development of children: Public libraries help develop children's personalities by organising different kinds of activities such as book fairs, painting competitions, and essay competitions, promoting socialisation and providing opportunities for these activities.

The umbrella of public libraries in the development of every society is very vast; it covers almost all areas of political, economic, and social life.

2.2 Concept and significance of indigenous knowledge

Knowledge is an essential resource for any society globally; it helps in gaining competitive advantages and social and economic development; each society possesses some inherent knowledge which is unique and important for its growth and development; this kind of

knowledge is regarded as indigenous or local knowledge. Atoma (2011) defined Indigenous Knowledge as the knowledge that people in a given community have developed over time and continue to develop based on the experience adapted to local culture and environment. According to Adebayo and Adeyemo (2017), Indigenous knowledge is built up by the local community and accumulated over generations of living in the exacting environment; it is in close contact with nature but mostly not available in codified form. It refers to a complete body of knowledge, expertise, and practice developed and maintained by people through generations specific to certain areas (Baporikar, 2022).

Over the centuries, people in many communities have learnt and developed knowledge and strategies for many aspects of life. According to Ogundokun (2019), Indigenous knowledge is the technical “know-how” acquired by an individual from his/her community, which pertains to culture, traditional concepts and native worldview. This knowledge guarantees adequate peaceful human co-existence and sustainable development. Nduka and Oyelude (2020) opined that Indigenous Knowledge is the information base of a society which facilitates communication and decision-making, and it is unique to a given culture. Indigenous knowledge is passed from generation to generation, usually orally. It has been the basis for agriculture, food preparation and conservation, healthcare, education, economic and social development, and a wide range of other activities that sustain society.

Indigenous knowledge has contributed immensely to creating awareness and education among Indigenous communities, which has led to the growth and development of society. Atoma (2011) considered Indigenous knowledge to be a significant resource that could contribute to the increased efficiency, effectiveness, and sustainability of society’s development process. Sultana et al. (2018) opined that Indigenous knowledge is essential, and it significantly assists indigenous communities in conserving nature, forestry development, food production, medicine, sustainable practices, land and resource management and ecotourism, climate change and disaster risk reduction.

2.3 Preservation of indigenous knowledge

Preservation of Indigenous Knowledge has become relatively important and valuable in the management of sustainable development. However, the growing emphasis and realisation that indigenous knowledge has a role to play in national development, knowledge management, and community development has led to the growth of interest in acquiring, preserving and managing it. Baporikar (2022) opined that the preservation of indigenous knowledge in today’s information societies is of great advantage, and it has to be a continuous process for the smooth transition of knowledge from one generation to another. However, the methods and approaches to preserve this valuable indigenous knowledge should be known and understood by many individuals, especially in emerging economies.

Indigenous knowledge is a very crucial and valuable resource; thus, the preservation of these resources is very important for the smooth dissemination of information. The prominent methods of preserving indigenous knowledge, according to Adebayo and Adeyemo (2017), are recordings and visual documentation. Nduka and Oyelude (2020) stated that the methods used to preserve indigenous knowledge are films, tapes, videos and manuscripts. Similarly, Abayomi et al. (2021) conducted a study on the preservation and use of indigenous knowledge practices in public libraries and revealed that video and audio recordings were significant sources of preserving indigenous knowledge in public libraries.

However, for the successful preservation of indigenous knowledge, Baporikar (2022) suggested that preservation should be promoted in all virtual communities, and the educational system, government, and heritage institutions should commence plans to promote the preservation of indigenous knowledge in order to promote culture and enhance indigenous knowledge sustainability.

However, Ngulube (2017) identified numerous challenges concerning the preservation of indigenous knowledge in relation to collection development, intellectual property rights, and access to and preservation of media because these issues can be attributed to the fact that indigenous knowledge is usually unwritten and orally transmitted and resided in human memories.

2.4 Sustainable development

Sustainable development is an important natural resource management in any society as it is efficient and effective and outlines the economic, environmental, and other social components. The concept of sustainable development has no single definition that is acceptable to all. However, many experts conceptualised their definitions in trying to provide the baseline evidence for easy understanding. For instance, sustainable development, according to Karpagam (2014), is directly concerned with increasing the natural standard of living of people experiencing poverty at the grassroots level, which could be quantitatively measured in terms of increased food, real income, educational services, health care, sanitation, water supply and so on.

Sustainable development is the kind of development that is acceptable to the present generation without compromising the ability of future generations to meet their own needs. Ashein (2014) opined that it is a desirable social objective that increases real income per capita, improves health and nutrition, provides access to resources and educational achievement, creates a fairer distribution of income, and increases basic freedom. Tietenberg (2015) posited that sustainable development is the ability and willingness of the present generation to devise a means of using resources such that future generations, at a minimum, would be left no worse off than the current generation.

Sustainable development aims to create sustainable improvements in the quality of life for all people. Besides increasing economic standards, growth and meeting the basic needs of people, the aim of lifting living standards includes a number of more specific goals, such as giving everyone the chance to participate in public life, bettering people's health and education opportunities, promoting intergenerational equality, helping to ensure a clean environment. Sustainable development also aims to maximise the net benefits of economic development, subjecting to maintaining the stock of all environmental and natural resource assets that are physical, human and natural over time (Bryan, 2015).

In addition, Ashein (2014) opined that sustainability concerns itself with fairness regarding the treatment of present and future generations and contends that for ethical reasons, exploitation of resources should not leave future generations worse off than the current; it also requires that the current generation, though capable of acting otherwise, should manage the resource such that the average quality of life it ensures can potentially be shared by all future generations.

There are three essential components of sustainable development, according to Bryan (2015), which are economic, social and environmental. An economic component of sustainability

requires that societies pursue growth paths that generate an optimal flow of income while maintaining their basic stock of manmade capital, human capital, and natural capital and internalising all costs, including the environmental costs associated with production and consumption. The social dimension of sustainable development is built on the twin principles of justice and equality; for a developmental path to be sustainable over a long period, wealth, resources, and opportunities should be equitably shared. The environmental component equally demands sustainable resource use, efficient sink function, and maintenance of natural capital stock; that is, the environment should be able to perform its three functions efficiently and uninterrupted so that ecological stability and resilience are not affected.

3 Methodology

A quantitative research methodology was adopted for the study. The quantitative methodology is concerned with trying to quantify data and generalise results from a sample of the population of interest (Kothari & Garg, 2019). This research methodology is more relevant for the study as it enables the researcher to explain the phenomenon by collecting numerical data or information that is analysed using mathematically based methods (statistics). It summarises information and data collected, has greater accuracy and objectivity, and eliminates biases. A survey research design was also used for the study, and it is one of the most common and well-known study designs. In this type of research study, either the entire population or a subset thereof is selected, and data from these individuals are collected to help answer research questions of interest.

The study area for this research was the Kano state of Nigeria. The study population consisted of 60 local tanners in Kofar Wambai Tannery who registered with the Kano State Ministry of Commerce. The entire population was studied because it was manageable. The main instrument used for data collection was a self-developed questionnaire. The data collected was analysed using descriptive statics through frequency and percentage.

4 Findings and discussion

The following response rate was obtained after the questionnaire was distributed to the respondent groups.

Table 1: Response Rate

Questionnaire	Frequency (f)	Percentage (%)
Number of questionnaires administered	60	100
The number of questionnaires returned	56	93
Number of questionnaires not returned	04	7%

A total of 60 copies of the questionnaire were distributed to the respondents. 56 (93%) copies were duly returned and found useable for the study, while 4 (7%) were not returned. The response rate of 93% is considered adequate for the study. This high response was due to the researcher's personal administration of the questionnaire.

The respondents were asked about the sources of acquiring indigenous knowledge, and the following responses were recorded. Multiple choices were allowed.

Table 2: Sources of Acquiring Indigenous Knowledge for Local Tanners

Sources	Frequency (f)	Percentage (%)
Family sources	54 (96)	96%
Friends	5 (9)	9%
Neighbours	2 (4)	4%
On-the-job training	47 (84)	84%
Documentation sources	0 (0)	0%

Table 2 indicates the responses generated by the respondents regarding the sources of indigenous knowledge acquired by the local tanners in Kano state. The majority of the respondents, 54 (96%), revealed that they acquired it through family sources, followed by 47 (84%) indicated they acquired it through on-the-job training, while none of the respondents 0 (0%) indicated acquiring it from documented sources. This means that the primary source of acquiring IK by the local tanners in Kano was family sources. This implies that the majority of them learnt it from their fathers and forefathers, the knowledge used to pass from one generation to the other. In addition to this, a substantive number of the respondents indicated they learned the skills through on-the-job training.

4.1 Ways of transmitting the IK to the local tanners

Respondents were asked about the ways the IK was transmitted to them; the following responses were obtained.

Table 3: Ways of Transmitting the IK to the Local Tanners

Transmission	Frequency (f)	Percentage (%)
Oral transmission	55	98%
Radio	2	4%
Television	2	4%
Cultural practices	20	36%
Formal training	0	0%

Table 3 revealed that the majority of 55 (98%) of the respondents indicated that the IK of tannery was transmitted to them through oral transmission. In comparison, 20 (36%) indicated cultural practice, and none 0 (0%) recorded formal training as the means of transmitting the knowledge. This means that the primary means of transmitting the IK of the tannery to the local tanners in Kano state was oral transmission. Corroborating this finding, Akinwale (2012) found that oral tradition has been used as a critical method of preservation of African indigenous knowledge for centuries. Ngulube (2017) also found that indigenous knowledge is usually unwritten and orally transmitted, which resides in human memories. However, it is not surprising to discover that none of the respondents indicated formal training because none of them indicated acquiring knowledge through documentary sources.

4.2 Challenges associated with the preservation of indigenous knowledge

The respondents were lastly asked about the challenges associated with the preservation of

their indigenous knowledge; their responses were presented in Table 4

Table 4: Challenges Associated with the Preservation of Indigenous Knowledge

Challenges	Frequency (f)	Percentage (%)
Inadequate education	50	90%
Lack of interest among the younger generation	38	68%
Lack of government support	23	42%
Unfamiliarity with libraries as preservation centres	38	68%
Language and communication barriers	2	4%

The responses obtained from Table 4 have revealed that the majority of the respondents, 50 (90%), indicated inadequate education, followed by a lack of interest by the younger generation and unfamiliarity with libraries as preservation centres, where each of them recorded 38 (68%) responses. This means the respondents have indicated higher responses in not having adequate formal education, and a significant percentage of them are not aware of the roles of public libraries as preservation centres. Lack of interest by the younger generation also recorded a high percentage of responses, which is alarming, as observed by Abayomi et al. (2021), that many indigenous knowledge systems in developing countries such as Nigeria are gradually becoming extinct due to cultural, educational and economic developments.

Interestingly, language and communication barriers recorded the fewest responses because the dominant language in Kano state is Hausa; they use uniform language in transmitting indigenous knowledge. This is not in line with the findings of Abioye and Oluwaniyi (2017), who revealed that fifty respondents (69.4%) also agreed that linguistic problems/language barriers in IK collections were a noticeable challenge.

5 Conclusion

Based on the findings of the study, it concludes that the majority of the local tanners in Kofar Wambai Tannery claimed that they acquired their indigenous knowledge from family sources through oral transmission. However, they are not familiar with the roles of the library in the preservation of indigenous knowledge. This means that the transfer of their indigenous knowledge orally from parents and relatives is prevalent among them. This, therefore, calls for the attention of the Kano State Library Board as a public library to find ways of documenting and preserving such vital knowledge because modern tannery industries are gradually taking over the local ones. As such, the study provided these recommendations.

6 Recommendations

- Kano State Public Library should raise awareness among the indigenous knowledge community about the importance of documenting and preserving it. This could be done by identifying a community with such indigenous knowledge and organising an awareness campaign to highlight the library's role in documenting and preserving their precious knowledge.
- The library management should consider the possibilities of identifying the community with indigenous knowledge and tapping such vital knowledge by conducting in-depth

interviews, especially with the leaders and more knowledgeable people among them, and properly documenting it for posterity and sustainable development in the state.

- The government should also encourage and motivate the younger generation to develop an interest in the tanning industry and provide them with formal training on how to maintain and retain the knowledge.

References

- Abayomi, K. O., Ese, D. O., Bosede, T. A., & Omowumi, M. O. (2021). Preservation and use of indigenous knowledge practice in public libraries in Nigeria. *Public Library Quarterly*, 41(5), 485-502 <https://doi.org/10.10801016166846.2021.1938897> accessed on 20th June, 2023
- Abioye, A., & Oluwaniyi, S. A. (2017). Collection development and preservation of indigenous knowledge in selected federal university libraries in southwest Nigeria. *Library Philosophy and Practice (e-journal)*. 1633. Retrieved from <https://digitalcommons.unl.edu/libphilprac/1633> accessed on 20th June, 2023
- Adebayo, J. O., & Adeyemo, A. A. (2017). Documentation and dissemination of indigenous knowledge by library personnel in selected research institutes in Nigeria. *Library Philosophy and Practice (e-journal)*. 1628. Retrieved from <https://digitalcommons.unl.edu/libphilprac/1628> accessed on 10th September, 2023
- Ahmad, H. S. (2021). Leadership styles practiced by heads of public libraries in northern states of Nigeria. *DALAJournal of Library and Information Practice*, 2(1), 110-123
- Akinwale, A. A. (2012). Digitisation of indigenous knowledge for natural resources management in Africa. Proceedings of the 2012 Summit of the African Educational Research Network, 18-20th May, North Carolina State University & DoubleTree Hilton, Raleigh Brownstone University Hotel
- Ashein, G. B. (2014). *Defining sustainability when resource management does not have deterministic consequences*. Mimeo Department of Economics, University of Oslo
- Atoma, C. N. (2011). The relevance of indigenous knowledge to sustainable development in Sub-Saharan Africa. *International Journal of Tropical Agriculture and Food System*, 5(1), 371-385
- Baporikar, N. (2022). Strategies to manage and preserve indigenous knowledge. *Research and Managing Global Knowledge*. 2(3), 16-23 DOI: 10.4018/978-1-7998-7492-8.ch012
- Bryan, K. O. (2015). Sustainable development in Nigeria: the policy, gap and dilemma. *Journal of Economic and Sustainable Development*, 6(23), 78-84
- Grevling, E., & Zulu, S. (2009). Content development in an indigenous digital library: a case study in community participation. Scribbr, <http://www.ifla.org/annual.conference/ifla-75/index.htm>
- Karpagam, M. (2014). *Environmental economics*. New Delhi: Sterling Publications.
- Kothari, C. R., & Garg, G. (2019). *Research methodology: Methods & Techniques*, 4th ed, New Age International Publishers.
- Makinde, O. O., & Shorunke, O. A. (2013). Exploiting the values of indigenous knowledge in attaining sustainable development in Nigeria: The place of the library. *Library Philosophy and Practice (e-journal)*. 908. Retrieved from <https://digitalcommons.unl.edu/libphilprac/908> accessed on 21st December, 2022
- Maurya, R. J. (2016). Role of public libraries in the development of society. *Library Waves*, 2(2), 139-141
- Nduka, S. C., & Oyelude, A. A. (2020). Goge Africa: Preserving indigenous knowledge innovative-

ly through mass media technology. *Journal of Preservation, Digital Technology and Culture*, 3(2), 39-45 DOI: <https://doi.org/10.1515/pdte-2019-0007>.

Ngulube, P. (2017). Managing and preserving indigenous knowledge in the knowledge management era: challenges and opportunities for information professionals. *Information Development*, 18(2), 310-324 <https://doi.org/10.1177/026666602400842486> accessed on 25th September, 2023

Ogundokun, S. A. (2019). Essentials of indigenous knowledge towards sustainability and development: A Nigerian experience. *Journal of Sustainable Development Studies* 12 (2), 147-161

Sultana, R., Muhammad, N., & Zakaria, A. K. (2018). Role of indigenous knowledge in sustainable development. *International Journal of Development Research*, 8(2), 18902-18906

Tietenberg, T. (2015). *Environmental and Natural Resource Economics*. London: Pearson Education Inc.

41. Strategies for disseminating indigenous knowledge in museums for sustainable development: a meta-analysis

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Abstract

Indigenous knowledge serves as the foundation for solving the local problems that indigenous communities experience. Therefore, it is a significant source of practical knowledge that promotes sustainable development. Museums the world over have rich collections of indigenous knowledge. The potential of this valuable knowledge to contribute to the realisation of the global development agenda, exemplified by the Sustainable Development Goals, is dependent on the effectiveness of its dissemination. Therefore, disseminating indigenous knowledge in museums not only helps to preserve and celebrate cultural diversity but also promotes sustainable practices and encourages the recognition of indigenous rights. This study explores the strategies museums have employed to disseminate the indigenous knowledge they hold to support sustainable development goals on promoting the quality of education (4.7), life on land (15.6), public-private partnerships (17.17), zero hunger (2.5), life below water (14.2), and responsive climate action (13.3) in their jurisdictions. This study was conducted using a systematic literature review. Data was collected from scholarly materials on the subject retrieved from Google Scholar using Harzing's Publish or Perish software application. The data is visualised using VOSviewer. The findings revealed that IK on ecological conservation, traditional medicine, agriculture, traditional crafts, oral tradition, indigenous languages, and governance systems are available in museums in Kenya. This knowledge can be used by researchers, educators, policymakers, tourists and community members. The knowledge is currently disseminated through exhibitions, online platforms, and cultural exchange programmes. Sensitivities, intellectual property rights, mistrust, language barriers and resource constraints hamper the effective dissemination of this knowledge. Collaborative partnerships, documentation and preservation, education and outreach can improve the dissemination and use of IK held by museums in Kenya.

Keywords: *Indigenous knowledge, museums, indigenous communities, knowledge dissemination, sustainable development*

1 Introduction

UNESCO defines Indigenous knowledge (IK) as the accumulated local knowledge, handed down from one generation to the next, that is specific to a given community. IK is a nation's or group's heritage. It can be used for the good of a community in a variety of contexts, including health (herbalists), agriculture (intercropping), education (proverbs, songs), and natural resource management (holy locations). IK is local in character and is specially tailored to the needs and environment of the local community (Kwanya, 2020). Cultural heritage is linked to the idea of indigenous knowledge. This is said to be an assemblage of material

artefacts and intangible characteristics of a society that have been transmitted over a number of years from the past generations. A monument, structure, or location of anthropological, historical, archaeological, artistic, or scientific significance can be considered a piece of legacy. Tangible culture is a part of cultural legacy. A knowledge of the past is essential to charting the present and fostering a sense of intergenerational community. Local communities can determine their current and future positions by drawing on historical experiences and events through cultural heritage.

Deeply ingrained indigenous knowledge has shown promise in recent years for advancing the Sustainable Development Goals (SDGs) worldwide (Senanayake, 2006). The majority of this IK has been conserved in museums. As a result, the institutions could be crucial in offering the necessary assistance to the national initiatives aimed at achieving the SDGs. In fact, a number of SDGs relate to the fundamental responsibilities of museums, whose foremost objective is the safeguarding of cultural heritage (SG 11.4. Museums serve as the custodians of the customs, dialects, and artefacts that bring indigenous communities together. They also encourage the use of the priceless indigenous knowledge that is held in trust by the people (Magni, 2017). By presenting the range, potential, and richness of the cultures within particular communities, museums aid in the preservation of indigenous customs (Breidlid, 2009; Gupta, 2013).

Additionally, indigenous knowledge can be applied to combat desertification, preserve, restore, and encourage sustainable use of terrestrial ecosystems, manage forests sustainably, stop land degradation, and stop the loss of biodiversity (SDG 15). This is a result of the intimate understanding, appreciation, and coexistence that indigenous societies have with natural resources and ecosystems. The conservation and advancement of the sustainable use of natural resources, species, and biodiversity are the goals of this knowledge (Halim et al., 2012; Hens, 2006; Wilder et al., 2016). By collaborating with indigenous communities to gather, record, organise, repackage, and distribute priceless and locally relevant traditional ecological knowledge, museums may make a significant contribution to conservation efforts. This knowledge can be used as a source of valuable insights for sustainable natural and diversity management (Adom & Kquofi, 2016).

Museums that preserve indigenous knowledge may also use it to counteract climate change and its effects on human livelihoods (SDG 13). The application of traditional ecological knowledge can enhance a community's ability to adapt to natural disasters and dangers associated with climate change. Indigenous knowledge of weather patterns, animal and plant behaviour, and sustainable agricultural methods are examples of ecological knowledge (Leal et al., 2022; Makondo & Thomas, 2018; Nakashima & Krupnik, 2018). Museums can offer programmes to raise public awareness about climate change and sustainable living. In the end, these initiatives will strengthen institutional and human capacity for climate change adaptation, mitigation, impact reduction, and early warning systems, as well as education and awareness-raising (SDG 13.3).

By highlighting the contributions of women to development and promoting cultural variety within communities, indigenous knowledge can also help to ensure inclusivity and gender equality (SDGs 5 and 10) (Lagi et al., 2023; Rugwiji & Masoga, 2017). Indigenous communities are known for their communal and cooperative behaviours that foster inclusivity and the well-being of all members. Additionally, museums can collaborate with indigenous communities to support a range of development initiatives (SDG 17). By utilising indigenous knowledge,

the collaborations can provide sustainable development strategies that are both successful and culturally aware (Latulippe & Klenk, 2020). By achieving food security and better nutrition through sustainable agriculture, indigenous knowledge can also help communities end hunger (SDG 2). Indigenous knowledge can also contribute to continuous, inclusive and supportable economic growth by promoting sustainable tourism and thereby creating jobs and income generation opportunities through indigenous practices and products (SDG 8.9) (Kwanya, 2019).

The aforementioned makes it clear that indigenous knowledge can play a significant role in helping to achieve a variety of SDG targets. As the principal keepers of this knowledge, museums have a significant opportunity to help achieve the SDGs. This is especially true as they work to fulfil their primary missions of protecting cultural heritage, encouraging environmental sustainability, backing climate action, and cultivating partnerships and inclusivity. Therefore, museums can be significant in the worldwide endeavour to create a future that is more egalitarian and sustainable. In order to fully exploit this potential, museums must create and implement thorough, efficient plans for sharing the indigenous knowledge they possess. Incorporating museums is essential as efforts to meet the SDG targets gain impetus.

2 Rationale of study

The current political, socioeconomic, and economic climate demands that multiple approaches for achieving sustainable development be integrated. By doing this, humanity will be able to combat the negative impacts of climate change, biodiversity loss, cultural homogenisation, and insufficient inclusivity. One of the resources that can turn the development plan into a local reality is indigenous knowledge. All in all, this will make the world more liberated, secure, and productive for everybody. Indigenous knowledge has a great potential for sustainable development. However, there are a number of factors and elements that constrain the realisation of this promise (Chepchirchir et al., 2019; Lwoga et al., 2010). Therefore, there remains a significant gap in the understanding of how museums can effectively and ethically disseminate indigenous knowledge to support efforts towards the realisation of SDGs.

This paper seeks to close the knowledge gap on the most effective ways to use indigenous knowledge for sustainable development. In order to promote sustainable development initiatives, it particularly examines the methods, obstacles, and best practices of sharing indigenous knowledge that museums possess. Several questions guided the study. Which kinds of indigenous knowledge do museums gather and preserve? Who are the actual and prospective consumers of this knowledge? How is this knowledge currently applied and integrated into the planning and implementation of programmes for sustainable development? What obstacles prevent indigenous knowledge housed by museums from having an effective impact and from being widely disseminated? How can museums serve the sustainable development agenda, as embodied by the SDGs, by ethically and effectively disseminating the indigenous knowledge assets they hold?

In the context of sustainable development goals, answering these questions is essential to closing the current gap between the potential of indigenous knowledge and its actual application. This study aims to support policymakers and stakeholders in their efforts to harness the power of indigenous knowledge to promote sustainable development goals on a global scale by focusing attention on the indigenous knowledge assets maintained in

museums and the variables influencing their utilisation. This study explores how museums might employ indigenous knowledge to support sustainable development. The results of this study have the potential to respect the values and contributions of indigenous populations while also influencing policy, practice, and cooperative efforts towards achieving the SDGs. This paper integrates several viewpoints and voices regarding the application of indigenous knowledge in socioeconomic development.

3 Literature review

This literature review explores the evolving understanding of the dissemination of indigenous knowledge held in museums and its role in advancing sustainable development goals. One of the issues which is evident in the literature is that indigenous knowledge is relevant to sustainable development. This view is based on the understanding that indigenous knowledge encompasses a rich tapestry of insights related to issues pertinent to SDGs (Abah et al., 2015; Magni, 2017; Tharakan, 2015). Adaptive climate adaptation and mitigation, sustainable agriculture, responsible land and resource management, traditional crafts, traditional medicines and health practices, and cultural practices pertinent to socioeconomic development are a few examples (Cheik & Jouquet, 2020; Loch & Riechers, 2021). The role that indigenous knowledge can play in supporting the attainment of diverse SDG targets is well documented. Scholarly works on the potential application of indigenous knowledge to attain SDGs are prevalent in the literature. For instance, works on ending poverty (Diga et al., 2016), eradicating hunger (Sultana et al., 2018), attaining good health and well-being (Torres-Slimming et al., 2019); promoting quality education (Ezeanya-Esiobu, 2019); gender empowerment (Lagi et al., 2023); improving access to clean water and sanitation (Greenwood & Lindsay, 2019) and affordable renewable and clean energy (Hunt et al., 2021). Essentially, all the sustainable goals and their corresponding targets are covered in the available literature. Therefore, it is crystal clear from the available literature that indigenous knowledge is potent for the attainment of sustainable development goals and targets.

Literature also emphasises museums' fundamental role as the keepers of indigenous knowledge. According to scholars, museums are in an ideal position to collect, conserve, and share indigenous knowledge (Monyela, 2023). In an effort to fulfil this function, museums have forged enduring bonds with indigenous populations. This frequently includes developing enormous collections of historical relics, records, and oral histories (Mncube, 2017). Recently, museums have sought out communities' opinions and preferences for their collections (Molapisi, 2005; Rugambwa et al., 2023). The literature leads one to the conclusion that museums will always be essential in organising, gathering, and conserving the enormous amounts of indigenous knowledge that are preserved in artefacts, records, and oral histories. Thus, indigenous knowledge which can be applied to sustainable development is available. If it is not being applied adequately to support sustainable development, it is not our lack. The reason lies elsewhere. In the context of these people, fingers seem to point to inadequate dissemination (Abioye et al., 2014; Wang et al., 2019). Scholars have argued that successful strategies to disseminate indigenous knowledge should be ethical, multifaceted, involve local communities, and be robust (Haumba & Kaddu, 2017; Marango et al., 2019). Some dissemination strategies identified in the reviewed literature include exhibitions, public awareness and sensitisation campaigns, digitalisation, and community engagement forums.

Additionally, scholars have suggested that museums must become active and transformational agents of change rather than continuing to play the role of passive repositories of indigenous

knowledge. With this new position, museums can take on outreach responsibilities, including educating the public, advocating for sustainable development using indigenous knowledge, networking, and forming alliances (Monyela, 2023). Museums can also scale up their education and research roles by not only providing information materials but also championing learning programmes which demonstrate the nexus between indigenous knowledge and development (Cimi et al., 2020). At the international, regional, national, and local policy levels, this will significantly support the acknowledgement of indigenous knowledge and the rights of indigenous communities (Chepchirchir et al., 2019). These efforts would be most successful if executed collaboratively between museums and indigenous stakeholders.

Numerous case studies exist about the use of indigenous knowledge to support efforts to achieve sustainable development objectives. In fact, a large number of museums and other cultural organisations around the world have launched campaigns to share indigenous knowledge in line with the SDGs. The National Museum of the American Indian at the Smithsonian Institution, which employs cultural exhibits to further Native American education, is one of the most frequently mentioned examples (Ronan, 2014; Trofanenko & Segall, 2012). Indigenous communities are also involved in the museum's efforts to identify, preserve, and advance indigenous knowledge. They treat the artefacts and other indigenous items they have gathered with dignity and respect as they go about their work. The Indigenous Science Exhibition at the Australian Museum serves as another example. This museum illustrates how indigenous knowledge and scientific methods interact to promote sustainable development. This demonstrates the importance of indigenous knowledge and its contribution to socioeconomic development (Turnbull, 2017). The Canadian Museum for Human Rights is also cited for successfully integrating indigenous perspectives into its exhibits and programming. This way, it is able to address themes related to cultural preservation, social justice, and reconciliation. Furthermore, the museum actively engages with indigenous communities to infuse their voices in conversations about human rights and sustainable development (Lehrer, 2015).

Although it is often known that sharing indigenous knowledge through museums can support sustainable development, there are certain obstacles to overcome. In order to promote sustainable development, these issues must be resolved so that indigenous knowledge is distributed ethically and efficiently (Maina, 2012). The possibility of cultural appropriation and misinterpretation is one of the main obstacles. Museums must be able to strike a balance between commercialising indigenous traditions and celebrating them. Working with the community to achieve this delicate balance is the best course of action. Ensuring that power dynamics do not result in uneven relationships between researchers, museums, and indigenous communities requires a comprehensive mechanism for collaboration. In order to enable indigenous stakeholders to acknowledge their part in the diffusion of indigenous knowledge, equitable partnerships are necessary (Monyela, 2023). Respecting indigenous intellectual property rights, getting informed community permission, and maintaining cultural sensitivity throughout the knowledge dissemination process are additional tactics for effective indigenous knowledge dissemination. Understanding the impacts on behaviour, policy development, community well-being, and cultural preservation is essential for refining best practices. Empowering indigenous communities to take an active role in the dissemination of their knowledge is central to ethical and effective practices. Capacity building, resource allocation, and collaboration with indigenous stakeholders are critical components of this empowerment (Chipangura & Chipangura, 2020).

4 Research methodology

A systematic literature review (SLR) was used for this study because it offers a comprehensive and organised summary of the body of knowledge already available on the topic. As such, it guaranteed that the investigation fully incorporates pertinent studies (Xiao & Watson, 2019). This all-encompassing viewpoint contributed to the research's solid foundation. SLRs are also renowned for their exacting methodology, which includes systematic data extraction, data quality evaluation, and well-defined inclusion and exclusion criteria (Følstad & Kvale, 2018). By using this process, the review is guaranteed to be supported by evidence, enabling researchers to reach reliable conclusions and make well-informed recommendations. It aids in reducing subjectivity and prejudice in the research process. Finding research gaps can also be facilitated by systematic literature reviews. Researchers can identify areas that require more research by combining the results of several studies (Okoli, 2015). This is essential for advancing knowledge and contributing to the academic discourse. Researchers can use the collective evidence from the reviewed studies to demonstrate the validity of their claims. Systematic literature reviews are highly regarded for their methodological rigour and transparency. In this particular study, SLR was deemed as appropriate because it is comprehensive and unbiased; enabled the researchers to synthesise the best available evidence from multiple studies, thereby helping them to make informed decisions and draw meaningful conclusions; and strengthened research reliability and validity (Merli et al., 2018).

Data on how museums can ethically and effectively disseminate indigenous knowledge while respecting cultural protocols and safeguarding intellectual property rights was collected from scholarly materials indexed in Google Scholar. The index was preferred because it is free of charge and also liberal in its coverage. The materials were identified and retrieved from Google Scholar using Harzing's Publish or Perish software. The keywords used were dissemination, indigenous knowledge, and museums. The year of publication was left open. Eleven (11) publications were retrieved. All the publications were assessed and found appropriate for analysis. Thematic analysis was used. The data is visualised using VOSviewer.

5 Findings and discussions

The retrieved publications were produced from 2006 to 2023. Figure 1 presents the publication trends. The trends indicate that research interest in disseminating indigenous knowledge held by museums is fairly new.

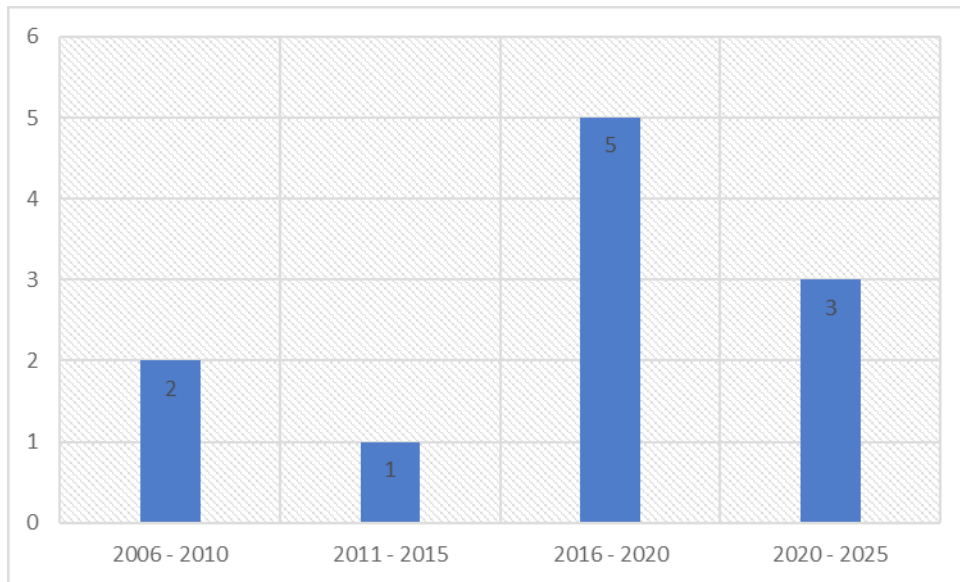


Figure 1: Publication trends

Five of the publications were journal articles, four were conference papers, and two were book chapters. Although all three types of publications are valuable, journal articles are perceived to be more in-depth, current and rigorous in terms of peer review than the others. Additionally, journal articles tend to reach larger audiences and have a longer lifecycle than conference papers. Book chapters, on the other hand, are longer and cover broader topics than journal articles. These findings imply that the dissemination of indigenous knowledge held by museums is of interest to diverse academic audiences.

Five of the publications were single-authored, while two scholars authored four. Two of the publications were authored by more than three scholars. Josiline Chigwada contributed three of the publications – one journal article, book chapter and conference paper respectively. Eight of the publications were authored in sub-Saharan Africa, two in Indonesia and one in the Philippines. From the findings, it seems more African scholars are interested in indigenous knowledge dissemination than scholars elsewhere. Altogether, it seems indigenous knowledge is of interest to scholars in the global south.

The most common words in the publications are dissemination (10 times), indigenous knowledge (8 times) and preservation (6 times). This implies that the dissemination of indigenous knowledge goes hand in hand with its preservation. From the abstracts, indigenous knowledge and museums appear seven times each, while library and dissemination appear six times each. This implies that museums and libraries serve a complementary role in the dissemination of indigenous knowledge.

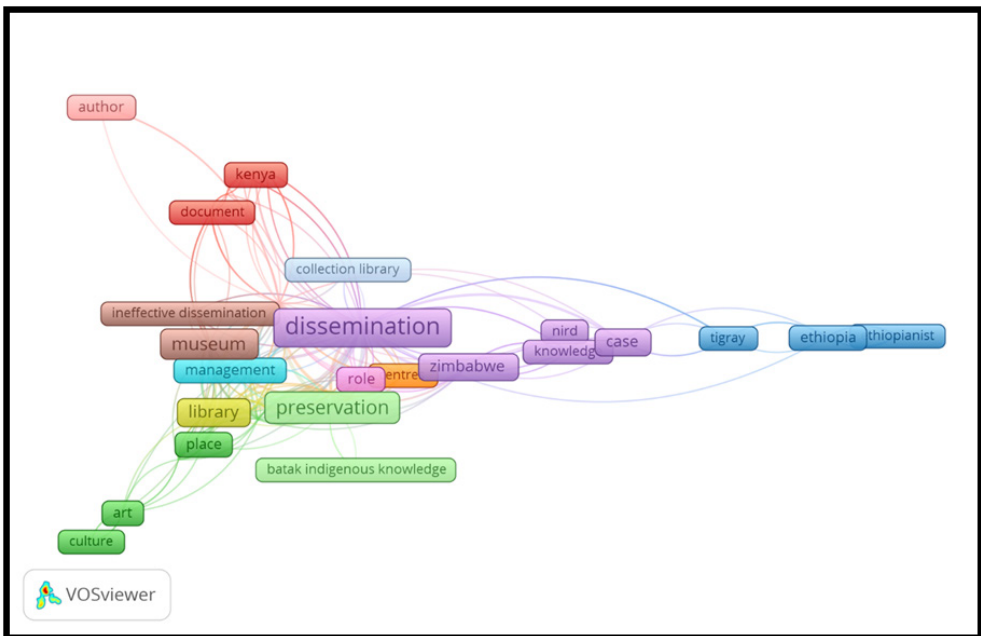


Figure 2: The most occurring words in the titles and abstracts of the publications

Figure 2 shows the most prevalent words in the titles and abstracts of the retrieved publications. Obviously, dissemination, museum, preservation and library are the most commonly occurring terms. However, one of the common phrases is “ineffective dissemination”. This implies that there are concerns about the effectiveness of the dissemination strategies used to promote indigenous knowledge from museums. Countries such as Zimbabwe and Ethiopia are also identified as commonly mentioned in the titles and abstracts of the publications. This indicates greater interest in indigenous knowledge from those two countries. Similarly, the prominence may indicate the relative richness of indigenous knowledge in those two countries.

5.1 Categories of indigenous knowledge held in museums

The literature reviewed identifies the following as the major forms of indigenous knowledge held in museums:

- a) **Traditional ecological knowledge:** This refers to the indigenous knowledge of biodiversity, natural resource management, and ecosystems. It includes understanding weather patterns, flora and fauna, and sustainable land-use techniques. Most museums hold such knowledge in terms of documents, photos, specimens and artefacts (Nelson, 2014).
- b) **Traditional medicines:** Indigenous communities have developed extensive knowledge of herbal medicine, healing rituals, and traditional healthcare systems. This knowledge often involves the use of local plants and remedies for treating illnesses. Botanical gardens, specimens, and documents in museums are rich in this knowledge (Kumar et al., 2017).
- c) **Agricultural knowledge:** Indigenous knowledge of crop production, agricultural practices, and traditional food preservation techniques aids food security and sustainable farming. This knowledge is critical for maintaining biodiversity in

agriculture. Documents and artefacts on local farming practices promote indigenous agriculture (Reyes-García et al., 2014).

- d) **Traditional technology and crafts:** Indigenous societies frequently possess extensive traditions of traditional technology and crafts, such as weaving, carving, ceramics, and textile manufacture. These artefacts, equipment, and information pertaining to these crafts are typically housed in museums (Ringas et al., 2022).
- e) **Oral history and tradition:** Indigenous people have a strong oral history, mythology, and storytelling tradition. Oral history collections in museums are one way to preserve this knowledge, which is frequently passed down through the generations (Black, 2011).
- f) **Language and linguistic knowledge:** Indigenous languages are rich in information about the environment and culture. Language documentation, recordings of indigenous languages, and initiatives to revive endangered languages can all be found in museums (Blunden, 2016).
- g) **Spiritual ceremonies and practices:** Indigenous knowledge frequently includes ceremonial and spiritual activities, such as dances, rituals, and sacred locations. Museums may house artefacts associated with these practices and information on their cultural relevance (Duncan, 2012).
- h) **Indigenous governance systems:** Indigenous groups frequently have distinctive ethical standards and governance frameworks that guide their relationships with the environment and one another. Artefacts and records pertaining to these systems may be kept in museums (Pikela et al., 2022).
- i) **Social and community structures:** Indigenous knowledge encompasses understanding traditional leadership roles, social responsibilities, and community organisation. Records and artefacts pertaining to these facets of indigenous life may be preserved in museums (Pikela et al., 2022).
- j) **Customary apparel and textiles:** Indigenous communities have their distinctive apparel designs and textile customs, frequently showcasing elaborate designs, hues, and materials that are exclusive to their way of life. Clothes, fabrics, and weaving processes can be seen in museums (Davison, 2004).
- k) **Traditional dance and music:** Indigenous cultures have unique dances, songs, and musical instruments that are essential to their cultural manifestations. Museums may exhibit artwork, recordings, and musical instruments associated with these creative traditions (Gangewere, 2011).

These categories collectively reflect the rich tapestry of indigenous knowledge held in museums worldwide. Museums serve as repositories of cultural heritage, providing valuable insights into indigenous cultures, traditions, and ways of life.

5.2 Users of indigenous knowledge in museums

Users of indigenous knowledge held in museums come from diverse backgrounds and have various interests and objectives. Hereunder are some of the categories of users who may engage with indigenous knowledge in museums:

- a) **Academics and researchers:** Indigenous knowledge can be accessed by academics and researchers in a variety of fields, such as anthropology, archaeology, cultural

- studies, and environmental science. This allows them to carry out research, publish papers, and advance their understanding of indigenous cultures and practices (Black, 2011).
- b) **Members of the indigenous community:** Members of the indigenous community are frequently the main consumers of the cultural knowledge preserved in museums. They might visit museums to participate in cultural revival initiatives, obtain traditional knowledge, and re-establish a connection with their heritage (Maina, 2012).
 - c) **Teachers and educators:** Teachers use museum materials to integrate indigenous knowledge into their curricula at all levels, from elementary schools to colleges. Museums provide valuable educational materials and exhibits for teaching students about indigenous cultures and histories (Black, 2011).
 - d) **Government representatives and policymakers:** When making decisions on environmental policies, land management, indigenous rights, and cultural preservation, policymakers and government representatives may refer to museum collections (Pikela et al., 2022).
 - e) **Artists and craftspeople:** Indigenous artwork, handicrafts, and traditional designs kept in museum collections inspire artists and craftspeople. They might use indigenous symbols and methods in their artistic works (Ringas et al., 2022).
 - f) **Visitors and tourists:** As part of their cultural enrichment and travel experiences, tourists and the general public who visit museums interact with indigenous knowledge. People can learn about and develop an appreciation for indigenous cultures through museums (Kwanya, 2019).
 - g) **Environmental and conservation organisations:** To improve biodiversity conservation plans, land management techniques, and sustainable resource usage, institutions devoted to environmental conservation and sustainable development may look to indigenous knowledge in museums (Nelson, 2014).
 - h) **Cultural heritage specialists:** Indigenous knowledge is preserved and curated by museum professionals, including curators, archivists, and specialists in cultural heritage. They guarantee that museum collections are accessible and managed responsibly (Duncan, 2012).
 - i) **Media and filmmakers:** Journalists, documentarians, and other media professionals can use museum resources to produce content that increases knowledge about indigenous cultures, customs, and current issues. Museums offer narrative and visual resources for archiving and storytelling (Gangewere, 2011).

These categories of users illustrate the diverse range of individuals and organisations that engage with indigenous knowledge held in museums for purposes ranging from research and education to cultural preservation and advocacy. Museums play a vital role in facilitating access to and responsible use of this knowledge by a broad audience.

5.3 Strategies currently used to disseminate Indigenous knowledge in museums

The dissemination of indigenous knowledge held in museums is a critical aspect of cultural preservation, education, and promoting cross-cultural understanding. Several strategies are commonly used to disseminate this knowledge effectively. Here are some of the strategies currently employed:

- a) **Exhibitions and displays:** Museums frequently produce special exhibitions and displays that focus on indigenous artefacts, artwork, customs, and cultural narratives. These installations allow visitors to interact directly with indigenous knowledge in a physical and engaging way.
- b) **Educational programming and workshops:** With an emphasis on indigenous knowledge, museums provide educational programmes, seminars, and guided tours. These programmes offer activities like storytelling, practical workshops, and interactive learning experiences, and they are designed for a range of age groups, from school-age children to adults.
- c) **Digital resources and online platforms:** Numerous museums have created digital resources and online platforms to share indigenous knowledge with a worldwide audience. These resources may include virtual tours, digital collections, educational websites, and multimedia content, making the knowledge accessible beyond the physical museum space.
- d) **Collaborative partnerships:** To guarantee the respectful and accurate transmission of indigenous knowledge, museums frequently work with indigenous communities, academics, and organisations. Members of the indigenous community are involved in the development of exhibitions, curatorial choices, and educational initiatives through these relationships.
- e) **Cultural exchange initiatives:** Some museums participate in cultural exchange programs that facilitate the sharing of indigenous knowledge with other museums, institutions, and communities. These programs promote cross-cultural dialogue and mutual understanding while respecting indigenous intellectual property rights.

These strategies aim to make indigenous knowledge accessible, engaging, and culturally sensitive to a wide range of audiences while also ensuring that the knowledge is disseminated with the consent and involvement of indigenous communities. Additionally, museums continue to explore innovative approaches to sharing indigenous knowledge, aligning with contemporary practices and technologies to reach diverse and global audiences.

5.4 Challenges affecting effective dissemination of indigenous knowledge held in museums

The effective dissemination of indigenous knowledge held by museums can be challenged by various factors, many of which are rooted in historical, cultural, and ethical complexities. Here are some of the challenges that affect the dissemination of indigenous knowledge:

- a) **Cultural awareness and respect:** It is critical to uphold the beliefs, traditions, and customs of indigenous populations while also being sensitive to their cultural differences. It is possible to cause offence and cultural insensitivity when indigenous information is misrepresented, misinterpreted, or appropriated.
- b) **Intellectual property rights:** There are frequently contested ethical and legal issues regarding the ownership and control of indigenous knowledge. Preserving indigenous intellectual property rights while promoting knowledge is difficult.
- c) **Collaboration and trust:** It might take a long time and be difficult to develop genuine partnerships and trust with indigenous groups. To promote trust, museums need to make relationship-building investments.

- d) **Authenticity and representation:** Museums have difficulty accurately portraying indigenous cultures and customs. When indigenous knowledge is misrepresented or turned into a commodity, cultural identities can be harmed, and stereotypes perpetuated.
- e) **Language barriers:** Indigenous knowledge is frequently transmitted through languages that are less widely spoken or in danger of extinction. Native language translation and preservation for wider use can be extremely difficult.
- f) **Resource limitations:** Limited financial and human resources can hinder museums' efforts to catalogue, digitise, and disseminate indigenous knowledge effectively. This challenge may affect the accessibility of knowledge.
- g) **Oral traditions:** Indigenous peoples frequently pass on their knowledge verbally. Striking a balance between the necessity of recording and protecting this knowledge and the significance of honouring oral traditions is difficult.

Addressing these challenges requires a collaborative, culturally sensitive, and community-driven approach. Museums, researchers, and policymakers must collaborate with indigenous communities to develop ethical practices and guidelines that respect their rights and wishes while preserving and disseminating their valuable knowledge.

5.5 Best practices in disseminating indigenous knowledge held by museums

Disseminating indigenous knowledge held by museums requires a thoughtful and culturally sensitive approach that respects the rights and perspectives of indigenous communities. Here are five best practices for the responsible dissemination of indigenous knowledge:

5.5.1 Engage in collaborative partnerships:

- i) Collaborate with indigenous communities as equal partners in the dissemination process.
- ii) Involve community members in decision-making, curation, and interpretation of indigenous knowledge.
- iii) Prioritise the informed consent of indigenous knowledge holders and ensure they have a say in how their knowledge is shared.

5.5.2 Cultural Sensitivity and Respect:

- i) Ensure that exhibitions, educational materials, and online resources accurately represent indigenous cultures and practices.
- ii) Consult with indigenous advisors or knowledge holders to review and approve content for cultural accuracy.
- iii) Avoid stereotypes, appropriation, and commodification of indigenous knowledge.

5.5.3 Prioritise Indigenous Languages:

- i) When feasible, preserve and promote indigenous languages in exhibits, educational materials, and digital resources.
- ii) Collaborate with indigenous language speakers and experts to provide accurate translations and pronunciation guides.

5.5.4 Ethical Documentation and Preservation:

- i) Adhere to ethical guidelines for the documentation, preservation, and access to indigenous knowledge.
- ii) Maintain robust records of the provenance and source of indigenous artefacts, documents, and knowledge.
- iii) Implement appropriate conservation measures to ensure the long-term preservation of physical items.

5.5.5 Community-Centred Education and Outreach:

- i) Develop educational programs, workshops, and outreach initiatives that engage indigenous youth, adults, and the wider public.
- ii) Foster cultural exchange by inviting indigenous community members to share their knowledge through storytelling, workshops, and traditional demonstrations.
- iii) Create online platforms and digital resources that are accessible to indigenous communities and the broader public.

These best practices prioritise inclusivity, respect, and ethical conduct in the dissemination of indigenous knowledge. They aim to empower indigenous communities, preserve cultural heritage, and promote cross-cultural understanding while addressing the historical challenges and sensitivities associated with indigenous knowledge dissemination.

6. Conclusion

It is critical to disseminate indigenous knowledge in order to promote sustainable development. IK can support sustainable development goals on promoting the quality of education (4.7), life on land (15.6), public-private partnerships (17.17), zero hunger (2.5), life below water (14.2), and responsive climate action (13.3) in their jurisdictions. Acknowledging the importance of these knowledge systems is critical for cultural preservation and making a calculated investment in a sustainable future. Collaboration is essential between policymakers, scholars, practitioners, and indigenous populations. Including indigenous viewpoints in development, governance, and education initiatives is necessary to establish inclusive forums for discussion and mutual learning. Indigenous knowledge dissemination empowers communities and adds to a global ethos that recognises the interdependence of humans and nature, setting the foundation for a peaceful and sustainable society. A more robust, egalitarian, and ecologically balanced future is promised when IK and contemporary innovation are embraced.

References

- Abah, J., Mashebe, P., & Denuga, D. D. (2015). Prospect of integrating African indigenous knowledge systems into the teaching of sciences in Africa. *American Journal of Educational Research*, 3(6), 668-673.
- Abioye, A. A., Zaid, Y. A., & Egberongbe, H. S. (2014). Documenting and disseminating agricultural indigenous knowledge for sustainable food security: the efforts of agricultural research libraries in Nigeria. *Libri*, 64(1), 75-84.
- Adom, D., & Kquofi, S. (2016). The high impacts of Asante indigenous knowledge in biodiversity conservation issues in Ghana: The case of the Abono and Essumeja Townships in Ashanti

- Region. *British Journal of Environmental Sciences*, 4(3), 63-78.
- Black, G. (2011). Museums, memory and history. *Cultural and Social History*, 8(3), 415-427.
- Blunden, J. J. (2016). *The Language with Displayed Art (efacts): Linguistic and sociological perspectives on meaning, accessibility and knowledge-building in museum exhibitions* (Doctoral dissertation).
- Breidlid, A. (2009). Culture, indigenous knowledge systems and sustainable development: A critical view of education in an African context. *International journal of educational development*, 29(2), 140-148.
- Cheik, S., & Jouquet, P. (2020). Integrating local knowledge into soil science to improve soil fertility. *Soil Use and Management*, 36(4), 561-564.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Chipangura, N., & Chipangura, P. (2020). Community museums and rethinking the colonial frame of national museums in Zimbabwe. *Museum Management and Curatorship*, 35(1), 36-56.
- Cimi, P. V., Ngozoa, K., & Dold, T. (2020). The role of ethnobotany in integrating Indigenous knowledge in the discipline of science education: a study by the herbarium of the Albany Museum in South Africa. *South African Museums Association Bulletin*, 42(1), 1-8.
- Davison, P. (2004). Museums and the re-shaping of memory. In *heritage, museums and galleries* (pp. 202-214). Routledge.
- Diga, K., Ngcoya, M., Bracking, S., Lombo, M., & Ntombela, S. (2016). Poverty Reduction Co-benefits through Indigenous Knowledge in Climate Change Adaptation: A Study within the eThekweni Municipality. *Journal of Social Sciences*, 46(2), 87-97.
- Duncan, C. (2012). Art museums and the ritual of citizenship. In *Interpreting objects and collections* (pp. 279-286). Routledge.
- Ezeanya-Esiobu, C. (2019). *Indigenous knowledge and education in Africa* (p. 115). Springer Nature.
- Følstad, A., & Kvale, K. (2018). Customer journeys: a systematic literature review. *Journal of Service Theory and Practice*, 28(2), 196-227.
- Gangewere, R. J. (2011). *Palace of Culture: Andrew Carnegie's museums and library in Pittsburgh*. University of Pittsburgh Press.
- Greenwood, M., & Lindsay, N. M. (2019). A commentary on land, health, and Indigenous knowledge (s). *Global Health Promotion*, 26(3_suppl), pp. 82-86.
- Gupta, A. D. (2013). Does indigenous knowledge have anything to do with sustainable development? *Cultural Anthropology*, pp. 57, 64.
- Halim, A. A., Othman, N., Ismail, S. R., Jawan, J. A., & Ibrahim, N. N. (2012). Indigenous knowledge and biodiversity conservation in Sabah, Malaysia. *International Journal of Social Science and Humanity*, 2(2), 159-163.
- Haumba, E. N., & Kaddu, S. (2017). Documenting and disseminating agricultural indigenous knowledge for sustainable food security in Uganda. *University of Dar es Salaam Library Journal*, 12(1), 66-86.
- Hens, L. (2006). Indigenous knowledge and biodiversity conservation and management in Ghana. *Journal of Human Ecology*, 20(1), 21-30.
- Hunt, J., Riley, B., O'Neill, L., & Maynard, G. (2021). Transition to renewable energy and Indigenous people in Northern Australia: Enhancing or inhibiting capabilities? *Journal of Human Development and Capabilities*, 22(2), 360-378.
- Kumar, S., Singh, K., & Dwivedi, K. N. (2017). Potential of Indian traditional medicinal plant turmeric as insecticide Antifeedant and insect repellent against household, museum and library insect pests. *Int. J. Entomol. Res.*, pp. 2, 42-46.

- Kwanya, T. (2019). Leveraging tourism in Kenya through indigenous knowledge. *Positive tourism in Africa*, pp. 106–115.
- Kwanya, T. (2020). Stigmatisation of indigenous knowledge: The case of night-running in western Kenya. *Journal of Religion in Africa*, 48(4), 376-392.
- Lagi, R., Waqailiti, L., Raisele, K., Tyson, L. S., & Nussey, C. (2023). ‘Curui’: weaving climate justice and gender equality into Fijian educational policies and practices. *Comparative education*, pp. 1–20.
- Latulippe, N., & Klenk, N. (2020). Making room and moving over: knowledge co-production, Indigenous knowledge sovereignty and the politics of global environmental change decision-making. *Current Opinion in Environmental Sustainability*, 42, 7-14.
- Leal, F. W., Barbir, J., Gwenzi, J., Ayal, D., Simpson, N. P., Adeleke, L., ... & Yaffa, S. (2022). The role of indigenous knowledge in climate change adaptation in Africa. *Environmental Science & Policy*, 136, 250–260.
- Lehrer, E. (2015). Thinking through the Canadian museum for human rights. *American Quarterly*, 67(4), 1195–1216.
- Loch, T. K., & Riechers, M. (2021). Integrating indigenous and local knowledge in management and research on coastal ecosystems in the Global South: A literature review. *Ocean & Coastal Management*, 212, 105821.
- Lwoga, E. T., Ngulube, P., & Stilwell, C. (2010). Managing indigenous knowledge for sustainable agricultural development in developing countries: Knowledge management approaches in the social context. *The International Information & Library Review*, 42(3), 174-185.
- Magni, G. (2017). Indigenous knowledge and implications for the sustainable development agenda. *European Journal of Education*, 52(4), 437–447.
- Maina, C. K. (2012). Traditional knowledge management and preservation: Intersections with Library and Information Science. *The International Information & Library Review*, 44(1), 13–27.
- Makondo, C. C., & Thomas, D. S. (2018). Climate change adaptation: Linking indigenous knowledge with Western science for effective adaptation. *Environmental science & policy*, 88, 83-91.
- Marango, T., Francis, J., & Matshidze, P. E. (2019). Dissemination of knowledge on indigenous rainmaking practices to combat negative effects of climate change: The case of Chimanimani District in Zimbabwe. *Indilinga African Journal of Indigenous Knowledge Systems*, 18(1), 12–28.
- Merli, R., Preziosi, M., & Acampora, A. (2018). How do scholars approach the circular economy? A systematic literature review. *Journal of cleaner production*, 178, 703-722.
- Mncube, D. B. (2017). *The management of indigenous knowledge (IK) in museums: a case study of Pietermaritzburg* (Doctoral dissertation).
- Molapisi, M. (2005). The past or a living heritage: the struggle between museums and local communities in South Africa: museums and communities. *South African Museums Association Bulletin*, 31(1), 43–45.
- Monyela, M. (2023). African Indigenous Knowledge on the Cloud: The Role of Libraries, Archives, and Museums. In *Digital Preservation and Documentation of Global Indigenous Knowledge Systems* (pp. 219–235). IGI Global.
- Nakashima, D., & Krupnik, I. (Eds.). (2018). *Indigenous knowledge for climate change assessment and adaptation* (Vol. 2). Cambridge University Press.
- Nelson, M. K. (2014). Indigenous science and traditional ecological knowledge: Persistence in place. In *The World of Indigenous North America* (pp. 188–214). Routledge.
- Okoli, C. (2015). A guide to conducting a standalone systematic literature review. *Communications of the Association for Information Systems*, p. 37.
- Pikela, H., Thondhlana, T. P., & Madlome, S. K. (2022). Towards community-driven curatorship:

- Traditional chiefs and cultural connoisseurs at the Avuxeni community museum, Chiredzi South district. In *Independent Museums and Culture Centres in Colonial and Post-colonial Zimbabwe* (pp. 158-168). Routledge.
- Reyes-García, V., Aceituno-Mata, L., Calvet-Mir, L., Garnatje, T., Gomez-Baggethun, E., Lastra, J. J., ... & Pardo-de-Santayana, M. (2014). Resilience of traditional knowledge systems: The case of agricultural knowledge in home gardens of the Iberian Peninsula. *Global Environmental Change*, 24, 223-231.
- Ringas, C., Tasiopoulou, E., Kaplanidi, D., Partarakis, N., Zabulis, X., Zidianakis, E., ... & Pannesse, L. (2022). Traditional Craft Training and Demonstration in Museums. *Heritage*, 5(1), 431-459.
- Ronan, K. (2014). Native empowerment, the new museology, and the National Museum of the American Indian. *Museum and Society*, 12(2), 132-147.
- Rugambwa, N. O., Akena, F. A., Nabutto, C. C. L., & Bugembe, G. K. (2023). Enhancing African indigenous knowledge collection management in Ugandan public university libraries: lived experiences of senior library staff. In *Digital Preservation and Documentation of Global Indigenous Knowledge Systems* (pp. 178-195). IGI Global.
- Rugwiji, T. T., & Masoga, M. A. (2017). The quest for gender equality in the Bible: indigenous knowledge perspectives on the Church's position towards women and leadership in Africa. *Gender and Behaviour*, 15(2), 9037-9043.
- Senanayake, S. G. J. N. (2006). Indigenous knowledge as a key to sustainable development. *Journal of Agricultural Sciences* 2(1), 87-94.
- Sultana, R., Muhammad, N., & Zakaria, A. K. M. (2018). Role of indigenous knowledge in sustainable development. *International Journal of Development Research*, 8(2), 18902-18906.
- Tharakan, J. (2015). Integrating indigenous knowledge into appropriate technology development and implementation. *African Journal of Science, Technology, Innovation and Development*, 7(5), 364-370.
- Torres-Slimming, P. A., Wright, C., Carcamo, C. P., Garcia, P. J., Research Team, I. H. A. C. C., & Harper, S. L. (2019). Achieving the sustainable development goals: A mixed methods study of health-related water, sanitation, and hygiene (WASH) for Indigenous Shawi in the Peruvian Amazon. *International journal of environmental research and public health*, 16(13), 2429.
- Trofanenko, B., & Segall, A. (2012). Addressing the pedagogical purpose of Indigenous displays: The case of the National Museum of the American Indian. *Diaspora, Indigenous, and Minority Education*, 6(3), 141-156.
- Turnbull, P. (2017). *Science, museums and collecting the Indigenous dead in colonial Australia* (pp. 1-428). Cham: Palgrave Macmillan.
- United Nations (2023). Final list of proposed Sustainable Development Goal indicators. Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (E/CN.3/2016/2/Rev.1). <https://sustainabledevelopment.un.org/content/documents/11803Official-List-of-Proposed-SDG-Indicators.pdf>
- Wang, Z., Liu, J., Xu, N., Fan, C., Fan, Y., He, S., ... & Ma, N. (2019). The role of indigenous knowledge in integrating scientific and indigenous knowledge for community-based disaster risk reduction: A case of Haikou Village in Ningxia, China. *International Journal of Disaster Risk Reduction*, 41, 101309.
- Wilder, B. T., O'meara, C., Monti, L., & Nabhan, G. P. (2016). The importance of indigenous knowledge in curbing the loss of language and biodiversity. *BioScience*, 66(6), 499-509.
- Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of planning education and research*, 39(1), 93-112.

42. Strategies for Preserving Traditional Knowledge in Public Libraries in Kenya

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Abstract

Libraries, especially public libraries, are established with the aim of meeting the information needs of their immediate community. This means that libraries, just like archives and museums, are viewed as repositories of indigenous experience, knowledge and history. The International Federation of Library Associations and Institutions (IFLA) recognises the potential for libraries to get involved in traditional knowledge preservation and access. It challenges libraries to take a leading role in collecting, preserving, publicising, and disseminating traditional knowledge. As such, they are positioned as key players in the transmission of cultural values and practices from one generation to another. The purpose of this paper is to explore and discuss the strategies that public libraries, specifically the Kenya National Library Service (KNLS), can employ to preserve traditional knowledge for posterity. To accomplish this, this study was guided by four specific objectives, which were to identify how KNLS libraries capture and preserve traditional knowledge, establish how KNLS libraries make traditional knowledge accessible, explore the challenges KNLS librarians encounter in the preservation and promotion of traditional knowledge; and propose strategies that can enhance the capture and preservation of traditional knowledge. Using a qualitative research approach, primary data was collected through interviews with KNLS librarians. The data collected was analysed thematically. Additional data was collected through a desktop review of relevant literature emanating from other parts of the world. Study findings may be used by public libraries in Kenya and beyond to leverage initiatives geared towards the preservation and promotion of traditional knowledge.

Keywords: *Indigenous knowledge, Kenya National Library Service, modern preservation and promotion*

1 Introduction

Around the world, indigenous peoples have preserved distinctive understandings rooted in cultural experiences that guide human and non-human relations in specific ecosystems. These understandings and relations form a system that is broadly identified as Indigenous Knowledge or Traditional Knowledge (Bruchac, 2014). Defining Indigenous Knowledge (IK), the World Bank (1998) states that it is a set of experiences generated by societies providing problem-solving strategies for local communities. Kargbo (2005) views it as simply a body of knowledge built up over time by a group of people living in close contact with nature. Using the term Traditional Indigenous Knowledge, Bruchac (2014) explains that it is a network of “knowledges”, beliefs, and traditions intended to preserve, communicate, and contextualise indigenous relationships with culture and landscape over time. Relatedly, UNESCO (2021) sums up the description of IK as the understandings, skills and philosophies developed by societies over long periods of interaction with their natural surroundings. This knowledge is adapted to the local culture and environment, transmitted orally across generations, collectively

owned and encompasses language, systems of classification, resource use practices, social interactions, ritual and spirituality. This paper employs the term traditional knowledge (TK) as an umbrella term to cover content, whether scientific or technical, as well as traditional cultural expressions like folklore through which knowledge and culture are expressed.

In most societies, TK is the basis for decision-making in agriculture, healthcare, food preparation, education, natural resource management and a host of other socio-cultural activities in rural communities (Mabawonku, 2002). It provides the basis for handicrafts, play, natural resource management, and problem-solving mechanisms for communities (Sithole, 2007). In the quest for sustainable development, TK has been said to have a lot to offer. Among indigenous communities, traditional knowledge is a recognised tool for sustainable development (Freedom-KaiPhillips, 2016). In Central Africa, for example, Eyong (2007) argues that Indigenous Knowledge Systems (IKS) have fostered relationships with other groups over a relatively long period, creating complex levels of cooperation and exchange that are essential for sustainability. Kariuki (2021) examined the role of TK holders' institutions in the realisation of SDG-9, with a focus on innovation and SDG-16, with a focus on the building of solid institutions, using the Mijikenda and Mbeere communities in Kenya. The study showed that TK holders' institutions are instrumental in enhancing the innovation capacity by creating a support system for learning, creation, promotion, exchange and utilisation of innovation. In the building of solid institutions, TK holders' institutions enjoy legitimacy and play a pivotal role in conflict resolution, natural resources governance, political leadership and maintaining law and order. Oyeniran (2021) opines that IK is a significant resource that can be used to enhance the efficiency, effectiveness and sustainability of the development process in Nigeria. Ewane and Ajagbe (2018) affirm that incorporating African indigenous knowledge in development practice is a possible solution to Africa's enduring development challenges.

The notions and concepts that are the foundations of traditional knowledge systems are gaining acceptance across the world. Magni (2017) discusses the notion of living well as being central to indigenous people's livelihood. Magni explains that this notion is a set of shared norms and values that embody the harmonious relationships between human-nature-universe, as well as the notions of equality and complementarity. The necessary conditions of well-being include food security, strong family and community, expression of identity and practice of one's culture; a safe and clean environment is also essential. Various perspectives of well-being as expressed by indigenous peoples have been adopted at regional, national and local levels. In the Latin American region, as reported by Gudynas (2011), living well, *buen vivir*, is considered a guiding principle for a new approach to development that incorporates the views of indigenous peoples along with their knowledge.

Regarding national-level adoption, Magni (2017) cites countries such as Bolivia and Ecuador, which have adopted the Aymara and the Kichwa concepts, respectively, in their constitutions. Local-level examples are numerous, including the use of the expression *ti nüle káin*, which means live well in good health and harmony with nature, by the Ngobe people in Panama (Mollo, 2011); *laman laka*, which refers to the set of norms that regulate how people live communally is used by the Miskitu group in Nicaragua (Cunningham, 2010). *Gawis ay biag*, used by the Kankanaey Igorot, means good life and refers to a set of rules and taboos (UNPFII, 2010). Magni (2017) maintains that the notion of living well makes a significant difference in essential aspects of development, such as social organisation and economic structure. However, the conversation is still largely philosophical and far from being applied concretely across society, even in countries where the concept has been constitutionalised.

Historically, TK has not been assigned much value. It was viewed as disorganised, sub-standard and a hindrance to development, causing the Western World to largely ignore the intellectual work of indigenous scientists (Agrawal, 1995; Gupta, 2010; Rouse, 1999). Arguing that the organisation of libraries as institutions of knowledge perpetuates colonialism and portrays a Eurocentric ideology, Boisvert (2023) found that nearly all books about indigenous peoples were placed in the history section, which leaves indigenous peoples in the past. In Africa, Owolabi et al. (2022) indicate that TK has been neglected and underutilised in many countries. African scholars, preferring Western cultures, have not adequately engaged in tapping the benefits of TK in their practices. However, attitudes towards the value of traditional knowledge have been changing. TK has gradually gained recognition as a valuable and essential source of information in local communities and for development processes (Rouse, 1999). Despite the change in attitude, environmental hazards and development initiatives continue to pose threats to TK. Indigenous communities have struggled to maintain their rights, traditions and knowledge in a predominantly Western system. Nevertheless, many have been able to adapt to the changing climatic conditions and created sustainable livelihood systems. It is the awareness of the indigenous people's sustainable way of living, coupled with the deteriorating conditions of the planet, that has caused the international community to develop an interest in traditional knowledge and practices (Magni, 2017).

Public libraries have been described as the bridge between information haves and information have-nots, playing the role of change agencies. Bekker and Lategan (1988) insist that public libraries must become true community resource centres, providing access to all media, availing learning resources for all age groups, and serving as access points for resources for and of the community. Indigenous knowledge faces extinction if it is not adequately documented, especially in developing countries (World Bank, 1998, 2004). Kaniki and Mphahlele (2002) also emphasise the need for proper knowledge management procedures in the preservation of TK, especially in Africa. This is mainly because TK is stored in people's minds and passes from generation to generation through word of mouth, making it vulnerable to rapid change (Sithole, 2007). Documenting TK provides evidence that local communities are the owners, and as such, TK is validated and assigned protection from piracy and abuse (Sithole, 2007).

Equally, Owolabi et al. (2022) observe that the preservation of traditional knowledge is vital as it reduces the risk of losing cultural heritage, secures not only the past but also the present and future of the community, and permits the unborn members of the community to appreciate the cultural beliefs, values and traditions of their people. By so doing, a public library becomes invaluable since it helps to strengthen a community's involvement and appreciation of its local knowledge, serves as a focal point for community activities, provides information about TK systems that is useful in the enhancement of community socioeconomic situation; and to put in place a foundation for future research and extension programs. Further, the International Federation of Library Associations and Institutions (IFLA) (2014) states that when traditional knowledge is sufficiently protected in public libraries, awareness is created, and enhanced dissemination is made possible. To this end, IFLA challenges libraries, as knowledge and information repositories, to take a leading role in collecting, preserving, and disseminating traditional knowledge, publicising its value, raising awareness on its protection, and involving elders and communities in its production and teaching. The fundamental objective of preserving IK in the public library is to create awareness about IK among individuals and host communities and increase utilisation.

This study examined the role of public libraries in the preservation and access to TK from a Kenyan context. In seeking answers to fulfil the purpose of the study, the following questions

were posed: How is traditional knowledge acquired, organised and preserved in public libraries in Kenya? What access mechanisms are in place in public libraries in Kenya to enhance the use of TK? What challenges do public libraries in Kenya face in their efforts to preserve and diffuse TK in their communities? What strategies have public libraries in Kenya used to preserve and diffuse TK for sustainable development in the country?

2 Literature review

Libraries have been identified as well-positioned to promote the development of traditional knowledge systems. Nakata and Langton (2005) describe the information profession as uniquely placed to develop models of good practice as far as indigenous knowledge is concerned. Traditionally, information professionals are custodians and preservers of knowledge and materials. With regard to indigenous knowledge, they are mediators between the producers of knowledge and those who require access to knowledge. Nakata and Langton opine that the professionals' commitment to the ideals of democracy and free and universal access to knowledge and information makes them best suited to develop an indigenous knowledge management practice that has legitimacy with indigenous peoples and communities. Specific to libraries, Roy (2015) observes that libraries are concerned with cultural heritage preservation from several angles. They collect and store cultural heritage; they create and organise records of cultural heritage; they provide policies and practices for access to these records, which shape the users' understanding of that cultural heritage; they provide a location for cultural heritage to be expressed, shared, and continued; and they are "laboratories" for ongoing cultural heritage by providing education, equipment, and training to the broader community.

Public libraries are often involved in the collection and preservation of indigenous knowledge. Okorafor (2010) reports that in Nigeria, the National Library of Nigeria, public libraries and libraries found in research institutions are increasingly serving as centres for identifying and producing traditional knowledge. Maina (2012) studied the management and preservation of traditional knowledge by LIS professionals, libraries and information centres in the Ontario State of Canada. She reported that libraries were potential trustees and primary traditional knowledge protectors. Hayes (2012) explored the extent to which *Kaupapa* Māori, or Māori knowledge frameworks, value systems, and a Māori worldview form part of a broader bicultural strategy within public libraries in Aotearoa, New Zealand. Hayes found that there is an inspiration to advance biculturalism and to seek new approaches for reimagining European-designed libraries so as to integrate indigenous notions.

Further, Lilley and Paringatai (2013) found that Māori principles have influenced LIS education in the country. Investigating the potential role of rural libraries, being the closest knowledge centres to knowledge holders, in the South Khorasan province of Iran, Forutnani et al. (2018) report that even if the rural libraries of the South Khorasan province did not participate in documentation, preservation, and promotion of the TK, due to their inherent nature, they could become an indispensable focal point and lead the process of traditional knowledge management at country level. Studying at the University of Fiji, Ali (2016) reported the need for a small, native studies centre to not only promote and maintain the native culture and norms but also to facilitate the application of the student's native culture and knowledge in learning the new sciences. Exploring the capture and documentation of TK by public libraries in Botswana, Jain and Jibril (2016) report the presence of innovative initiatives by public librarians to preserve, document and disseminate indigenous culture for community development.

To counter the devaluation of TK and to assist in the restoration of its dignity, public libraries have an essential role to play. Kargbo (2005) advises that any public library interested in managing IKS should work towards providing as much information as possible, acquiring elusive material from remote sources, and developing client interest and appreciation of traditional knowledge. As earlier posited by Giggey (1988), this can be best achieved by librarians not relying on their knowledge but by working closely with key resource persons in the communities through consultations and meetings. Sandy and Bossaller (2017) agree that librarians who deal with TK sources have managed to put in place ways of accessing traditional knowledge since increased access can be achieved through greater collaboration with indigenous people. They suggest that recruiting indigenous people into the profession can be a sustainable approach to ensuring access to TK. Mhlongo (2021), studying the integration of TK into library services in South Africa, reports that owing to poor reading culture and the perception that libraries are for the elite, librarians need to go beyond the written word to draw indigenous communities into libraries. Involving communities in content creation can increase appreciation of the role of the library and bolster the integration of indigenous knowledge.

A number of methods can be applied for the effective preservation of traditional knowledge. Kargbo (2005) proposes a set of steps to be followed, including finding tangible information about IKS and getting it; understanding, evaluating and compiling such information; transforming the information into a usable form; disseminating such acquired information; and preserving and updating the information. Okore et al. (2009) suggests that public libraries can preserve IK systems through documentation of IK stories in audio and video formats, publication of IK into books, creating public awareness and mass education, and holding IK talk shows that host kings, elders and community chiefs. Anyira et al. (2010) state that public libraries can organise and record lectures delivered by traditional healers about their use of IK in performing their duties. In Nigeria, Okorafor (2010) reports that the National Library of Nigeria and other public and research libraries have turned into centres for identifying and producing indigenous knowledge through the support of hired experts. Ola and Adegboire (2015) observe that preservation of TK varies across geographical areas and suggests that in Nigeria, recording interviews in the form of audio and video is a viable approach to capturing indigenous knowledge. This is in agreement with Ilo (2012) that there is an urgent need for public libraries to apply Information Communication Technology (ICT) tools in the preservation of TK. In Botswana, Jain and Jibril (2016) found that the most common ways public librarians can capture TK are through face-to-face forums, creating networks with community leaders, and using ICTs.

Libraries face a number of challenges in their efforts to manage traditional knowledge. Sithole (2007) cites the absence of a legal framework and lack of funds as significant threats to the preservation of TK in developing countries. Related to documenting TK, Jain and Jibril (2016) discuss issues regarding the need to recognise and maintain the identity of the indigenous community; accessibility to existing indigenous knowledge, storage medium given the limited computer literacy among TK communities; the tacit nature of TK which makes it difficult to document; copyright and intellectual property since it is difficult to establish the ownership of TK; low funding and its implication on the adequacy of infrastructure, staffing and training; poor librarian attitudes towards TK; the laborious and time-consuming nature of documenting TK; language barriers between traditional communities and librarians; the need for scientific validation; lack of cooperation from indigenous peoples seeing that knowledge is power; and loss of TK due to memory loss, death of custodians and the deliberate or

accidental destruction of TK. Challenges facing the access and use of TK in libraries, as reported by Mhlongo and Ngulube (2018), have to do with cases where library services are located far from the beneficiaries; libraries may not have materials that are suitable for the served communities in terms of content, language and format; the general poor usage of libraries by adults; publishers being reluctant to publish in indigenous languages due to low sales; and the fact that printed media may exclude people of low literacy. Various researchers (Chepchirchir et al., 2019; Ocholla & Onyancha, 2005) explain that in Kenya, progress in the research and documentation of the TK is hampered by marginalisation, lack of legal structures and mechanisms to promote its adoption, usage and preservation.

3 Methodology

The methodological approach applied in this study was qualitative. Specifically, telephone interviews were conducted with KNLS librarians who are involved in the management of TK. Semi-structured interview questions guided the interviews posed to the interviewees to stimulate conversations on how traditional knowledge is acquired, organised and preserved in public libraries in Kenya; the access mechanisms in public libraries in Kenya to enhance the use of TK; the challenges public libraries in Kenya face in their efforts to preserve and diffuse TK; and the strategies public libraries in Kenya use to preserve and diffuse TK for sustainable development in the country.

This study was interested in getting detailed accounts of how traditional knowledge is managed in public libraries. Thus, qualitative data is most suited for the study. KNLS, being the only public library system in Kenya, provided the context of the study. The researchers, using the information-rich cases approach, identified KNLS branch libraries located close to indigenous communities, away from the cities, to participate in the study. Librarians working in these branch libraries who are involved in activities related to traditional knowledge and, as such, identified as key informants were interviewed. The interviews Each interview takes about 20 minutes. The desk research aimed to provide as much information as possible from existing documentation on the management of traditional knowledge within public libraries across the world.

Eight librarians working in eight county libraries were interviewed. The researchers ensured that the principles of confidentiality and informed consent were applied throughout the study. The resulting data was cleaned and analysed thematically.

4 Findings and discussion

The Kenya National Library Service (KNLS) Board is a state corporation established by an Act of Parliament Cap 225 of the Laws of Kenya (1965) to provide library and information services to the Kenyan public. The board is currently under the Ministry of Sports, Culture and Heritage. The headquarters library is located at the Maktaba Kuu Building in Nairobi. Over the years, 64 branch libraries have been established in thirty-three counties, twenty-one of which are based at the county headquarters. These branch libraries are currently, starting on the 1st of July, 2023, devolved and now belong to their respective counties in the spirit of Kenya's 2010 Constitution. It was expected that as a public library with branches located close to Kenya's rural communities, the library would have the capacity and a basis to engage in acquiring and managing traditional knowledge.

This study regarded the former KNLS libraries as libraries within the same system since, at the time of the study, they had just been devolved. The researchers found that KNLS libraries

have had little or no involvement with the acquisition, preservation or dissemination of TK. This is unlike the findings from other scholars (Hayes, 2012; Jain & Jibril, 2016; Maina, 2012; Okorafor, 2010) who report the involvement of public libraries in TK management. The study respondents stated that traditional knowledge was not part of their mandate and that their focus over the years has been the provision of published literature. Despite the lack of involvement, all the study respondents demonstrated a clear understanding of the meaning and value of TK, noting that it is fast disappearing and that efforts should be made to ensure that it is preserved. Some of the verbatim responses include:

I understand that traditional knowledge is essential even in today's society, but as a library, we do not acquire or store this type of information; we are primarily interested in publications' **Lib001.**

You will not find indigenous knowledge in the KNLS libraries; maybe you should visit the National Museum' **Lib002.**

Some of the librarians interviewed indicated that there are forms of TK in their libraries. One librarian talked about storytelling sessions that are held in the library from time to time. Two other libraries were reported to have traditional artefacts that have been collected over time. These artefacts, calabashes, traditional posho mills, and traditional regalia, among others, help to tell the history of local communities. In one of the libraries, artefacts have been organised into a collection referred to as 'memorabilia'. This is an indication that the libraries appreciate the value of TK and the need to preserve TK. It is likely that, in line with the findings of Sithole (2006), KNLS lacks the blessing of a policy and the funds to engage fully with TK acquisition and preservation. The lack of involvement is in agreement with the findings of Owolabi et al. (2022), who report that TK has been ignored on the continent.

It is essential to point out that although KNLS has not embraced TK management as part of its work, one of the libraries in its network reported having participated in traditional knowledge acquisition activities. The interview with one of the librarians in this library indicated that researchers approached the library from two local public universities who were undertaking a project funded by an American donor. The library worked with these researchers to identify and interview traditional knowledge holders in the community served by the library. The interviews were recorded, and there was a promise that copies of the recordings would be shared with the library for preservation and sharing. The acquisition involved going into the interior parts of the counties to speak to TK holders; in some cases, identified TK holders had to be ferried to the library for interviewing. The respondent explained the challenges faced while doing this as follows:

"At first, the community was suspicious; they feared that we were doing an investigation; we had to explain our intentions and reassure them, and that is when they started to cooperate. In the end, we spoke to a number of older adults in the community, and we got donations that are now residing in our library as donations. The interviewees did not demand any payment, but we felt the need to offer monetary appreciation. We also had to find money to transport the donations to the library" **Lib003.**

While this experience was not the initiative of the public library, it is an indication that traditional knowledge resides among members of Kenyan communities. It confirms that libraries are yet to establish linkages with communities in their locality; it is encouraging that knowledge holders are willing to share knowledge. As promised by those who participated in the study, the library only needs to focus on TK, and some gains can be made almost immediately.

The researchers sought to know what challenges librarians had experienced or were foreseeing as regards the acquisition and preservation of TK. Below are some of the verbatim responses:

“You know this is something we have not done; we are going to have to learn”, Lib002

“I think acquiring and preserving traditional knowledge will be an expensive affair; one will need money to travel to rural areas and even to create a traditional knowledge section in the library” Lib003.

“It will be challenging because most of the people with this knowledge are ageing, and I doubt if they can speak in English or Swahili” Lib005.

These challenges are no different from those faced elsewhere in the continent. Jain and Jibril (2016) also cite inadequate training among library staff, low funding, and language barriers, among other hindrances to effective TK management. All the respondents expressed a positive attitude towards TK management, meaning that given a chance, they would willingly embrace work related to TK and devise ways to surmount the stated challenges.

5 Conclusion

This study concludes that public libraries in Kenya have yet to get involved in the acquisition, preservation, and dissemination of TK. The Kenya National Library Services has not focused on TK in its mandate or strategic plans. The few reported TK-related activities are fragmented and seem to have happened without deliberate efforts to grow TK. However, there is a promise that the network of libraries, even in their devolved form, can start considering TK management as a key responsibility.

6 Recommendations

To make TK management a reality in the Kenya public library, this study suggests the following strategies:

- The inclusion of TK management in the KNLS and county libraries mandate will embolden the libraries to start considering their role in TK management and actually lay down plans for the sustainable acquisition, preservation, and dissemination of traditional knowledge in the country.
- Community involvement - A successful traditional knowledge management program will require community buy-in and participation. The libraries will need to be deliberate about creating lasting relationships with members of the communities in which they exist. This will go a long way toward elevating the value of TK and ensuring its continued acquisition and utilisation within the community and beyond.
- Benchmarking activities – the national and county libraries should consider spending time studying similar libraries in other countries where TK has been mainstreamed for national development and cultural preservation. Quick lessons can also be learnt from institutions like the Kenya National Museums, which are involved in indigenous knowledge management.
- Funding - budget allocations will significantly determine the success of a traditional knowledge management program. Libraries will need to include TK acquisition, preservation, and dissemination work in their strategic plans. At first, library leaders may need to prepare convincing arguments for the need for TK. Writing winning proposals to compete for limited financial resources may also help.
- Policy formulation - Policies and procedures spelling out how TK will be acquired, organised, stored, and preserved for posterity, as well as shared with community members, will be necessary. The libraries can learn from local and international institutions that

have been involved with TK. Issues related to copyright and intellectual property will need to be explored and addressed through written statements or existing laws.

- Growing expertise - Librarians will need to undergo training. First, they will appreciate TK and then learn the mechanics of acquiring, storing, preserving, and disseminating it. Librarians will need to understand that their role in TK management goes beyond acquisition and preservation. They will be required to ensure that TK is applied in societal development.
- KNLS, being the public and national library and a respected custodian of knowledge, should advocate and promote TK, especially its role in national development. Campaigns should include messages that debunk myths that TK has no value in today's society and thus belongs to the past. This way, communities will willingly participate in TK management and its utilisation.

References

- Agrawal, A. (1995). Indigenous and scientific knowledge: Some critical comments. *Indigenous Knowledge and Development Monitor* 3(3): 3–6.
- Ali, W. (2016). An indigenous academic perspective to preserving and promoting indigenous knowledge and traditions: a Fiji case study. *The Australian Journal of Indigenous Education*, 46(1), 80–91.
- Anyira, I., Onoriode, O. K., & Nwabueze, A. (2010). The role of libraries in the preservation and accessibility of indigenous knowledge in the Niger Delta Region of Nigeria. *Library Philosophy and Practice*, 387(6), 1-9.
- Bekker, S., & Lategan, L. (1988). Libraries in black urban South Africa: an exploratory study, *South African Journal of Library and Information Science*, 56(2): 63–72.
- Boisvert, E. (2023). Colonialism in libraries: The disparities of categories and the organisation of materials. *That is What [We] Said*; 5(1): Unlearning. <https://ojs-o.library.ubc.ca/index.php/thatswhatwesaid/article/view/523>
- Bruchac, M. (2014). *Indigenous knowledge and traditional knowledge*. Retrieved from <https://repository.upenn.edu/handle/20.500.14332/1439>
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2019). Maximising the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, 68(1/2), 60-75.
- Cunningham, M. (2010). *Laman Laka: Our indigenous path to self-determined development*. Tebtebba Foundation: Philippines.
- Ewane, F., & Ajagbe, S. (2018). Indigenous knowledge and the development debate in Africa. *International Journal of African Development*, 5(1), 7.
- Eyong, C. T. (2007). Indigenous knowledge and sustainable development in Africa: Case study on Central Africa. In E. K. Boon & L. Hens, (Eds), *Indigenous knowledge systems and sustainable development: Relevance for Africa, Tribes and Tribals*, pp. 1, 121–139.
- Forutnani, S., Nowkarizi, M., Kiani, M. R., & Mokhtari Aski, H. R. (2018). The role of rural libraries in preserving the indigenous knowledge of rural residents: The case of South Khorasan Province. *World Journal of Science, Technology and Sustainable Development*, 15(3), 245–256.
- Freedom-KaiPhillips, F. K. (2016). 'Intellectual property rights in traditional knowledge: Enabler of sustainable development. *UJIEL*, ' (2016) 32(83) UJIEL 1.. <<https://doi.org/10.5334/ujiel.283>>

- Giggey, S. (1988). *Rural community resource centres: A guide for developing centres*. Macmillan Publishing Limited.
- Gudynas, E. (2011). Buen Vivir: Today's tomorrow. *Development*, 54(4), 441–447.
- Gupta, A. K. (2010). Indigenous knowledge: Ways of knowing, feeling and doing. *Science and the Public*, 15(Part 2), pp. 165–182.
- Hayes, L. (2012). *Kaupapa Maori in New Zealand public libraries*. [Masters dissertation, Open Access Te Herenga Waka-Victoria University of Wellington]. <https://doi.org/10.26686/wgtn.17003650.v1>
- Ilo, P. I. (2012). Acquisition, preservation and accessibility of indigenous knowledge in academic libraries in Nigeria: The place of ICT. *Ikenga: International Journal of Institute of African Studies*, 14(1), 468–486.
- Jain, P., & Jibril, L. (2016, August). *Expanding library services for indigenous community posterity: A case of selected public libraries in Botswana* [Paper presentation]. IFLA WLIC, 2016 <https://library.ifla.org/id/eprint/1445>
- Kaniki, A. M., & Mphahlele, M. K. (2002). Indigenous knowledge for the benefit of all: can knowledge management principles be used effectively? *South African Journal of Libraries and Information Science*, 68(1), 1–15.
- Kargbo, A. J. (2005). Managing indigenous knowledge: What role does public librarians have in Sierra Leone? *The International Information & Library Review*, 37(3), 199–207.
- Kariuki, F. (2021). Harnessing traditional knowledge holders' institutions in realising Sustainable Development Goals in Kenya. *Journal of CMSD*, 6(1).
- Lilley, S., & Paringatai, T. (2013, August). *Kia whai taki: implementing indigenous knowledge in the Aotearoa New Zealand library and information management curriculum* [Paper presentation]. IFLA WLIC, 2013, Singapore. <http://creativecommons.org/licenses/by/3.0/>
- Mabawonku, I. M. (2002, April). *The systematic management of indigenous knowledge: a review of oral information projects in a library school* [Paper presentation]. SCECSAL 2002, South Africa.
- Magni, G. (2017). Indigenous knowledge and implications for the sustainable development agenda. *European Journal of Education*, 52:437–447. <https://doi.org/10.1111/ejed.12238>
- Maina, C. K. (2012). Traditional knowledge management and preservation: Intersections with Library and Information Science. *The International Information & Library Review*, 44(1), 13–27.
- Mhlongo, M. (2021). A framework for the integration of indigenous knowledge into libraries in South Africa. *IFLA journal*, 47(3), 375–385.
- Mhlongo, M., & Ngulube, P. (2018). “Public libraries as conduits for indigenous knowledge in South Africa” (2018). *Library Philosophy and Practice (e-journal)*. 1757.
- Mollo, E. C. (2011). El vivir bien, una propuesta de los pueblos indígenas a la discusión sobre el Desarrollo. *OBETS: Revista de Ciencias Sociales*, 1(6), 19–34.
- Nakata, M., & Langton, M. (2005). Australian indigenous knowledge and libraries. Available: [http://www.alia.org.au/publishing/aarl/AARL_vol36_no2_2005\(reprint\).pdf](http://www.alia.org.au/publishing/aarl/AARL_vol36_no2_2005(reprint).pdf)
- Ocholla, D. N., & Onyancha, O. B. (2005). The marginalised knowledge: An informetric analysis of indigenous knowledge publications (1990–2004). *South African Journal of Libraries and Information Science*, 71(3), 247–258.
- Okorafor, C. N. (2010). Challenges confronting libraries in documentation and communication of indigenous knowledge in Nigeria. *The International Information & Library Review*, 42(1), 8–13.
- Okore, A. M., Ekere, J. N., & Eke, H. N. (2009). *Promoting access to indigenous knowledge in digitise age: Libraries as facilitators* [Paper presentation]. Nigerian Libraries Association 47th Annual General Conference 2009, Ibadan, Oyo State.

- Ola, C. O., & Adegbore, A. M. (2015). Cultural heritage collections, preservation and access: Case of University of Ibadan. In *The African Symposium: An Online Journal of the African Educational Research Network* (Vol. 15, No. 2, pp. 50-55).
- Owolabi, K. A., Ovwasa, D. E., Ajayi, T. B., & Odewale, M. O. (2022). Preservation and use of indigenous knowledge practices in public libraries in Nigeria. *Public Library Quarterly*, 41(5), 485-502.
- Oyeniran, G. K. (2021). Utilisation of indigenous knowledge and the attainment of SDGs in Africa: Issues and challenges. *Library Philosophy and Practice (e-journal)*: 6697. <https://digital-commons.unl.edu/libphilprac/6697>
- Rouse, J. (1999). Global dissemination of indigenous knowledge. Contradiction, or the way forward. Retrieved from www.worldbank.org/afr/ik/global_il990615.htm.
- Roy, L. (2015). Indigenous cultural heritage preservation: A review essay with ideas for the future. *IFLA Journal*, 41(3), 192-203.
- Sandy, M. H., & Bossaller, J. (2017). Providing cognitively just subject access to indigenous knowledge through knowledge organisation systems. *Cataloging & Classification Quarterly*, 55(3), 129-152.
- Sithole, J. (2007). Indigenous knowledge: The challenges faced by African libraries and information centres in documenting and preserving. *IFLA Journal*, 33(2), 117-123.
- UNESCO (2021) United Nations Educational, Scientific and Cultural Organization. Local and Indigenous Knowledge Systems (Links). <https://en.unesco.org/links>
- UNPFII (2010), Ninth Session E/C.19/2010/CRP.4 25. The Human Development Framework and Indigenous Peoples' Self-Determined Development or Development with Culture and Identity, UNPFII, New York, NY.
- World Bank. (1998). Indigenous knowledge for development. Retrieved from <http://www.worldbank.org/html/aft/IK>
- World Bank. (2004). Indigenous knowledge - local pathways to global development: Marking five years of the World Bank Indigenous Knowledge for Development Program. Washington, DC: World Bank.

43. The curation of indigenous knowledge for conserving cultural heritage

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Abstract

The curation of indigenous knowledge for conserving and safeguarding cultural heritage practices is for the long-term benefit of end users and knowledge and information searchers at cultural institutions. Indigenous knowledge processes have been undermined for centuries, and instead, libraries, archives, and museums have gotten greater attention. As a result, in-depth research has not been conducted on indigenous knowledge or its collection curation, intellectual property, conservation efforts, marketing strategies or promotion to advance the Sustainable Development Goals. This study focused on investigating the practical ways to protect and safeguard the world's cultural and natural heritage for the current and future generations. The research objectives were: establishing the significance of intangible cultural heritage knowledge management in the selected museums; identifying challenges faced in intangible cultural heritage knowledge management in the selected museums; establishing the strategies applied in harvesting intangible cultural heritage knowledge in the selected museums; and establishing the strategies applied in disseminating intangible cultural heritage knowledge in the selected museums. This study adopted a qualitative design with face-to-face interviews with an information-oriented sample of eight museum staff. The study findings indicated that public programming, workshops, and training alongside exhibitions are potent strategies for disseminating intangible cultural heritage knowledge. The findings also revealed that documentation and storytelling are strategies applicable to harvesting intangible cultural heritage knowledge. Therefore, the study recommends that museums strategically prioritise the management of intangible cultural heritage to leverage its impact on sustainability with end users in mind.

Keywords: *Culture; Ditsong Museums of South Africa; Intangible Heritage; Knowledge management; National Museums of Kenya; Sustainable Development Goals*

1 Introduction

Intangible cultural heritage (ICH) concept relates to the practice, expression, knowledge, and skill that communities, groups and sometimes individuals recognise as part of their cultural lifestyle (Nikolić Đerić et al., 2020). A living cultural heritage is usually expressed as the inherent knowledge and know-how of producing cultural heritage products. Other constructs of ICH include oral traditions, performing arts, social practices, ritual and festive events, knowledge as well as practices concerning nature and the universe, and traditional craftsmanship (Vasilescu et al., 2020). Nikolić Đerić et al. (2020) express ICH as a sense of identity and a system of life provided and passed down from generation to generation. Communities and organisations continuously recreate such identities in reaction to their surroundings, interactions with nature, and historical origins. Such a sense of identity is associated with life skills that communities regard as part of cultural heritage and include

expressions, epistemologies, abilities and events resembling artefacts and occasions that promote and symbolise cultural diversity and human creativity.

The curation of indigenous knowledge (IK) for conserving and safeguarding cultural heritage practices is for the long-term benefit of end users and knowledge and information searchers at cultural institutions (Mbah & Fonchingong, 2019). In order for these knowledge practices to serve as educational resources for the present and coming generations, there is a need to promote cultural heritage activities that produce cultural heritage items or artefacts. Curation and preservation are imperative because the young generation struggles to understand and embrace its cultural heritage and origination (Umar et al., 2020). This is due to the dominance of Western epistemology, which controls and governs the education and schooling systems in South Africa and other parts of the world (Manyike & Shava, 2018). The education system continues to play an integral role in fostering academic development. However, it is limited to disseminating intangible cultural heritage to end-users, creating a vacuum and shortfall that museums can overcome as cultural institutions. Museums play a critical societal role through curation, conservation, preservation, and educational functions. This is underpinned by the concept that museums possess a social responsibility as proponents of progress in society's sociocultural, political, and socio-environmental changes and civilisation developments.

2 Contextual Setting

This study was conducted at the National Museums of Kenya and Ditsong Cultural History Museum in South Africa

2.1 The National Museums of Kenya

The National Museums of Kenya (NMK) is a state corporation that was established by an Act of Parliament (National Museums and Heritage Act, 2006) with a mandate to gather, conserve, research, record, and exhibit Kenya's natural, cultural, and historical heritage for national and international benefit. The goal of NMK is to be a world leader in heritage research and management, including promoting, collecting, and recording cultural assets. NMK prides itself on generating, documenting, and disseminating research and collection management knowledge, information, and innovations in order to support the protection and sustainable use of the nation's legacy (National Museums of Kenya, 2022).

NMK is responsible for maintaining and conserving all its collections, including tangible and intangible items, moveable and immovable items, and in-situ and ex-situ items. Moreover, NMK also disseminates information to the public through exhibitions, educational programs, and other multimedia platforms to increase public awareness and understanding (National Museums of Kenya, 2022).

2.2 Ditsong Cultural History Museum in South Africa

The Ditsong National Museum of Cultural History is in Pretoria, Gauteng, South Africa. It is a part of the museums merged under the Cultural Institution Act No. 119 of 1998 to form the Northern Flagship Institution (NFI). Afterwards, the NFI name was changed to the Ditsong National Museums of South Africa (Masiteng, 2019).

The Ditsong National Museum of Cultural History displays the various eras and manifestations of the country's culture while delving into the rich cultural diversity of South Africa. Excavated archaeological materials and artworks, historical records, archives, various

historical and contemporary audiovisuals, historical archaeology sites, historical buildings, and early domesticated animals are among the items in the Ditsong National Museum's collection (Masiteng, 2019).

The museum is mandated to collect, conserve, and ensure the safe management of national heritage collections on behalf of the South African nation. It is also responsible for conducting research and disseminating heritage-related data in the global cultural, social, and commercial spheres (Ditsong National Museum of Cultural History, n.d.).

3 Problem statement

Intangible cultural heritage as a component of IK is at a continuous risk of extinction. Therefore, for an intangible cultural legacy to be preserved, it must be pertinent to its community, constantly replicated, and passed down from generation to generation (United Nations, 2019). There is a chance that some aspects of intangible cultural heritage could stop being practised and noticed by the current generations. Various approaches have been explored to collect, preserve, and showcase intangible cultural heritage to the end-users. However, none have presented formidable and functional strategies to capture intangible heritage successfully and transfer it to the end users. Considering that cultural heritage is incomplete without including intangible IK practices in its context, it is necessary to manage, maintain, and preserve intangible IK with an emphasis on its value as a priceless human resource. It is imperative to push and remove the barriers that prevent the identification, collection, documentation, and preservation of cultural heritage resources to achieve the documentation objective that would benefit information seekers and researchers alike, who may be left dissolute.

4 Aim and objectives of the study

This study explores the concept of collectable intangible heritage using local socio-ecological contexts, cultural events, and heritage festivals. Based on a symbiotic relationship between the tangible and intangible heritages, the captured events will then be preserved for current and future access to meet information seekers' environmental and societal needs as part of IKM practices that fulfil SDG 11 and its streamlined targets.

This study aims to investigate the practical ways to protect and safeguard the world's intangible cultural heritage for the current and future generations. To achieve this aim, the study is guided by the following objectives: Establish the significance of ICHK management in the selected museums; Identify challenges faced in ICHK management in the selected museums; Establish the strategies applied in harvesting ICHK in the selected Museums; and establish the strategies applied in disseminating ICHK in the selected Museums

5 Literature review

The observation of cultural knowledge is at the heart of indigenous identity, culture, languages, legacy and livelihoods, and it must be maintained, preserved and promoted from generation to generation (United Nations, 2019). Intangible cultural heritage (ICH) gives a feeling of identity and continuity of sociocultural practice for communities, groups and individuals, assisting them in understanding their reality and giving significance to their lives and way of life (Nocca, 2017; Gwerevende & Mthombeni, 2023). Citizens who uphold intangible cultural heritage perceive it as a practice, representation of their belief systems, expression

of cultural ethos, ancestral knowledge, as well as life skills and behaviourism that informs instruments, objects, artefacts, and cultural heritage (Nilson & Thorell, 2018). This form of heritage practice manifests itself in oral traditions, performing arts, sociocultural lifestyles, rituals, craftsmanship and festivals (Bonn et al., 2016). As a way of life, ICH is expressed, communicated, and manifested in tangible and intangible forms (Bolhassan, 2018).

Nocca (2017) emphasises that ICH plays a significant role in sustaining society's existence on the planet because it is an integral part of our social, cultural and moral fibre. As a crucial aspect of society, ICH gives communities, groups and people a feeling of uniqueness and continuity, assisting them in understanding their world and giving significance to their lives as a community of practice (Tang & Xie, 2019). Jian (2023) asserts that ICH maps and helps to promote intercultural dialogue, which facilitates and promotes peace between communities as a way of contributing to the SDGs. As a living expression, cultural heritage within communities of practice forms the basis for promoting authenticity and diversity in communities (Kim, 2018).

ICH is both an impetus and enabler of long-term sustainable development through its economic, environmental, and social dimensions (Meissner, 2021). Sustainable development refers to development endeavours that meet current demands without jeopardising future generations' ability to meet their own (Kim, 2018). ICH also fosters economic development and inclusive governance in society; an example is the vital role it plays as a resource for generating tourism interests both at national and local levels (Kim et al., 2019; Ubertazzi, 2022). Similarly, Petronela (2016) opines that tourists learn more about other cultures and experience global diversity through the spirit of cultural cooperation, fostering understanding, tolerance and peace as envisaged by SDG 11 and its set targets (Giliberto & Labadi, 2022).

At an expert meeting convened in Valencia, Spain, in 2015, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) formulated the Ethical Principles which have since become pivotal for governments, organisations, and individuals engaged in the preservation of Intangible Cultural Heritage (ICH), ensuring its sustainability. The imperative to safeguard ICH through processes such as identification, documentation, preservation, protection, promotion, presentation, and transfer, both through formal and informal education, received emphasis. Moreover, nations were encouraged to establish and maintain up-to-date inventories, fostering societal recognition and respect for ICH. This involves creating educational programs, awareness campaigns, and informational initiatives, along with engaging in capacity-building activities to preserve intangible cultural heritage and support non-formal methods of knowledge transmission between generations (UNESCO, 2016; Bigambo, 2020; Yan, 2023).

Managing Intangible Cultural Heritage (ICH) is faced with a myriad of challenges that demand strategic solutions. First, the African ICH is given little attention, which has resulted in its erosion. Second, the question of the ownership of ICH remains unravelled since all the parties involved claim ownership of ICH (Bertorelli, 2018). Additionally, the intangible nature of ICH poses a significant challenge to curators who are more acquainted with the tangible cultural heritage (Alivizatou-Barakou et al., 2017). Lastly, the diversity of interest from the involved parties equally thwarts the success of ICH management in museums (Bigambo, 2020).

Documentation and harvesting of ICH go hand in hand. The primary goal of harvesting and documenting ICH is preserving history and making it accessible in the present and future.

ICH can be harvested and documented through storytelling with the elderly, collaborations with the targeted communities, photographing, interviewing, recording, collecting items, and establishing ICH files and databases (Herold, 2019; Zort et al., 2023). Jian (2023) also adds that ICH can be preserved through participation in traditional practices and events, sharing knowledge and skills with younger generations, supporting local artists and artisans, and documenting oral traditions and practices.

Disseminating ICH is the pinnacle of its management processes. The dissemination of ICH can be enhanced by educating the public on the worth of ICH and having exhibitions of the curated ICH from time to time (Ziouvelou et al., 2023). Currently, the dissemination of ICH can also be enhanced through digital platforms (Zhang & Jing, 2022). These platforms include audiovisual media, which can enhance the visibility of ICH; local broadcasting networks like radios to enhance knowledge of local languages and culture; interactive programs and games targeting youth; and multi-user 3D environments (Liang, 2019; Vosinakis, 2020)

The literature reviewed, which is based on the variables under the study, reflects an alignment of authors in terms of the study's objectives. However, the reviewed literature fails to provide solid strategies for harvesting, safeguarding, and transmitting ICH. For this reason, this paper seeks to investigate the practical ways to protect and safeguard the world's cultural heritage for current and future generations, with a focus on museum audiences.

This study used constructivist learning theory, which is founded on educational learning theory. The implication is that theories in Intangible Cultural Heritage Knowledge (ICHK) perceive the information seeker as a candidate in educational practice and position him or her as the end-user of information in an observational manner. The candidate stands to be the prominent information seeker who constructs new knowledge through the observation lens. Consequently, new knowledge is created, harvested, stored, or utilised by using information constructs and actual observations.

6 Methodology

This qualitative study employed information-oriented purposive sampling to gather insights from museum staff on practical strategies to protect and curate the world's indigenous and cultural heritage for the current and future generations. A sample of eight staff members from the National Museums of Kenya and Ditsong Cultural History Museum participated in the study, with four individuals representing each museum. Data collection was conducted through semi-structured interviews. The two museums' unique settings and operational dynamics supplied a diverse set of perspectives, contributing to the depth and breadth of the study.

The interview schedule included components like the importance of ICHK management in museums, the strategies that can be engaged in the dissemination of ICHK, and the strategies that can be applied to harvest ICHK.

A standard procedure was used to interview each respondent to ensure validity and consistency. The procedure entailed defining the study topic, clarifying the interview process, explaining the interviewer's work, and establishing rapport with the respondent. For flexibility, the interview schedule included open-ended questions that allowed for probing and improved interaction between the interviewer and interviewees. The data was tape-recorded with the consent of the participants and later transcribed for analysis.

Thematic analysis was used for data analysis, identifying and exploring recurring patterns, themes, and meanings within the collected data. The emergent themes, rooted in the narratives of the participants, formed the basis for the study's findings

7 Results and Discussions

7.1 Importance of ICHK management in Museums

The research identified that cultural identity and transmission, social cohesion, sustainable development, tourism, and economic boost are significant factors in ICHK management in museums. Respondent 4 indicated that ICH is vital in keeping cultural practices alive, safeguarding a unique identity, and ensuring that customs and stories endure through time. Respondent 3 highlighted the role of cultural heritage in creating common ground, fostering community bonds and a shared sense of identity. Respondent 5 underscored the importance of caring for cultural heritage for sustainable community development. Lastly, Respondent 7 emphasised the allure of Intangible Cultural Heritage as a tourism magnet, offering unparalleled and authentic experiences.

"In museums, we keep our cultural practices alive. It is like holding onto our unique identity, making sure our customs and stories are never forgotten..." Respondent 4

"Through our cultural heritage in museums, we find common ground. It is a way of connecting, fostering a strong sense of community..." Respondent 3

"Taking care of our cultural heritage is a smart move for our community's future sustainably..." Respondent 5

"Intangible Cultural Heritage is a magnet for tourism because it offers unique and authentic experiences..." Respondent 7

Consistent conclusions emerge from the research conducted by Gwerve and Mthombeni (2023), indicating that the management of ICH sustains the relevance and vitality of cultures within practising communities. Similarly, Lonardi and Unterperntinger (2022) contend that national and international tourists are increasingly drawn to intangible cultural heritage, recognising its ability to enhance the appeal and distinctiveness of destinations. These findings align with the perspectives of Giliberto and Labadi (2022), who affirm the role played by ICH in future community and global sustainability in a study that examined the contribution of cultural heritage to worldwide developmental issues with an approach that traverses the economic social, and environmental dimensions of sustainable development. Additionally, the research findings of Tang and Xie (2019) underscore the significance of social cohesion and the role of cultural heritage in fostering a sense of belonging and unity within communities, mirroring the insights of the current study.

7.2 Challenges of ICHK management in Museums

This study revealed that preservation struggles, community involvement, and engagement difficulties are challenges to ICHK management in museums. Respondent 1 underscored the preservation struggles associated with keeping intangible heritage alive, indicating that the challenge lies in maintaining its dynamic nature while preventing it from becoming a static exhibit. Respondent 6 mentioned that a challenge exists in fostering a sense of ownership and connection to the intangible heritage among the community to enhance their active participation in preserving their cultural legacy. Respondent 5 highlighted the difficulties

in engaging visitors with intangible heritage, emphasising the challenge of making it as captivating and meaningful as tangible artefacts that visitors can see and touch.

“The challenge is keeping our intangible heritage alive in a way that respects its dynamic nature and prevents it from becoming a static exhibit...” Respondent 1

“Getting the community to feel a sense of ownership and connection to the intangible heritage preserved here is a challenge...” Respondent 6

“The challenge lies in making intangible heritage as captivating and meaningful to visitors as the tangible artefacts they can see and touch...” Respondent 5

These findings are consistent with those made by Bigambo (2020), emphasising that maintaining community involvement is essential but presents challenges due to the diverse interests of the parties engaged in ICH management. The research by Bhaumik et al. (2023) similarly validates that, unlike tangible heritage, which is physically touchable, intangible cultural heritage poses difficulties in both preservation and exhibition for tourists owing to its invisible, intangible, and dynamic characteristics.

7.3 Strategies that can be applied to harvest ICHK in Museums

This study found that the strategies that can be applied to harvest ICHK are documentation in videos, audio and written documentation; Interviews and story-telling with senior citizens; Archiving both digital and physical; Education and training; and collaborations with cultural institutions, universities and researchers. Respondent 4 stressed the importance of utilising various forms of documentation, including videos, audio recordings, and written documentation, to capture and preserve the dynamic nature of ICHK. Respondent 2 indicated that engaging in interviews and story-telling with senior citizens provides a profound window to the past, providing insights into how cultural practices have been passed down through generations. Respondent 6 highlighted the significance of archiving, both digitally and physically, to create a secure storage space for ICHK. Respondent 1 emphasised the pivotal role of education and training initiatives in cultivating an understanding of ICHK, indicating that such initiatives empower communities to participate actively in preserving and transmitting their cultural heritage. Respondent 3 pointed out the collaborative aspect, noting that partnerships with cultural institutions, universities, and researchers are instrumental in gaining a deeper understanding of cultural heritage and enhancing preservation efforts.

“Utilising various forms of documentation, including videos, audio recordings, and written documentation, is essential to capture and preserve the dynamic nature of Intangible Cultural Heritage...” Respondent 4

“When we interview and listen to senior citizens tell their stories, it is like opening a window to the past, understanding how our cultural practices have been passed down through generations...” Respondent 2

“We archive our cultural heritage, both digitally and physically. It is like creating a secure storage space for our traditions, ensuring they are protected and can endure the test of time...” Respondent 6

“Education and training initiatives play a pivotal role in cultivating an understanding of Intangible Cultural Heritage, empowering communities to participate in its preservation and transmission actively...” Respondent 1

“We collaborate with cultural institutions, universities, and researchers to better understand and preserve our cultural heritage...” Respondent 3

Similar findings are displayed by Hou et al. (2022) in a study that emphasised the use of new modern technologies to preserve intangible cultural heritage, focusing on ICH as a

renewable and replaceable resource. A study by Zort et al. (2023) equally sheds light on the importance of the storytelling approach in harvesting cultural values and heritage in a study that underscored the importance of preserving and transmitting ICHK. Baker et al. (2021) equally underscore the place of archiving in enhancing the survival of ICH in a study on co-constructing digital archiving practices for community heritage preservation. Herold (2019) similarly found that enacting responsible collaborations for ICH provides a way to educate and tell stories of diversity, equity, and inclusion while responsibly stewarding and preserving this valuable asset.

7.4 Strategies that can be applied to disseminate ICHK in Museums

This study found that the strategies that can be applied to harvest ICHK are documentation in videos, audio and written documentation; Interviews and story-telling with senior citizens; Archiving both digital and physical; Education and training; and collaborations with cultural institutions, universities and researchers. Respondent 4 stressed the importance of utilising various forms of documentation, including videos, audio recordings, and written documentation, to capture and preserve the dynamic nature of ICHK. Respondent 2 indicated that engaging in interviews and story-telling with senior citizens provides a profound window to the past, providing insights into how cultural practices have been passed down through generations. Respondent 6 highlighted the significance of archiving, both digitally and physically, to create a secure storage space for ICHK. Respondent 1 emphasised the pivotal role of education and training initiatives in cultivating an understanding of ICHK, indicating that such initiatives empower communities to participate actively in preserving and transmitting their cultural heritage. Respondent 3 pointed out the collaborative aspect, noting that partnerships with cultural institutions, universities, and researchers are instrumental in gaining a deeper understanding of cultural heritage and enhancing preservation efforts.

“Public programming is crucial for reaching diverse audiences and creating awareness about Intangible Cultural Heritage...” Respondent 4

“Engaging cultural ambassadors has proven effective in representing and promoting Intangible Cultural Heritage on a broader scale, fostering connections between communities...” Respondent 7

“Social media campaigns is one modern way we are using to spread the richness of our heritage to a global audience, and it has significantly amplified our reach...” Respondent 1

“We exhibit our cultural heritage locally and nationally with a focus to showcase the uniqueness and beauty of our cultural practices...” Respondent 8

“Conducting workshops and trainings is an effective strategy for imparting knowledge about Intangible Cultural Heritage, ensuring its transmission to future generations...” Respondent 2

These findings are in tandem with Ziouvelou et al. (2023), who state that disseminating cultural heritage can be enhanced by raising public awareness of the significance of heritage and consequently increasing public participation. Hammou et al. (2020) found a high correlation between social media communication and augmented dissemination of ICH to a global audience. Demgenski (2023) also approves that exhibitions are critical to the ICH landscape, given that they serve as spaces for expressing and disseminating heritage to a broader audience. Seifi and Soltanabadi (2020) equally affirm the findings on the place of workshops and training in ICH dissemination, indicating that they form potent strategies for the transmission of ICH to future generations.

8 Conclusion

Based on the findings, indigenous cultural heritage knowledge and practices remain crucial inspirations for society's knowledge regarding cultural practices and societal sustainability. In conclusion, the findings of this study underscore the paramount importance of managing Intangible Cultural Heritage Knowledge (ICHK) in museums for the multifaceted betterment of societies. Through the harvesting, curation, and discourse of ICHK, museums serve as custodians of cultural identity, fostering social cohesion and facilitating the intergenerational transmission of intangible cultural lifestyles.

9 Recommendations

This study emphasises the critical role that museums play in preserving and promoting indigenous cultural heritage knowledge for sustainability. Based on the findings, this study recommends that museums strategically prioritise ICH management to leverage its impact on sustainability with end users in mind. Additionally, they should adopt innovative and proactive measures to overcome the challenges experienced in curating ICH.

References

- Alivizatou-Barakou, M., Kitsikidis, A., Tsalakanidou, F., Dimitropoulos, K., Giannis, C., Nikolopoulos, S., Al Kork, S., Denby, B., Buchman, L., Adda-Decker, M., Pillot-Loiseau, C., Tillman, J., Dupont, S., Picart, B., Pozzi, F., Ott, M., Erdal, Y., Charisis, V., Hadjidimitriou, S., & Grammalidis, N. (2017). Intangible Cultural Heritage and New Technologies: Challenges and Opportunities for Cultural Preservation and Development. In M. Ioannides, N. Magnenat-Thalmann, & G. Papagiannakis (Eds.), *Mixed Reality and Gamification for Cultural Heritage* (pp. 129–158). Springer International Publishing. https://doi.org/10.1007/978-3-319-49607-8_5
- Baker, J., Shahab, S., & Tadros, M. (2021). Co-Constructing Digital Archiving Practices for Community Heritage Preservation in Egypt and Iraq. *Preservation, Digital Technology & Culture*, 50(2), 85–96. <https://doi.org/10.1515/pdct-2021-0018>
- Bertorelli, C. (2018). The challenges of UNESCO Intangible Cultural Heritage. *Journal of Tourism Studies*, 17, 91–117.
- Bhaumik, S., Bhattacharyya, S., & Bhowmick, S. (2023). Nurturing the Human Capital: Exploring the Role of Essential Skills and Competencies for the Sustenance of Intangible Cultural Heritage (ICH) Tourism – A Systematic Literature Review. In Y. S. Rawal, R. Sinha, S. K. Mukherjee, & D. Batabyal (Eds.), *Advances in Hospitality, Tourism, and the Services Industry* (pp. 227–252). IGI Global. <https://doi.org/10.4018/978-1-6684-9957-3.ch016>
- Bigambo, R. (2020). *Safeguarding practices for intangible cultural heritage in Tanzania: National vs local perspectivesnational vs local perspectives* [Unpublished doctoral dissertation, University of Birmingham]. <https://etheses.bham.ac.uk/id/eprint/10358/>
- Bolhassan, R. (2018). *Safeguarding Sarawak's intangible cultural heritage: A knowledge management approach* [Open Access Te Herenga Waka-Victoria University of Wellington]. <https://doi.org/10.26686/wgtn.17068106>
- Bonn, M., Kendall, L., & McDonough, J. (2016). Preserving intangible heritage: Defining a research agenda: Preserving Intangible Heritage: Defining a Research Agenda. *Proceedings of the Association for Information Science and Technology*, 53(1), 1–5. <https://doi.org/10.1002/pra2.2016.14505301009>

- Demgenski, P. (2023). Onstage: Exhibiting Intangible Cultural Heritage in China. *China Perspectives*, 132, 7–17. <https://doi.org/10.4000/chinaperspectives.14509>
- Gilberto, F., & Labadi, S. (2022). Harnessing cultural heritage for sustainable development: An analysis of three internationally funded projects in MENA Countries. *International Journal of Heritage Studies*, 28(2), 133–146. <https://doi.org/10.1080/13527258.2021.1950026>
- Gwerevende, S., & Mthombeni, Z. M. (2023). Safeguarding intangible cultural heritage: Exploring the synergies in transmitting Indigenous languages, dance and music practices in Southern Africa. *International Journal of Heritage Studies*, 29(5), 398–412. <https://doi.org/10.1080/13527258.2023.2193902>
- Hammou, I., Aboudou, S., & Makloul, Y. (2020). Social Media and Intangible Cultural Heritage for Digital Marketing Communication: Case of Marrakech Crafts. *Marketing and Management of Innovations*, 1, 121–127. <https://doi.org/10.21272/mmi.2020.1-09>
- Herold, I. M. H. (2019). Responsible collaborations: Scholarship and cultural heritage assets. *College & Research Libraries News*, 80(2), 109. <https://doi.org/10.5860/crln.80.2.109>
- Hou, Y., Kenderdine, S., Picca, D., Egloff, M., & Adamou, A. (2022). Digitising Intangible Cultural Heritage Embodied: State of the Art. *Journal on Computing and Cultural Heritage*, 15(3), 1–20. <https://doi.org/10.1145/3494837>
- Jian, P. (2023). Preserving Intangible Cultural Heritage: Safeguarding Our Cultural Identity. *Anthropology*, 11(1), 299. <https://doi.org/10.35248/2332-0915.23.11.299>
- Kim, S. (2018). *Intangible cultural heritage and sustainable tourism resource development*. <https://doi.org/10.25904/1912/1859>
- Kim, S., Whitford, M., & Arcodia, C. (2019). Development of intangible cultural heritage as a sustainable tourism resource: The intangible cultural heritage practitioners' perspectives. *Journal of Heritage Tourism*, 14(5–6), pp. 422–435. <https://doi.org/10.1080/1743873X.2018.1561703>
- Liang, M. (2019). *Ethnic Intangible Cultural Heritage Dissemination on Digital Platforms: Examining Media Literacy as a Mediated Factor Among Tujia People in Mainland China*. [Unpublished dissertation, Universitat Autònoma de Barcelona]. <http://hdl.handle.net/10803/668012>
- Lonardi, S., & Unterpertinger, Y. (2022). The Relevance of Intangible Cultural Heritage and Traditional Languages for the Tourism Experience: The Case of Ladin in South Tyrol. *Sustainability*, 14(5), 2729. <https://doi.org/10.3390/su14052729>
- Manyike, T., & Shava, S. (2018). The decolonial role of African indigenous languages and indigenous knowledges in formal education processes. *Indilinga African Journal of Indigenous Knowledge Systems*, 17(1), 17.
- Masiteng, I. N. (2019). *A bone to pick: Curation vs Repatriation-understanding the contestation of human remains in South African museums (at Ditsong National Museum of Cultural History)* [Published doctoral dissertation, University of Pretoria]. <http://hdl.handle.net/2263/76901>
- Mbah, M., & Fonchingong, C. (2019). Curating Indigenous Knowledge and Practices for Sustainable Development: Possibilities for a Socio-Ecologically-Minded University. *Sustainability*, 11, 4244. <https://doi.org/10.3390/su11154244>
- Meissner, M. (2021). *Intangible Cultural Heritage and Sustainable Development: The Valorisation of Heritage Practices*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-79938-0>
- National Museums of Kenya. (2022). *National Museums and Heritage Act 6 of 2006*. National Museums of Kenya. <https://museums.or.ke/download/national-museums-and-heritage-act-6-of-2006>
- Nikolić Đerić, T., Neyrinck, J., & Seghers, E. (2020). As well as the instruments, objects, artefacts and cultural spaces associated therewith. In *Museums and intangible cultural heritage: Towards a third space in the heritage sector: A companion to discover transformative heritage practices for the 21st century* (pp. 47–49). Werkplaats immaterieel erfgoed.

- Nilson, T., & Thorell, K. (2018). *Cultural Heritage Preservation: The Past, the Present and the Future*. Halmstad University Press.
- Nocca, F. (2017). The Role of Cultural Heritage in Sustainable Development: Multidimensional Indicators as Decision-Making Tool. *Sustainability*, 9(10), 1882. <https://doi.org/10.3390/su9101882>
- Petronela, T. (2016). The Importance of the Intangible Cultural Heritage in the Economy. *Procedia Economics and Finance*, 39, 731–736. [https://doi.org/10.1016/S2212-5671\(16\)30271-4](https://doi.org/10.1016/S2212-5671(16)30271-4)
- Seifi, L., & Soltanabadi, M. (2020). Iranian public libraries' capacities in preserving and disseminating intangible cultural heritage. *IFLA Journal*, 46(4), 359–368. <https://doi.org/10.1177/0340035219886608>
- Tang, X., & Xie, N. (2019). Research on the evaluation of tourism development potential of tea intangible cultural heritage based on grey clustering. *Grey Systems: Theory and Application*, 9(3), 295–304. <https://doi.org/10.1108/GS-12-2018-0065>
- Ubertazzi, B. (2022). *Intangible Cultural Heritage, Sustainable Development and Intellectual Property: International and European Perspectives* (Vol. 18). Springer International Publishing. <https://doi.org/10.1007/978-3-031-08104-0>
- Umar, K., Mahfood, S. Z., & Wahid, R. (2020). Preserving Culture and Heritage Through New Generation Methods: Massive Open Online Courses (MOOC) As The Early Platform. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(6), 12071–12081.
- UNESCO. (2016). *Convention for the Safeguarding of the Intangible Cultural Heritage* (32nd Session). UNESCO. <http://unesdoc.unesco.org/images/0013/001325/132540e.pdf>
- United Nations. (2019). *Permanent Forum on Indigenous Issues. 18th session 1st and 2nd meeting*. United Nations: Department of Economic and Social Affairs. <https://press.un.org/en/2019/hr5431.doc.html>
- Vasilescu, C., Melloni, E., Lodovici, M. S., Crippa, A., Drufuca, S., Paladino, E., & Barca, F. (2020). *Contribution of cultural heritage to societal well-being* (Annex III; Cultural Heritage Institutions as a Driver of Social Change: A Focus on Gender Balance in the Leadership of State-Funded Museums or Collections, p. 14). ESPON EGTC. https://www.espon.eu/sites/default/files/attachments/ANNEX%20III_Cultural%20heritage%20institutions%20and%20social%20change.pdf
- Vosinakis, S. (2020). The Use of Digital Characters in Interactive Applications for Cultural Heritage: In G. Pavlidis (Ed.), *Advances in Religious and Cultural Studies* (pp. 109–137). IGI Global. <https://doi.org/10.4018/978-1-7998-2871-6.ch006>
- Yan, W. (2023). Ethical Principles for Safeguarding Intangible Cultural Heritage: How to Protect Intangible Cultural Heritage of Minority Ethnic Groups in China. *Advances in Historical Studies*, 12(01), 32–45. <https://doi.org/10.4236/ahs.2023.121003>
- Zhang, J., & Jing, Y. (2022). Application of Artificial Intelligence Technology in Cross-Cultural Communication of Intangible Cultural Heritage. *Mathematical Problems in Engineering*, 2022, pp. 1–12. <https://doi.org/10.1155/2022/6563114>
- Ziouvelou, X., Giouvanopoulou, K., Katsamori, D., Petasis, G., Nikolaidis, A., & Fani, E. (2023). Policy Perspectives on Values and Intangible Cultural Heritage. *Open Journal of Social Sciences*, 11(10), 51–72. <https://doi.org/10.4236/jss.2023.1110004>
- Zort, Ç., Karabacak, E., Öznur, Ş., & Dağlı, G. (2023). Sharing of cultural values and heritage through storytelling in the digital age. *Frontiers in Psychology*, 14, 1104121. <https://doi.org/10.3389/fpsyg.2023.1104121>

44. The Role of Public Libraries in Preserving and Promoting Accessibility to Indigenous Knowledge and Culture

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Abstract

This study is premised on the unarguable relevance of public libraries. Public Libraries serve as the nucleus of and for development and are crucial in preserving and promoting accessibility to indigenous knowledge and cultures. Public libraries are meant to generate, process, store, and disseminate information for members of society to make use of. Public libraries are solely responsible for preserving the indigenous knowledge and culture of a given society, and they are accessible for the members of the community to use. They are essential considering the roles they play in proposing, acquiring, preserving, and disseminating resources and services to users. Resources and services are recognised as crucial factors because they have a significant impact on how individuals decide to access knowledge and information for their survival. A significant difference between the developed world and Third World economies is based on the availability, accessibility and utilisation of resources and services. A good number of developmental projects that have failed can be traced to the number of resources and services available to achieve the objectives. The specific objectives of this study are to determine the role of libraries in preserving indigenous knowledge and culture, explore the role of public libraries in promoting indigenous knowledge and culture, and examine how libraries create access to indigenous knowledge and culture. Since the purpose of this study is not to test hypotheses or verify theory but rather to explore the role of public libraries in preserving and promoting accessibility to indigenous knowledge and culture, a quantitative approach is appropriate for achieving such goals.

Keywords: *Public libraries, preservation, accessibility, indigenous knowledge, culture*

1 Introduction

The cultural practices and way of life of indigenous communities worldwide are also known as indigenous knowledge and culture. This knowledge and culture have been transmitted for generations amongst the indigenous communities, mostly orally, and is a reflection of their history and identity. They are concerned primarily with those activities that are intimately connected with the daily livelihoods of people rather than with abstract ideas and philosophies. They are confined to local populations that possess highly detailed and rich complex information about agriculture, agro-forestry, pest management, soil fertilisation, multiple cropping patterns, health care, and food preparation, amongst others (McGregor, 2004). Local knowledge also called indigenous knowledge, is often viewed as the latest and the best strategy in the old fight against hunger, poverty and underdevelopment. Indigenous knowledge has permitted its holders to exist in “harmony” with nature, using it sustainably; it is seen as especially pivotal in discussions of sustainable resource use (Camble & Aliyu, 2008).

The knowledge and skills are derived from man's daily interactions with the environment, observations and experiments. They powerfully shape and model the decisions made by people regarding the exploitation of resources. The knowledge, skills and practices relating to natural resources are passed down to generations through the cultural learning process. It is the outcome of all these among different groups and the environment that is termed indigenous, local, traditional or people's knowledge (Abdulmumin et al., 2012). In simple terms, such knowledge has been orally passed for generations from person to person. Some forms of indigenous knowledge are expressed through stories, legends, folklore, rituals, songs, and even laws. Another form of indigenous knowledge refers to knowledge and values acquired through experience, observation, from the land, or spiritual teachings and handed down from one generation to another.

These sets of understandings, interpretations and meanings are part of a cultural complex that encompasses language, naming and classification systems and practices for using resources, ritual, spirituality and general worldview. It provides the basis for local-level decision-making on many fundamental aspects of day-to-day life. According to Battiste (2004), Indigenous knowledge and culture embody a web of relationships within a specific ecological context; contain linguistic categories, rules, and relationships unique to each knowledge system; have localised content and meaning, which established customs with respect to acquiring and sharing of knowledge and culture which implies responsibilities for possessing various kinds of knowledge (Kabita et al., 2021). Indigenous knowledge and culture developed over centuries; therefore, it represents all the skills, activities and innovations of people and embodies the collective wisdom and resourcefulness of a community Nakata et al. (2005). However, the preservation and dissemination of indigenous knowledge and culture are essential for posterity and accessibility of documented knowledge for decision-making as well as in developmental growth, which is used and shared from generation to generation.

This study is solely aimed at achieving several objectives, including examining the concept and function of public libraries. It will also determine the role of public libraries in preserving Indigenous knowledge and culture, explore the role of public libraries in promoting accessibility to Indigenous knowledge and culture, and finally identify the challenges associated with public libraries in preserving and promoting accessibility to Indigenous knowledge and culture.

2 Methodology

This study employed a quantitative approach through the content analysis method as well as a literature-based information search. Through these, the researcher was able to explore the role of public libraries in preserving and promoting accessibility to Indigenous Knowledge and Culture in tandem with the purpose of this study: not to test a hypothesis or verify any theory but rather to explore the role public libraries play in the process of Preserving and Promoting Accessibility to Indigenous Knowledge and Culture. A qualitative approach is appropriate for achieving such goals.

3 The concept of indigenous knowledge and culture

Indigenous knowledge refers to innovations and practices of local communities around the world, which bring about development, security, and improved standard of living passed on from generation to generation and adapted into their daily lives (Camble & Aliyu, 2008). Indigenous knowledge is more of a practical concept born out of the ideas of people of

a particular society. Examples of such traditional knowledge and practices include health practices and remedies, handcraft, designs and artworks, and traditional agricultural methods. Indigenous knowledge can either be tangible or intangible. Ndlovu (2015) asserts that intangible knowledge can also be called living heritage or living culture. Indigenous knowledge and culture are collectively owned, not by a single individual.

On the other hand, culture can be defined as the total values, beliefs, practices, habits, and norms of a particular group of people inherited, learnt and acquired, which are passed down from generation to generation. The distinctive culture of a people is stored in individuals' minds and passed on from generation to generation. Examples of cultural heritage of a community include songs, festivals, rituals, and traditional dances peculiar to a particular community, as well as norms, customs, beliefs, cultural values, community laws, and local language.

Indigenous knowledge and culture are of two types, namely explicit and tacit indigenous knowledge. Explicit indigenous knowledge consists of facts, rules, relationships and politics. The knowledge can be faithfully codified in paper or electronic forms and shared without the need for discussion. Tacit indigenous knowledge is a traditional knowledge and culture that is very difficult to codify, as it is not formally acquired, stored, and transmitted, and it can only be expressed orally.

A society is unique and different from other communities because of its unique culture and indigenous knowledge, which the people of the community abide by and identify themselves by. Culture is the way of life of a group of people living together having a typical pattern and history with similar ways of thinking, feeling and acting, which is passed on from generation to generation through stories, songs, proverbs and folklore, which form the basis for world diversity. Culture can be imbibed through immersion and teaching. The United Nations declaration draft on the rights of indigenous people states that they should have the right to make use of their language, tradition, philosophy and unique history and pass them on to generations to come and also keep their personal names and names of their communities. Stevens (2008) states that indigenous knowledge has become neglected because of the more appealing and well-documented modern and Western knowledge, which is more and easily accessible to users. Stevens (2008) further mentions that librarians are also more focused on Western and modern information and knowledge at the expense of traditional/indigenous knowledge and values.

4 The concept of public libraries

The public library is a local gateway to information and knowledge, and it provides a primary consideration for grassroots lifelong learning, independent decision-making, and cultural development of an individual and social group. They provide a collection of books and media as well as facilities to access information related to the indigenous culture of the society. Therefore, it is made to provide information to the general public without any discrimination based on wealth, status, rank or any appellation. Twinoburyo (2019) states that the primary objective and purpose of public libraries is to provide and cater for the information and resources needed in various formats to the public without any bias.

The public library was established to provide materials that communicate experiences and ideas from one person to another and make them quickly and freely available to all people. The public library is a local centre of information that makes all kinds of knowledge and information readily available to its users. It is established, supported, and funded by the community, either through local, regional, or national government or some other form

of community organisation. It provides access to knowledge, information and works of imagination through a range of resources and services. It is equally available to all members of the community regardless of race, nationality, age, gender, religion, language, disability, employment status and educational attainment (Iwhiwhu & Okorodudu, n.d.)

The public library is a local centre of information and knowledge that makes it readily available to community members. It is established, supported, and funded by the community either through local, regional, and national government or some other form of community organisation. It is also a welfare centre which produces valuable support and services to the community by fostering education, promoting culture, providing scope for the healthy creation and disseminating information to all sections of the community without any difference (Nwofor & Ilorah, 2015). Therefore, public libraries have the unique responsibility of collecting local information and knowledge and making such available and very much accessible to all the community members. That is why the public library is a library for the people, by the people and of the people.

Therefore, public library librarians should see it as imperative to add indigenous knowledge, cultural resources, and services to their collections. This can be possible when they interact with an indigenous community in which the public library is situated. This will give them an opportunity to collect, process, store and promote the use of them. They are regarded as libraries for all, regardless of status, rank or family background, as they process, collect, preserve and disseminate all forms of knowledge and culture.

5 Role of public libraries in the preservation of indigenous knowledge and culture

The focal objective of all information management activities is to promote and provide access to the collections. Though there is so much indigenous knowledge in different indigenous communities of the developing world, the availability of such knowledge does not mean its accessibility or use. Libraries can promote access to indigenous knowledge by creating an environment which permits face-to-face fora and network formation to discuss and debate issues that might be useful to members of the communities. For example, libraries can organise talk shows involving traditional rulers, elderly people and professionals to gather and record information on various local vocations from different subject areas ranging from agriculture, ecosystem, medical care, and conflict resolution (Okore et al., 2009).

One of the fundamental roles of the library is the preservation of information and knowledge for the library user. Traditionally, libraries and archives are the custodians of knowledge and cultural heritage; they hold drawings, paintings and other documentary artefacts, including manuscripts, records, books, and audiovisual items (Sarah, 2015). Libraries can work in partnership with schools' libraries to create indigenous knowledge collections, which can be repackaged and made accessible. Stevens (2008) believes that librarians and information professionals should partner with indigenous communities. Nakata and Langton (2005) suggest that libraries and archives must look at the broad issues involved in the preservation of indigenous knowledge and culture. They assert that libraries must consider them not simply as part of a historical archive but as a contemporary body of relevant knowledge.

There is, therefore, the need to provide ICTs such as computers, the Internet, digital cameras, camcorders, and so on to allow libraries to make indigenous knowledge accessible (Okore et al., 2009). Managing indigenous knowledge in libraries requires collection development associated

policies and strategies. The libraries should be proficient with new developmental challenges. They should be well equipped with newly generated technologies to counter all sorts of competition. There should be an adequate and well-trained workforce in the libraries' management and preservation activities. Each library should be in the position to employ an expert who understands the required information about the physical and chemical nature of the materials in their library holdings. Local practitioners and stakeholders of local indigenous knowledge and culture should form a vital part of the decision-making process (Okore et al., 2009).

Public libraries also play an integral role in processing, storing, and disseminating knowledge, ideas, facts, and innovations that are useful for the development of society and cultures. As the central mission of any library is to collect, process, organise, store, and provide access to information and knowledge, public libraries are not left behind.

The increasing universal acknowledgement of Indigenous knowledge as different, genuine, valuable and vulnerable systems of knowledge raises a range of issues that pose challenges for the library and information services (LIS) sector (Nakata et al., 2005). Libraries need to be proactive and encourage community publishing so that communities are able to document their experiences and market as well as share with others. Programmes to repackage traditional knowledge will also help to integrate Western and indigenous knowledge to generate knowledge to tackle the environmental challenges with regard to land management. The primary objective of any library is the preservation of information and knowledge for its users. Indigenous knowledge is an emerging field in the library and information profession and has gained wider acceptance in the present global society. This has hitherto generated much concern about the need for its preservation for posterity, access, and use.

Public Libraries and archives are custodians of knowledge and cultural heritage; they hold drawings, paintings and other documentary artefacts, including manuscripts, records, books, and audiovisual items. Nakata et al. (2005) viewed archives, libraries, and museums as treasuries of Indigenous experience, knowledge and history. Nakata and Langton (2005) maintain that the Library and Information profession has a great deal to learn if they are to effectively meet the information needs of indigenous people and appropriately manage indigenous knowledge. Libraries can help collect, preserve, and disseminate indigenous knowledge and publicise the value, contribution, and importance of indigenous knowledge to both non-indigenous and indigenous people.

Furthermore, it is emphasised that the need for libraries to collect, preserve, promote and give access to indigenous knowledge, cultural activities and their importance to both non-indigenous and indigenous people, involving elders and communities in the production of indigenous knowledge and encouraging the recognition of intellectual property laws to ensure protection and uses.

6 The role of libraries in promoting accessibility to indigenous knowledge and culture

Libraries have an enormous role in promoting indigenous knowledge and culture. They are regarded as reservoir houses of knowledge, where recorded knowledge is collected, organised for retrieval, preserved and made available for use. One of the uses of recorded knowledge is the production of new knowledge. Librarians take this in their stride, but the fact remains that their focus is on existing documents. However, the term document is used to refer to the full range of information carriers, including audiovisual and electronic material as well

as printed books, journals and newspapers (Lor & Britz, 2005). However, this still excludes the greater proportion of indigenous knowledge, which is not recorded but resides in the minds of the knowledge holders and is transferred by word of mouth. On the contrary, many academics and development professionals have yet to appreciate the value of indigenous knowledge as a valid mode of learning, research, and application for sustainable development and socio-economic transformation of the rural community and society at large. This is not surprising because, until recently, this mode of learning has yet to be recognised in the academic curriculum of universities, research institutions, and private firms, which rely heavily on formal scientific methods (Bisong & Andrew-Essien, 2010).

Indigenous knowledge has two fundamentally different meanings in today's world. One is the utilitarian understanding of modern culture. This sees indigenous knowledge components as useful for incorporation in the mainstream of development in pursuit of efficiency, sustainability, and similar goals. The other is the sacred understanding of indigenous peoples whose holistic perspective is only dimly perceived by modern culture. Local community members know what is relevant to the management and conservation of natural resources and the environment. Such knowledge includes biological and ecological knowledge of phenology or plant distribution that can be used to identify prime areas for the collection of planting materials to restore degraded areas or for domestication (Tabuti et al., 2003).

Local communities are known to promote the natural regeneration of plant species by sparing or protecting naturally regenerating plant species around the homestead (Tabuti et al., 2003). Indigenous knowledge as a whole is based mainly on locally available resources such as land, water, local knowledge, culture and the way people organise themselves. Indigenous development strives to optimise the dynamics of these resources, thus enhancing cultural diversity, human welfare and ecological stability. The importance of local/indigenous knowledge and its potential in the sustainable use of natural resources has been emphasised repeatedly in the international discourse on sustainable development (Akesbejo-Samsons, 2009).

Despite the immense role that indigenous knowledge can play in socio-economic development, many people outside the immediate community or sometimes even within the community are unaware of this potential and remain sceptical. Thus, there is also a need to raise awareness, through dissemination among the community, of the most appropriate knowledge and technologies and the benefits of adopting them. Indigenous knowledge can be fundamentally experientially based, non-universal, holistic and relational knowledge of resistance (George & Dei, 2000). Similarly, in the institutions of higher learning, more can and should be done to advance the consideration of, respect for, and inclusion of indigenous knowledge and culture within the academic paradigm. The generative curriculum is one approach that attempts to do so. However, it is hampered by the legacies of colonial and rationalist modes of thinking that continue to dominate and promote exclusive approaches to knowledge generation. This is a challenging but necessary task if we are to take seriously the notion of inclusive, participatory and emancipatory knowledge generation (Schafer et al., 2004). There is an urgent need to preserve and promote this vital resource. To preserve such knowledge, a new path must be charted, and a paradigm shift is imperative. All stakeholders, as well as the local people, must be involved in these activities in order to preserve this most crucial knowledge effectively. Based on this, public libraries have to face the challenges of processing, acquiring, preserving and promoting accessibility to the indigenous knowledge and culture, which will be used by the indigenous people from one generation to another.

7 The challenges associated with public librarians in preserving and promoting accessibility to indigenous knowledge and culture

The major challenge associated with preserving indigenous knowledge and culture in any type of library is inadequate funding. Libraries are generally not appropriately funded because the government gives them a low priority, and they are not regarded as money-generating organisations compared to others.

Okorodudu et al. (2010), however, states the challenges that hinder the performance of libraries in the preservation of indigenous knowledge as follows:

- Lack of adequate finance. Finance is a significant resource for organisational effectiveness, and without it, nothing meaningful will be achieved. It should be borne in mind right from the onset that computerisation of library operations like acquisition and circulation control is an expensive venture and a time-consuming process. The problem of funding is the major constraint of ICT application in libraries. According to them, the problem of funding is more than just acquiring the hardware and software; updating and maintenance are crucial in order to sustain it.
- There is a lack of local communication experts and internal computer communication. To test and install gadgets in a computer-based system, skilled and experienced personnel are needed on a permanent basis who can convert the existing manual bibliographic data into machine-readable form.
- Installation and maintenance involve foreign currency limitations, bad telephone lines, and telecommunication officers' reluctance to license moderns. Moreover, networks have inherent problems that sometimes affect individual and organisational decisions.

Another problem is the issue of illiteracy. Most of the people in local communities are not educated, and this is always a problem because they do not get to document and record inventions, discoveries, and ways of doing things. Many local communities are always reluctant to reveal information about the knowledge practices and ideas such as medical practices, agricultural practices and so on. They believe revealing such information means revealing secrets of how things they hold dearly are done. Such people prefer to teach their children orally so as to continue whatever it is after they are gone.

Furthermore, there is the problem of a lack of awareness of the need for indigenous information. Most people do not get to appreciate the value of indigenous knowledge and culture. They prefer the Western ways of doing things, from the Western ways of dressing to Western medicine and other foreign-made foods and products. Also, most people do not believe that indigenous knowledge can be a source of livelihood, provide sustainable development to communities and bring about national development for the nation at large.

The distance between libraries and communities where information about indigenous knowledge is needed is quite far. Most libraries are not located in remote areas of the nation, which creates a problem in accessing information and knowledge organised in the library. The mode of transportation in most of these local communities is mostly on foot, which inhibits the accessibility and availability of vital information and knowledge.

Another challenge in preserving indigenous knowledge is the incompetence of the staff. According to Isaak (2009), it is essential to train staff so as to equip them to meet the information needs of individuals and the community at large. The staff of libraries and information centres should be trained on how to document, organise, preserve and disseminate

indigenous knowledge efficiently. Also, the majority of indigenous, cultural and historical materials are old and can be damaged due to their life span. The indigenous materials are not adequately preserved, and as such, they are prone to deterioration, consequently leading to the loss of vital information resources and services. Most of the materials are historical and cultural, with limited or singular copies of such materials available for accessibility.

8 Implication of preserving and promoting accessibility to indigenous knowledge and culture

Indigenous knowledge is embedded in a dynamic system in which spirituality, kinship, local politics and other factors are tied together and influence one another. Spiritual beliefs about nature may influence how resources are managed and how willing people are to adopt new resource management strategies. The primary dimension of difference and uniqueness, according to Warren (Warren, 1991), seems to lie in an organic relationship between the local community and its knowledge. An understanding of indigenous knowledge and customs can help the development planner establish a more flexible position to suggest project alternatives or innovative mitigated measures in order to avoid unintended damage to the ecosystem or culture. In the same vein, Anyira et al. (2010) argue that there is a growing appreciation of the value of indigenous knowledge, and it has become valuable not only to those who depend on it in their daily lives but to modern industry and agriculture as well. Nakata and Langton (2005) reported that indigenous knowledge promotes healthy agricultural practices and the development of plant and animal species.

Also, it is little wonder that Camble and Aliyu (2008) stated that indigenous knowledge has played a vital role in agriculture, animal and human health, natural resources management, education, and other activities. Indigenous knowledge produces the basis for local-level decision-making about fundamental aspects of life, including hunting, fishing, gathering, agriculture and husbandry, food production, water resource management, and adaptation to environmental or social change. Nakata and Langton (2005) observe that the library and information profession has much learning to do to meet the information needs of indigenous people and appropriately manage indigenous knowledge in library and information centres. Techniques for preserving indigenous knowledge include digitisation, tape recording, microfilming, and the purchase of indigenous materials.

Okore et al. (2009) found preservation methods to include documentation, digitisation, video recording, and providing Internet access to resources. Preserving these resources is therefore necessary; otherwise, indigenous resources and activities will become extinct and unavailable in the future if such resources are adequately collected and digitised.

9 Conclusion

The study identified ways of making indigenous knowledge accessible, including television/radio broadcasting, exhibits and displays, film, mobile library services, lending of relevant indigenous materials, and online access. Public libraries can use the Internet to provide access to a wide range of indigenous knowledge and cultural activities; libraries should collaborate with indigenous communities to acquire, preserve, promote, store, and make indigenous knowledge accessible.

Libraries and librarians should prioritise the management of indigenous knowledge management equipment, and tools should be provided in libraries. Libraries should

collaborate with indigenous people to acquire, store, and make indigenous knowledge accessible. Efforts should be made to collect and package indigenous knowledge and make it available on the Internet. Efforts should also be made to persuade traditional institutions and resource persons in indigenous communities to share indigenous knowledge with libraries for proper preservation and accessibility. Government and corporate organisations should collaborate with libraries by providing funds for the preservation and accessibility of indigenous knowledge. Copyright issues should be properly sorted out before embarking on any collaboration agreement.

Indigenous knowledge and culture help indigenous communities produce food, acquire education and vocational skills, and conserve their natural environments, among many other things. However, the management of indigenous knowledge in many Nigerian libraries is ineffective, and indigenous knowledge is not taken seriously in some libraries.

10 Recommendations

Libraries should be detailed and do expansive work in retrieving indigenous resources so as to provide exactly what individuals and communities will need for personnel and national development. Also, librarians should be trained and retrained in acquiring, processing, preserving and disseminating information for the benefit of users.

Personnel developmental programs should also be organised, and librarians should collaborate with ethnographers, botanists, zoologists, oral historians, anthropologists, and other related professionals to develop collection development policies that will create a rich collection, ensure proper documentation, and efficiently disseminate information.

Public libraries should be built in local communities to ensure information accessibility. Libraries can also share knowledge and information in the local communities. The government should carefully investigate indigenous knowledge and adequately address issues of documentation, preservation, and accessibility.

Public libraries should be well funded and supported by the government and other well-wishers because indigenous knowledge and cultures empower people and improve the economic status and standard of living of the nation and the community in particular.

Librarians should develop library acquisition policies that promote indigenous knowledge. This knowledge can be acquired and preserved in the Africana section of the library in book, journal, pictorial, and digital form for the use of all information users.

References

- Abdulmumin, I., Bashorun, M.T. & Omopupa, K.T. (2012). Libraries and Preservation of Indigenous Knowledge in Developing Countries: The Nigeria Experience. Library and Information Science Book. IGI Global Disseminator of Knowledge. Accessed on November 25 2014
- Akesbejo-Samsons, Y. (2009). Promoting local and indigenous knowledge in enhancing adaptive capacities under extreme events in Nigeria. *IOP Conference Series: Earth and Environmental Science*, 6(41), 412014. <https://doi.org/10.1088/1755-1307/6/1/412014>
- Anyira, I., Onoriode, O., & Nwabueze, A. (2010). The Role of Libraries in the Preservation and Accessibility of Indigenous Knowledge in the Niger Delta Region of Nigeria Indigenous Knowledge in the Niger Delta Region of Nigeria. *Library Philosophy and Practice*, 387, 1–9.

- Battiste, M. (2004). Animating sites of postcolonial education: Indigenous knowledge and the humanities. *Plenary Address, May 29, 2004*.
- Bisong, F., & Andrew-Essien, E. (2010). Indigenous knowledge systems for promoting Community conservation education in a Nigerian protected area. *International Journal of Biology*
- Camble, E., & Aliyu, Y. (2008). Indigenous Knowledge in Nigeria: A Case Study of Some Community in Bama Local Government Area of Borno State, Nigeria. Paper presented at the 46th annual National Conference of the Nigerian Library Association in Kaduna, Kaduna State, from 1-6 June 2008.
- George J. & Dei, S. (2000). Rethinking the role of Indigenous knowledge in the academy, *International Journal of Inclusive Education*, 4:2, 111-132, DOI: 10.1080/136031100284849
- Isaak, A. (2009). Public libraries in Africa: A report and annotated bibliography. *Oxford. International network for the availability of scientific publications (INASP)*. Retrieved from http://www.inasp.info/uploads/filer_public/2013/03/08/public_libraries_in_africa.pdf 33.pdf
- Iwhiwhu, B. E., & Okorodudu, P. O. (n.d.). *Public Library Information Resources, Facilities, and Services: User Satisfaction with the Edo State Central Library, Benin City, Nigeria*.
- Kabita, E., Kwanya, T., & Mbenge-Ndiku, T. (2021). Knowledge Sharing Strategies between Coffee Farmers and Coffee Research Institute: A Case Study of Gitwe Farmers' Co-Operative Society. *International Journal of Management, Knowledge and Learning*, 10.
- Lor, P. J., & Britz, J. (2005). Knowledge production from an African perspective: international information flows and intellectual property. *The International Information & Library Review*, 37, 61–76.
- McGregor, D. (2004). Coming full circle: Indigenous knowledge, environment, and our future. *American Indian Quarterly*, 28(3/4), 385–410.
- Nakata, M., & Langton, M. (2005). Australian indigenous knowledge and libraries. Available: http://www.alia.org.au/publishing/aarl/AARL_vol36_no2_2005 (reprint).pdf
- Nakata, M., Byrne, A., Nakata, V., & Gardiner, G. (2005). Indigenous Knowledge, the Library and Information Service Sector, and Protocols. *Australian Academic & Research Libraries*, 36(2), 7–21. <https://doi.org/10.1080/00048623.2005.10721244>
- Ndlovu, N. (2015). Legislation as an instrument in South African heritage management: Is it effective? *Conservation and Management of Archaeological Sites*, 13(1), 31–57.
- Nwofor, F. A., & Ilorah, H. C. (2015). Sustaining Nigeria's Democracy: Public Libraries as an Indispensable Instrument in Anambra State. *Library Philosophy and Practice (e-journal)*. Retrieved from <http://digitalcommons.unl.edu/libphilprac/1222>
- Okore, A. M. (2009). Promoting access to indigenous knowledge in digitised age: Libraries as facilitators. *Libraries Create Future: A paper presented at the Nigerian Libraries Association 47th Annual General Conference 2009, Ibadan, Oyo State, from 26-31 July 2009*.
- Okorodudu, D. O., Jumean, M. F., Montori, V. M., Romero-Corral, A., Somers, V. K., Erwin, P. J., & Lopez-Jimenez, F. (2010). Diagnostic performance of body mass index to identify obesity as defined by body adiposity: a systematic review and meta-analysis. *International journal of obesity*, 34(5), 791-799.
- Sarah, E. A. (2015). *The role of libraries in the preservation of indigenous knowledge in primary healthcare in Nigeria*.
- Schäfer, M. (2004). Lonely in the crowd: Recollections of bullying. *British Journal of Developmental Psychology*.
- Stevens, A. (2008). A different way of knowing: Tools and strategies for managing indigenous knowledge. *Libri* 58: p. 25–33 Available: http://www.librisjournal.org/pdf2008_pp25-33.pdf. Accessed on April 25, 2023

- Warren, D. M. (1991). Using IK for agricultural development. *World Bank Discussion Papers 127*. Washington DC: World Bank.
- Tabuti, J. R., Lye, K. A., & Dhillon, S. S. (2003). Traditional herbal drugs of Bulamogi, Uganda: plants, use and administration. *Journal of Ethnopharmacology*, 88(1), 19–44. [https://doi.org/10.1016/s0378-8741\(03\)00161-2](https://doi.org/10.1016/s0378-8741(03)00161-2)
- Twinoburyo, D. K. (2019). Preservation of Engaged Indigenous Knowledge: The Role of Community Libraries in Kampala, available at <http://ma.caudillweb.com/documents/bridging/papers/adedipe.nimbe.pdf> accessed on April 25, 2023

45. Use of Information Communication Technologies in managing and preservation of Bukusu indigenous knowledge

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Abstract

Information Communication Technology has a significant role in knowledge management initiatives. It provides channels for faster and more efficient knowledge acquisition, storage, sharing, dissemination, and reuse. Indigenous knowledge is the local knowledge held in people's minds or memories unique to a given society or culture. Like any other knowledge, IK must be managed and preserved to enable others to use the same knowledge. IK is in danger of being lost if the holder dies or loses memory if not documented and preserved. Management of IK is vital in communities because it rekindles endangered cultures and improves economic and social independence. This study investigated the extent to which ICTs have been used to manage and preserve the indigenous knowledge of the Bukusu community, examined the ICT tools used in managing and preserving indigenous knowledge, identified challenges hindering the use of ICTs in managing and preserving IK and proposed strategies for improvement. The author collected primary and secondary data using interviews with key informants and content analysis of relevant literature. The results indicate that Information Communication Technology (ICT) has a positive effect on IK management and preservation; however, some challenges need to be addressed, which include inadequate infrastructure, inadequate funding and lack of pertinent skills. Other communities may use the study's findings to manage and preserve their indigenous knowledge to embrace cultural heritage.

Keywords: *ICTs, management, preservation, indigenous knowledge, Bukusu*

1 Introduction

The emergence of information communication technology has made knowledge easier to manage and preserve. It provides channels for faster and more efficient knowledge acquisition, storage, sharing, dissemination, and reuse. Indigenous knowledge (IK) is the local knowledge held in people's minds or memories unique to a given society or culture. Warren (1991) defines IK as the unique local knowledge of a given society. Flavier et al. (1995) add that it is an information base for a society that facilitates communication and decision-making. According to Njiraine (2005), IK encompasses the skills, experiences and insights of people applied to maintain or improve their livelihoods. Like any other knowledge, IK needs to be managed and preserved.

Dlamini (2017) affirms that indigenous knowledge, which is preserved in people's memories, needs to be managed because it is in danger of getting lost if measures are not taken to preserve it or if the holder passes on. Indigenous knowledge, passed from one generation to another by word of mouth, is at risk of being lost unless it is formally documented and preserved. A proverb says, "If a knowledgeable person dies, he dies with his knowledge". According to Mosoti and Masheka (2010), when an older man dies in Africa, the entire library is burnt. In traditional African communities, older people are believed to be more knowledgeable than

young ones. In other words, the older you are, the more knowledgeable you are. Based on the study by Oroma and Ali (2018), IK is passed on from generation to generation by elderly, knowledgeable people. Therefore, indigenous knowledge risks getting lost in case knowledge holders die. Consequently, IK needs to be managed and preserved for future generations.

Dyson et al. (2007) define ICTs as computers, software networks, satellites and related systems that allow end users to access, analyse, create, exchange and use data, information and knowledge. Similarly, Jharotia (2014) adds that ICT includes telecommunication technologies such as telephones, satellites, and radio and digital technologies such as computers, information networks, and software. Myeza and Okaya (2016) argue that since IK is orally transmitted, the focus should be placed on technologies that promote oral interaction, such as audio-visual technologies and text-to-speech. Ilo (2012) noted that IK needs to be managed and preserved using ICTs. In addition, ICT centres should be created to enhance indigenous Knowledge management and preservation.

2 Contextual setting

The study was conducted at Sang'alo Cultural Centre, located in Bungoma County in Western Kenya. Major communities in Bungoma include Bukusu, Tachoni, Iteso and Sabaot. Bukusus were small-scale farmers growing traditional crops such as millet, sorghum, and cassavas. They grow cash crops like maize, sugarcane, coffee and tobacco. They are known for their unusual male circumcision practices, Dini ya Msambwa, traditional healing, rain making, and midwifery, among many others. Ojamaa (2016) states that Bungoma has a rich and diverse culture and traditions. Sang'alo Cultural Centre is one of the areas of interest in Bungoma County because this is where indigenous knowledge about Bukusu culture is preserved.

3 Problem and purpose of the study

Management and preservation of Indigenous Knowledge is a paramount aspect in the management of sustainable development programmes. Although IK provides communities with local ways of decision-making and solving problems, there is an increased concern about how the same knowledge is getting lost. Due to scientific developments and globalisation, ICTs have become a significant platform for information capturing, storage and sharing. However, using ICTs to manage and preserve Indigenous Knowledge is yet to be embraced. The need to use ICTs in managing and preserving IK is substantial for embracing cultural heritage. This study aimed to examine the extent to which ICTs have been used in the management and preservation of Indigenous Knowledge at Sang'alo Cultural Centre. The research questions were: What are the types and sources of IK? To what extent is ICT used to preserve and manage Indigenous Knowledge? What ICT tools are currently used to manage and preserve IK? What Challenges are hindering the use of ICT in managing and preservation of IK?

4 Literature review

Indigenous knowledge is the knowledge that people develop in a given community and continues to develop. Every community has its way of doing things worldwide, and the Bukusu community is no exception. According to Sarkhel (2016), IK is locally bound, indigenous to a given area, culture and context, non-formal, orally transmitted and not documented, dynamic and adaptive and closely related to survival and subsistence for many people globally. Information systems revitalise endangered cultures and improve economic

independence and sustainability while increasing community-based involvement in planning and development (Oroma & Ali, 2018). Tharakan (2017) observes that IK covers areas of importance for society, spanning issues concerned with the quality of life from agriculture and water to health.

Similarly, Oroma and Ali (2018) pointed out that IK helps solve complex problems of health, agriculture and education as it includes knowledge about traditional tools and techniques for hunting, agriculture and food security, fishing, midwifery, education and health care. IK is essential; therefore, using ICT to manage and preserve it for future use enhances cross-cultural understanding, decision-making and development. Hunter (2005) pointed out that many people worldwide have realised the importance of preserving IK. As such, indigenous knowledge centres are being established globally, particularly in Africa, Asia, Latin America and Australia. Several indigenous Knowledge centres in Kenya have been set up; among them is the Sang'alo Cultural Centre in Bungoma County.

Technology has changed the way people conduct business, communicate and relate to each other. Oroma and Ali (2018) argue that using ICT to preserve IK is inevitable because ICTs have become a platform for all human activities, including transmission and reliable information access from anywhere at any time. Dlamini (2017) asserts that ICT tools have opened new avenues in Indigenous Knowledge management, which have the potential to play essential roles in society by making valuable information available to everyone who recognises and uses it. Lwoga (2011) found that IK bearers and innovators use multiple formats (print and ICTs) with traditional communication channels specific to a local context to disseminate knowledge.

According to Hunter (2005), the Indigenous Knowledge System comprises two major components: the XMEG tool and the search interface. XMEG tools enable users to describe digital objects, attach annotations to the objects and define access rights and traditional care constraints. On the other hand, search interfaces use standard web browser technologies to enable users to search, browse and retrieve objects from the collection.

UNESCO (2011) noted that many indigenous people lack access to the Internet and do not have the expertise to use ICTs to access global knowledge or create their content and resources. According to Lwoga (2011), the barriers that inhibit using ICTs to manage knowledge include the high cost of ICTs, lack of electricity, and lack of local and relevant content. Other challenges pointed out by UNESCO (2011) include a lack of basic infrastructure such as electricity, computer hardware and software, high cost of technology, lack of training and support, lack of ICT expertise and limited budget allocation of IT maintenance.

Studies by Oroma and Ali (2018), Ilo (2012) as well as Dlamini and Ocholla (2018) acknowledge the need to use ICTs to manage IK as it revitalises endangered cultures and opens new avenues in IK management; Dlamini and Ocholla (2018) researched the use of ICTs in management of IK in South African context. A study by Azubuike and Aji (2021) noted that different evolutionary projects have failed in most developing nations because IK has not been given much attention. Kimutai et al. (2014) conducted a study on using ICT to preserve the culture of the people of the North Rift region of Kenya. The study focussed more on ICT's role in preserving IK and adoption challenges. This kind of study has not been done extensively in the Kenyan context. The study addresses this question: To what extent are ICTs used, and what ICT tools are used to manage and preserve indigenous Knowledge in Kenya?

5 Theoretical framework

This study was informed by Nonaka and Takeuchi's (1995) SECI model of knowledge creation. The model explains how tacit and explicit knowledge is converted into organisational knowledge. This theory uses four modes of knowledge conversion: Socialisation, Externalisation, Combination and Internalisation. The study adopted this theory because, through socialisation, knowledge is shared, for example, by observation, imitation and practice or apprenticeship. Socialisation emanates from direct interactions and sharing of experiences with others. In the externalisation mode, tacit knowledge is converted into explicit knowledge, making it possible for it to be shared and used by others in the form of concepts, written documents, and images. Combinations include knowledge organisation and integration through the use of computerised communication networks. This mode is used to capture, combine, edit and disseminate the explicit knowledge among the members. Internalisation involves the individual receiving and applying knowledge through learning by doing.

Based on the fact that IK resides in people's minds, to be managed and preserved, it has to be converted from tacit to explicit for future use. The SECI model was applied to this study to help the author understand how IK is captured and converted into explicit form. This study borrows from the combination mode, where knowledge is captured, organised and integrated using computerised communication networks for easy retrieval, access and sharing with others through learning in internalisation mode.

6 Methodology

This paper used a qualitative research method. A case study research design was adopted. Purposive sampling was used to select the study area. The population for the study included all the staff at Sang'alo Cultural Centre. The study collected primary data from the staff at Sang'alo Cultural Centre and key informants from the Ministry of Culture in Bungoma County. Purposive sampling was used to select the key informants of the study. The researcher conducted telephone interviews with key informants and Sang'alo Cultural Centre staff. A total of eight respondents were interviewed. Qualitative data was collected from semi-structured interviews through open-ended questions and qualitative content analysis through literature review and documentary analysis.

7 Results and Discussions

This section presents the findings of the study based on the research objectives.

7.1 Type and sources of indigenous knowledge at Sang'alo Cultural Centre

First and foremost, the researcher sought to find out the type and sources of indigenous knowledge at Sang'alo Cultural Centre from key informants. The study revealed that the Bukusu community has rich traditional knowledge in various aspects of life, including human and livestock disease prevention and control, agriculture, storytelling, traditional healing, midwifery, circumcision rituals, and rain making. Stories, songs, traditional dances and ceremonies were the primary sources of IK at the cultural centre. Other learning resources included community events, exploring the local environment with the elders, artwork and blacksmithing.

Some captured responses include:

One of the sources of IK at our centre is the Bukusu circumcision rituals (ICTO 2).

We get indigenous knowledge from stories, traditional dances and ceremonies (ICTO 4).

IK comes from knowledgeable elders in traditional healing, rainmaking, midwifery and disease control. However, sometimes, it is tough for them to share their knowledge due to fear of stigmatisation and selfishness (DICT).

The study findings show several sources of IK at Sang'alo Cultural Centre. The author noted that it was difficult for knowledgeable persons to share their knowledge because of stigma and selfishness. Hence, there is a need to use ICTs to manage and preserve IK for easy retrieval and sharing whenever the need arises.

7.2 The extent to which ICTs have been used to preserve and manage Indigenous Knowledge

The study sought to find out if Sang'alo Cultural Centre used ICTs to manage and preserve IK. Findings showed that they used ICTs at a minimum level to capture indigenous knowledge. However, in managing and preserving Indigenous Knowledge, it was revealed that they did not use any ICTs. This is because the centre was still in its infancy, and plans were underway. It was discovered that indigenous knowledge is diminishing due to a lack of proper mechanisms to capture, manage and preserve it for future generations. The study noted that ICTs when properly used, can manage and preserve IK globally. Some of the verbatim responses were as follows:

We are not using any ICT tools to manage IK. Sometimes mobile phones are used to take photographs (ICTO 1)

Sang'alo Cultural Centre is still very young. Plans are still underway for using ICTs to capture, manage, and preserve IK. We have not yet put in place proper mechanisms for managing and preserving indigenous knowledge (DICT).

7.3 ICT tools for managing and preserving indigenous knowledge

Identifying ICT tools used for managing and preserving IK at Sang'alo Cultural Centre was crucial. The respondents stated that they were not using any ICTs to manage and preserve IK. The study found they were using some ICT tools for capturing purposes only. The findings align with those of Dlamini and Ocholla (2018), who found that IK owners are using some ICT tools for capturing or recording purposes. It was noted that, although ICTs were not used for managing and preserving IK, the respondents were aware of the tools that can be used. They believed that the Internet, Compact Discs and cell phones could be used to capture and store IK.

Additionally, social networking working sites, for example, Facebook, YouTube, TikTok, and Twitter, were found to be practical tools for managing and sharing IK. Other ICT tools identified for managing and preserving IK included Digital/Video cameras, computers and audio recorders, among others. Some respondents said:

Currently, we only use mobile phones to take pictures. However, if we can get video cameras and audio recorders, we will be good at capturing, managing, preserving and sharing Indigenous Knowledge (ICTO 1).

If we can have ICT tools for capturing and storage IK, we could share using social networking sites like Facebook, Twitter and even TikTok (ICTO 3)

The study noted that it was possible to manage and preserve knowledge using ICTs; however, selecting the tools and implementing the strategies was challenging. These findings are in line with those of Nonaka (1994), who found that it is possible to manage IK using Information Communication Technology, and Owiny et al. (2014), who also asserted that social media

technologies such as YouTube, Facebook, and Twitter could be used to create, preserve, store, and disseminate IK.

The findings of this study also concur with those of Ilo (2012), who also stated that digital and video cameras, mobile phones, tape recorders, and voice recorders are tools for capturing, storing, and disseminating indigenous knowledge. Some identified benefits of ICTs were promoting cost-effective dissemination of IK, easy accessibility of knowledge, simplified information sharing, improved learning efficiency and improved document storage for easy retrieval.

7.4 Challenges hindering the use of ICT in managing and preservation of IK

The researcher sought to identify barriers to using ICT in managing and preserving IK at Sang'alo Cultural Centre. Challenges identified include the high cost of ICTs, poor infrastructure, inadequate finances and insufficient ICT skills. The findings are in line with those of Kimutai et al. (2014), Ngcobo and Obono (2013), Ilo (2012) and Harris and Harris (2011), who noted that lack of infrastructure, high cost of technology, purchase, installation and maintenance and lack of ICT experts are the significant challenges hindering the use of ICT for management of Indigenous Knowledge. Other challenges were: lack of efforts to use ICT in management and preservation of IK, ignorance and high illiteracy levels of the knowledge holders, poor knowledge sharing culture, resistance to change, selfishness to share knowledge, shying away of knowledge holders due to stigma, lack of trust, lack of incentives for information holders to share it and lack of documentation which led to the loss of the same when one passes on.

Additionally, traditional structures, customs, and taboos hindered the capturing and sharing of IK through the use of ICTs, for example, holders of knowledge in indigenous medicine, blacksmithing, and circumcision rituals, among others. The study noted a need for all stakeholders' combined efforts to address the challenges, including the Bungoma County government, knowledge professionals, and knowledge holders.

8 Conclusions

The study confirms that ICT can be used to preserve and manage indigenous knowledge. It recognises the use of computers, digital and video cameras and social networking sites to capture and disseminate IK. The study did not establish the details about how ICTs are used to manage and preserve IK at Sang'alo Cultural Centre but noted that efforts were underway. Although the ICTs were not yet fully utilised, the respondents were well informed about how they can be used to capture, manage and preserve IK. The study also identified the challenges hindering the use of ICTs in the management and preservation of IK, which include Inadequate finances, lack of ICT infrastructure and insufficient ICT skills.

In conclusion, managing and preserving traditional knowledge using ICTs is paramount for both the conservation of cultural heritage and the possible use of indigenous knowledge in contemporary society.

9 Recommendations

The study recommends training on the management of indigenous knowledge, for example, the organisation of ICT literacy seminars and workshops, the establishment of ICT infrastructure for management and preservation of IK, and focus on ICT tools that promote

oral interactions for collection/capturing and preservation of IK, employing knowledge literate individuals, increased funding for management of IK and improved internet connectivity by the County government for easy accessibility and sharing of Indigenous knowledge.

References

- Azubuike, F. C., & Aji, T. C. (2021). Role of Information and Communication Technologies (ICTs) in repackaging Indigenous Knowledge: A 21st Century Perspective” (2021). *Library Philosophy and Practice* (e-journal). 6092. Available at: <https://digitalcommons.unl.edu/libphilprac/6092>. Accessed 10 December 2023.
- Dlamini, P., & Ocholla, D. N. (2018). Information and communication technology tools for managing indigenous knowledge in KwaZulu-Natal Province, South Africa. *African Journal of Library, Archives & Information Science*, 28(2), 137-153.
- Dlamini, P. N. (2017). Use of Information Communication tools to capture store and disseminate Indigenous Knowledge: A literature Review Handbook of Research on Theoretical Perspectives on Indigenous Knowledge Systems in Developing Countries. Available at: Doi:10.4018/978-1-5225-0833-5.ch010. Accessed 20 March 2020.
- Dlamini, P. N., & Ocholla, D. N. (2018). Information and Communication Technology Tools for Managing Indigenous Knowledge in KwaZulu-Natal Province, South Africa. *Africa Journal of Library Archives & Information Science*, 28, (2)137-153.
- Dyson, L. E., Hendricks, M., & Grant, S. (2007). Information technology and indigenous people. Available at: <https://www.researchgate.net/publication/292236058>. Doi:104018/9781-59904-2. Accessed 20 March 2020.
- Flavier, J. M., de Jesus, A., Navarro, C. S., & Warren, D. M. (1995). The regional program for the promotion of indigenous knowledge in Asia In: D.M. Warren, L.J. Slikerveer and D. Brokensha (Eds.) *The Cultural Dimension of development: Indigenous Knowledge Systems*. London, Intermediate Technology Publications. Pp479-487. Doi:10.3362/9781780444734.043.
- Harris, C. A., & Harris, R. W. (2011). Information and communication technologies for cultural transmission among indigenous people. *The Electronic Journal on Information Systems in Developing Countries*, 45(2), 1–19.
- Hunter, J. (2005). The role of information technologies in indigenous knowledge management. *Australian Academic & Research Libraries*, 36(2), 109–124.
- Ilo, P. I. (2012). Acquisition, Preservation and Accessibility of Indigenous Knowledge in Academic Libraries in Nigeria: The Place of ICT. Ikenga: *International Journal of Institute of African Studies*, 14(1), 468–487.
- Jharotia, A. K. (2014). The role of ICT in preserving traditional knowledge. Retrieved 13 March 2020 from <https://www.academia.edu/11384065>.
- Kimutai, M. S., Mzee, A. F., Kogeda, O. P., & Kimutai, K. V. (2014). Ethnocomputing: Using ICT to preserve the culture of the people of the North Rift Region of Kenya. *International Journal of Scientific Research in Knowledge*, 2(4) pp. 199-207. Retrieved March 12 2020 from <https://www.researchgate.net/publication/261222903> Doi: 10.12983/ijsrk-2014-p0199-207
- Lwoga, E. T. (2011). “Knowledge Management Approaches in Managing Agricultural Indigenous and Exogenous Knowledge in Tanzania.” *Journal of Documentation* 67(3): 407–430.
- Mosoti, Z., & Masheka, B. (2010). Knowledge management: the case for Kenya. *Journal of Language, Technology & Entrepreneurship in Africa*, 2(1), 107-133.
- Myeza, J., & Okaya, H. (2016). Interfacing ICT and Indigenous knowledge systems for sustainable

- Environmental Management in South Africa. *Journal of Social Sciences* 46(2). Available at: <https://doi.org/10.1080/09718923.2016.11893517>. Accessed 2 February 2020.
- Ngcobo, K. M., & Obono, S. D. E. (2013). Modelling ICT adoption factors for the preservation of indigenous knowledge. *International Journal of Computer, Control, Quantum and Information Engineering*, 7(1).
- Njiraine, D. M. (2005). Mapping and Auditing Indigenous Knowledge and its Management Environment: a comparative study of Kenya and South Africa. PhD Thesis. University of Zululand. Available at: https://www.academia.edu/1755070/Mapping_and_auditing_indigenous_knowledge_and_its_management_environment_a_comparative_study_of_Kenya. Accessed 21 March 2020.
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation?* New York: Oxford University Press.
- Nonaka, I. (1994). *A Dynamic Theory of Organizational Knowledge Creation*. *Organization Science*, pp. 5, 14–37. Available at: <https://study.sagepub.com/sites/default/files/>
- Ojamaa, B. (2016). The Star newspaper. Available at <https://www.thestar.co.ke/counties/western/2016-01-02-bungoma-celebratesdiversecultures>. Accessed 2 March 2020.
- Oroma, J. O., & Ali, G. (2018). Examining the use of information systems to preserve indigenous knowledge in Uganda: A case from Muni University: *International Journal of Modern Education Computer Science* 10(5) pp 36-43. Available at: <https://www.mecs-press.org/Doi:105815/ijmecs.2018.05.05>. Accessed 20 March 2020.
- Owiny, S. A., Mehta, K., & Maretzki, A. N. (2014). The Use of Social Media Technologies to Create, Preserve, and Disseminate Indigenous Knowledge and Skills to Communities in East Africa. *International Journal of Communication*, 8, 234–247.
- Sarkhel, J. K. (2016). Strategies of Indigenous Knowledge Management in Libraries “Qualitative and Quantitative Methods in Libraries QQML vol 5 pp 447-439.
- Tharakan, J. (2017). Indigenous Knowledge Systems for Appropriate Technology Development. Available Online at <https://dx.doi.org/10.5772/intechopen.69889> Accessed 14 March 2020
- UNESCO. (2011). ICTs and Indigenous people, UNESCO Institute for Information Technologies in Education, Policy Brief. Available at <https://www.iite.unesco.org> Accessed 12 March 2020.
- Warren, D. M. (1991). Using indigenous knowledge in agricultural development. World Bank Discussion Paper. Washington, DC: World Bank.

SECTION NINE:
INDIGENOUS
KNOWLEDGE AND
GENDER EQUALITY

46. Commercialising Indigenous Pottery Industry to Support Economic Empowerment among Indigenous Akamba Women

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Abstract

Commercialising is introducing products or services to the market for profit making. Pottery was an indigenous industry that supported pre-colonial societies' social, cultural, and economic activities. For some reasons, such as colonisation, pottery industries waned in most indigenous societies. The Akamba community, a subset of Bantu communities, practised pottery as one of their economic activities in the pre-colonial period. Today, the community has a significant number of women who engage in unpaid domestic labour and live in abject poverty. The study was conducted to identify the economic potential of the indigenous pottery industry and identify strategies to commercialise the industry and convert it into an economic hub for indigenous Akamba women. The study was a survey that used non-probability sampling techniques to select the sample. Questionnaires were used to gather data that was analysed descriptively with the help of the Statistical Package for the Social Sciences (SPSS). A regression analysis was conducted to test the study hypothesis. The findings of the study indicated that the pottery industry has economic potential in Ukambani, and thus, commercialising the industry would lead to the economic empowerment of the indigenous Akamba women. If the findings above are actualised, society will achieve SDG No. 5, which seeks to empower women economically and give them financial independence. This paper contributes to the literature because limited information exists on how to commercialise indigenous industries. The paper is relevant to policymaker's keen on implementing SDGs supporting financial empowerment for indigenous women.

Keywords: *Traditional pottery manufacturing, economic mobility, financial independence, native women*

1 Introduction

Commercialisation is releasing new products and services to the market to make a profit. The process involves product production, distribution, and marketing (Mazzarol et al., 2022). Small industries can commercialise their products through value addition and innovation to reach a wider audience. Indigenous pottery is a small industry in Kenya that can be commercialised to empower women economically.

According to Santacreu (2014), pottery manufactures clay products through moulding and hardening by heating. Various indigenous communities practised pottery for social, cultural, and economic purposes. It originated in Egypt around 4000 BC and in China around 3000 BC before spreading to other parts of the world (Smith, 2022).

In some parts of the United States, Native American potters advanced their pottery craft by making it an income-generating activity to support their families. The pottery industry was a small-scale enterprise that expanded in the matriarchal lineage for economic benefit. This

commercial activity gave women financial independence and the ability to control the market without intermediaries. The proceeds from the venture gave women a sense of economic pride and uplifted their status within the community (Vincentelli, 2000).

Craig (2021) in New York conducted a study that shed light on the role of pottery in prehistoric times. The study indicated that pottery was used for functional services such as food preservation to maximise returns from surplus food harvests. At every stage of the pottery-making process, such as clay extraction, fetching water, moulding, decoration, and firing, labour was needed, which created job opportunities for people. Labourers were remunerated for their services, increasing income per capita. This practice can be adopted by a segment of the population, especially those not involved in active employment but looking for alternative sources of income.

According to Maiti (2004), pottery products have a variety of uses in Indian society. Some of these uses include cooking, storing food and water, purifying water, brewing beer, and for decoration purposes. All these functions form an economic pattern in a social setting. Additional economic significance of pottery includes job creation, promotion of trade, and tourism. Pham Hong et al. (2021) similarly established that pottery work supports community-based tourism, enhancing economic sustainability among indigenous communities in Vietnam.

Pottery has an archaeological value that can be utilised for tourism purposes in a country, according to Ibeanu and Okechukwu (2017). These researchers further clarified that the resources needed for pottery in West Africa, which are clay, water, and fuel, are readily available in the local areas. This could mean that if society is willing to commercialise the pottery industry, it may not face the challenges of obtaining raw materials.

According to Wang and Marwick (2020), modern ceramics have replaced the traditional indigenous pottery technology. However, ceramic technology lacks originality or attachment to African cultures, so many indigenous women have yet to embrace it. Lack of appreciation for indigenous pottery has continued to deprive these societies of sources of economic income, leading to increased poverty among indigenous women in Kenya (Wang & Marwick, 2020). Otieno (2022b) also noted that pottery among the *Jonyuol Nyalo* women group in Kisumu County could be revitalised through value addition to the end products to make them economically and financially competitive for women.

The Kenya National Bureau of Statistics (KNBS, 2020) released a comprehensive 2020 poverty report that indicated that 1/3 of the Kenyan population lives in poverty, with adult villagers earning less than 3252 Kenyan shillings a month. According to Kabear (2015), poverty is prevalent across different strata of society, but it is more pronounced among rural dwellers and especially women.

Osborne (2015) noted that in the pre-colonial era, the Akamba communities practised hunting, gathering, and pottery as their main economic activities. Today, pottery activities have been abandoned, irrespective of their economic significance. This study sought to find out the economic potential of the indigenous Akamba pottery industry and identify strategies to commercialise it. The findings of this study will contribute to achieving SDG No. 5A, which seeks to empower women economically and give them financial independence.



Figure 1: The process of pottery making and the local resources required for the process

Source: *Chukwukajustice* (2017). CC-BY-SA-4.0

The following hypothesis guided the study:

H₀1: There is no relationship between commercialising the indigenous pottery industry and the economic empowerment of indigenous Akamba women.

2 Rationale of the study

In indigenous communities, the pottery industry primarily focuses on meeting society's social and cultural needs. The pottery industry, however, declined with the advent of plastic and aluminium imports, which are ideal substitutes for indigenous pottery products. This has resulted in declining rural industrialisation, employment opportunities, and financial independence among indigenous women. The pottery industry has the potential to generate income for indigenous Kamba women. Several studies have been conducted regarding pottery in indigenous societies. For instance, Otieno (2022a) highlighted the need to modernise pottery production to increase the demand for the end products. Otieno (2021) identified barriers to pottery techniques in rural communities and recommended several solutions that, if implemented, could potentially revive the pottery industry.

Despite numerous studies on the subject, there needs to be more information on how the traditional pottery industry can be commercialised to empower indigenous women financially. Commercialising pottery has the potential to generate profits, which can address poverty cases among indigenous Akamba women. This study seeks to address this gap and provide solutions for Kamba women to achieve financial empowerment. Commercialising the industry can reduce the number of women engaged in unpaid domestic work, thus achieving SDG No. 5 target A, which aims to empower women and give them opportunities to access economic resources and control over financial services. The government can utilise the study findings to design financial models that can support the commercialisation of the pottery industry. As a result, job opportunities will be created to minimise economic gender disparities and promote economic growth in the country.

3 Literature review

The study was guided by disruptive innovation theory. The theory was developed by Clayton Christensen in 1990 and posits that smaller companies, usually with fewer resources, can challenge established businesses by entering at the bottom of the market and continually moving up by offering more straightforward, more convenient, and less expensive alternatives to existing products. Pottery, a small industry, has the potential to commercialise and take up the small, ignored market segment that cannot afford machine-cut imports. Gradually, the industry can modify their products to meet the needs of their customers. Eventually, the industry will be able to attract the higher-income segment and gain control over the market.

Vasant (2019) conducted a study that focused on the post-independence traditional pottery-making industry in the rural parts of the Kolhapur District. The researcher noted that, after independence, the pottery industry started to decline because of numerous challenges, among them soil deficiency, less demand, and the decreasing social status of pottery work. The researcher acknowledged that pottery in the 21st century can be commercialised by adopting modern production technology and processing all raw materials. However, a lack of government support, a lack of innovative attitude from the potters, and a lack of cooperation led to a decline in pottery activities in the rural areas of Kolhapur. Industrialisation and globalisation introduced plastic, aluminium, and refrigeration products, which lowered the demand for pottery products. The factors above render the pottery industry irrelevant in the contemporary world. This study could have indicated the population segment affected by the pottery industry's collapse.

Pal (2021) conducted a study to identify the root causes of waning pottery activities in the Bangladesh pottery industry and establish ways of handling the identified problems. The study discovered that pottery was almost facing extinction, with only a few surviving cases of troubled industries. The problems identified included scarcity of product diversification, availability of machine-made plastic products, lack of research for development, lack of finance, lousy weather, and weak marketing of the product. Potters also discouraged newer generations from engaging in pottery, terming it an activity for lower-social status individuals who attract low-profit margins. The researcher recommended developing short- and long-term training programs for pottery production and improved marketing of the pottery industry. Declaring pottery-making villages as tourism sites would help to revive the industry.

Pottery among indigenous communities in Kenya also waned due to colonial influence (Kwanya, 2020; Muga, 2021). The researcher noted that the colonial regime neglected cottage industries in Tharaka-Nithi, irrespective of their potential to alleviate poverty in society. The study, which focused on the performance of the cottage industries in Tharaka-Nithi in 1907–1963, found that several industries, including beer brewing, herbal medicine, and pottery, existed before colonisation. The findings showed that colonialists implemented policies that banned local industries and turned Africans into raw material producers. The whites alienated African lands; thus, potters lacked ideal premises for establishing pottery industries and developing pottery products. The study also discovered that the influx of western-manufactured products overshadowed local pottery production, thus phasing them out of the local markets. The findings concurred with those of Vasant (2019), who stated that pottery waned because of the availability of aesthetically appealing imports that were ideal substitutes for traditional pottery products.

Otieno (2021) conducted a study on an analysis of pottery production for rehabilitating women in Kenyan prisons. The study was guided by several objectives, with one objective focusing on

barriers to pottery production. The findings indicated that the public needed to appreciate the aesthetic value of traditional pottery, which minimised the demand for the products. It was also discovered that pottery could not meet the specifications demanded by users and attracted minimal financial support compared to businesses that switched to a modern mode of production.

Kariuki (2022) wrote a book chapter that focused on harnessing traditional knowledge holders' institutions to realise SGDs in Kenya. The study focused on the Mbeere community and considered pottery to be indigenous knowledge. The researcher thought that indigenous pottery could be revitalised to achieve SDG number 16, which calls for reducing illicit financial flows and recovering stolen assets. According to the study, Mbeere women hawk final pottery products within the village or sell the rest at Ishara market. However, the greatest challenge is that traditional knowledge and innovation fail to meet the necessary intellectual property (IP) protection criteria. IP protection is a source of income for the creators and innovators of a product. Lack of IP protection discourages people from continually developing and innovating products to meet the market's changing demands. The author indicated that if pottery is subjected to IP protection, more people would innovate, develop magnificent commercial products, and get financial rewards through patents.

The existing literature examines why indigenous pottery waned and several ways of revitalising the industry. It has, however, insufficiently examined how traditional pottery can be commercialised and exploited to empower indigenous women economically. This study seeks to address the abovementioned gap by developing informed strategies for commercialising the indigenous pottery industry to empower women in the 21st century.



Figure 2: Finished pottery products

Source: (Fuseini, 2023). CC-BY-SA-4.0

4 Methodology

The study aimed to identify the potential of the indigenous Akamba pottery industry as a source of income for women and identify strategies to commercialise Akamba indigenous pottery. The study was a survey that was conducted in Machakos County. The county was selected because the characteristics of the population qualified for study. The study population consisted of women who were members of registered community-based organisations (CBOs). The researcher could not ascertain the exact population size, so a nonprobability sampling technique was used. Levy

and Lemeshow (2013) advise that researchers should use the nonprobability sampling technique if the population size is unknown. The researcher, therefore, used snowballing techniques to select the study sample. A sample size of 30 CBOs was selected, and one respondent who knew the research questions was purposely picked in each CBO to answer the study questions. A total of 30 respondents were therefore picked. Questionnaires were used to collect data because they effectively analyse qualitative data (Lavrakas, 2008).

The researcher administered research questions in cases where respondents could not complete the questionnaire independently. Respondents were informed that the data collected was for academic purposes only and that there were no financial rewards for participating in the study. The collected data was analysed with the help of the Statistical Package for Social Sciences (SPSS). Descriptive statistics were estimated for all quantitative variables and presented in tables. Inferential analysis was done using regression analysis, and R² was used to establish the relationship between the dependent and independent variables. Regression was preferred because of its ability to predict two or more independent variables (Oso & Onen, 2009).

5 Data Analysis and Discussion

Data was analysed using descriptive and inferential statistics, and findings were presented using tables. The discussion section interprets the findings of the study objectives.

5.1 Descriptive analysis of the economic potential of the indigenous pottery industry

The respondents were asked to rate economic potential on a Likert scale of 1-5, where one represents strongly agree and five strongly disagree. Table 5.1 below shows the computed means and standard deviations for the items measuring the economic potential of indigenous pottery industries in Ukambani

Table 5.1: Analysis of the Economic Potentials of the Pottery Industry.

Statement	N	Min	Max	Mean	Std. Deviation
Voluminous pottery product production	30	1	5	2.27	1.112
Availability of raw materials for pottery products	30	1	5	1.93	1.230
Probability of a high employee count	30	1	4	2.47	.776
High profit margins for pottery products	30	1	3	2.03	.718
High demand and sales for pottery products	30	1	4	1.53	.819
There is a significant market share for pottery products.	30	1	4	2.10	.845
Valid N (listwise)	30				

Source: (Survey Data, 2023)

Results in Table 5.1 above indicate that most respondents agreed that the pottery industry in Ukamabani has economic viability. Based on the mean values of the tested products, respondents agreed that product production, employee count, demand, and profit margins for pottery products are high. Respondents agreed to the availability of raw materials and significant market share for the pottery products.

These findings indicate that investment in the pottery industry in Ukambani can be a viable venture with the probability of making profits. The availability of raw materials and a market share can make the venture successful. This will, after that, create job opportunities

for women in the area. Based on disruptive innovation theory, the availability of principle requirements for economic investment makes it possible to commercialise this industry and empower women financially.

5.2 Descriptive analysis of strategies for commercialising the pottery industry

Table 5.2 below shows the computed means and standard deviations for the items measuring strategies for commercialising indigenous pottery industries in Ukambani. Responses were rated on a Likert scale of 1-5, where one represents strongly agree and five strongly disagree.

Table 5.2: Analysis of Strategies for Commercialising the Pottery Industry

Statement	N	Min	Max	Mean	Std. Deviation
Fixed capital formation increases sales of pottery products.	30	1	3	1.60	.770
Training in pottery skills increases production output.	30	1	3	1.90	.712
Product diversification and customisation increase market share.	30	1	3	2.07	.583
Professional marketing strategies increase sales of pottery products.	30	1	5	1.80	.847
Pricing pottery products affects demand and sales.	30	1	4	2.30	.794
Valid N (listwise)	30				

Source: (Survey Data, 2023)

From the table above, respondents strongly agreed that developing fixed capital, such as warehouses, godowns, and supply chain centres, could increase sales in the pottery industry. The majority of respondents strongly agreed that the use of professional strategies for marketing and training women on pottery skills will go a long way in supporting the commercialisation of the pottery industry. Respondents also agreed that if products were reasonably priced, they would increase pottery product sales. Diversification and customisation would increase the market share for pottery products. Commercialising products involves production, distribution, and marketing (Mazzarol et al., 2022). To commercialise pottery products, society needs to work on establishing fixed capital, vigorous marketing strategies, and continuous training for it to be in a position to increase market share, make a profit, and empower women financially.

5.3 Test of hypothesis

The study used regression analysis to establish the relationship between independent and dependent variables. The study hypothesis was that there is no relationship between the commercialisation of the pottery industry and the economic empowerment of indigenous Akamba women. The following results were obtained:

Table 5.3 Regression Analysis Model Summary on Commercialising Strategies

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.396a	.157	.127	.56268	.157	5.222	1	28	.030

a. Predictors: (Constant), commercialisation strategies

The findings revealed that the R² value was 0.157, meaning that the independent variables (commercialisation strategies) contribute to 15% of the variation of the dependent variable. The remaining 75% shows that economic empowerment in the pottery industry can be explained by factors other than commercialisation strategies.

Table 5.4: ANOVA Test Table

ANOVAa						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.653	1	1.653	5.222	.030b
	Residual	8.865	28	.317		
	Total	10.519	29			

a. Dependent Variable: Economic potential

b. Predictors: (Constant), commercialisation strategies

The analysis of variance shows that the significance value was 0.03, which is below the 0.05 threshold, and therefore, the overall model was significant. The results hold that commercialising the indigenous pottery industry will positively impact economic empowerment. As such, the null hypothesis was rejected, concluding that commercialising the indigenous pottery industry would lead to economic empowerment among indigenous Akamba women.

The study aimed to establish ways of commercialising the indigenous pottery industry to support the economic mobility of indigenous Akamba women. The findings revealed a statistically significant contribution of commercialisation strategies towards the economic growth of the pottery industry. These findings align with previous research by (Kariuki, 2022; Pal, 2021; Vasant, 2019), who indicated a potential for commercialising the indigenous pottery industry by adopting modern technology and improving the industry's marketing. However, the findings on commercialisation strategy for customising pottery products differed from the findings by Otieno (2021), who noted that local consumers do not appreciate indigenous pottery products.

It is important to note that the study was conducted within a specific region. Consequently, generalising and applying the findings to communities without a history of pottery-making in pre-colonial times might not yield the anticipated outcomes. Despite the limitation, the study contributed to the growing body of evidence supporting the revival of indigenous industries for economic mobility among indigenous women.

6 Conclusion

The study sought to identify commercialisation strategies for the indigenous pottery industry and its significance in supporting the economic empowerment of indigenous Akamba women. The study also assessed the economic potential of the indigenous pottery industry to empower Akamba women. Based on the findings, the indigenous pottery industry has economic potential that, if well invested, can create job opportunities and financial empowerment for indigenous women. With economic viability, the researcher identified that the commercialisation of the pottery industry could create an economic hub that would act as a source of income for indigenous Akamba women. However, based on the inferential analysis report, commercialisation strategies contribute approximately 15% towards economic empowerment. Thus, other studies can be carried out to ascertain other contributors that can strengthen the economic potential of the indigenous pottery industry. Therefore, the

government, non-governmental organisations, and other financiers can use the findings to empower women economically and achieve SDG No. 5, which seeks to empower women financially and reduce cases of unpaid domestic labour.

7 Recommendation

Based on the findings, the following recommendations are made:

- Implementing a policy for promoting the commercialisation of indigenous pottery. Policymakers may consider allocating financial resources to support the integration of cottage industries into economic growth models in the country. This will make it easy for indigenous women to access funds that allow them to venture into the pottery industry.
- Training programmes and resources may be developed to raise awareness of indigenous pottery's potential for fostering economic empowerment among women.
- The study contributes valuable insight into the disruptive innovation theory by identifying other mechanisms, such as the adoption of modern technology by small-scale industries, which gives them a better platform to integrate with the modern population and expand their market share.
- A similar study can be carried out by expanding the scope to include other areas of Ukambani to ascertain that the findings hold the truth. Further study should be conducted to establish whether women in urban slums who face similar financial challenges can benefit from the pottery industry.

References

- Adminusr. (2020, August 10). *Comprehensive poverty report*. Kenya National Bureau of Statistics. <https://www.knbs.or.ke/comprehensive-poverty-report/>
- Christensen, C. M., Gregersen, H., Raynor, M. E., & Dyer, J. (2011). *Disruptive innovation: The Christensen collection. The Innovator's Dilemma, the Innovator's Solution, the Innovator's DNA*. Harvard Business Review Press.
- Chukwukajustice. (2017). *The pot's body is designed using a spiral metal gently rolled around the clay pot*. [Photography]. https://upload.wikimedia.org/wikipedia/commons/8/86/Traditional_pottery_in_Nigeria_%28Ikpu_ite%29_18.jpg
- Craig, O. E. (2021). Prehistoric fermentation, Delayed-Return economies, and the adoption of pottery technology. *Current Anthropology*, 62(S24), S233–S241. <https://doi.org/10.1086/716610>
- Fuseini, M. (2023). Clay Pots in Northern Ghana. [Photography]. https://upload.wikimedia.org/wikipedia/commons/7/7e/Clay_pots_in_Northern_Ghana.jpg
- Ibeanu, A., & Okechukwu, K. (2017). An Archaeological Perspective on Contemporary Pottery Production Processes
- Ichwara, J. M., Kiriti-Nganga, T., & Wambugu, A. (2023). Changes in gender differences in household poverty in Kenya. *Cogent Economics & Finance*, 11(1). <https://doi.org/10.1080/23322039.2023.2191455>
- Intellectual property. (2022). In *IntechOpen eBooks*. <https://doi.org/10.5772/intechopen.94621>
- Kabeer, N. (2015). Gender, poverty, and inequality: A brief history of feminist contributions in international development. *Gender and Development*, 23(2), 189–205. <https://doi.org/10.1080>

/13552074.2015.1062300

- Kariuki, F. (2022). Harnessing traditional knowledge holders' institutions in Realising Sustainable Development Goals in Kenya. *Intellectual Property*. <https://doi.org/10.5772/intechopen.98802>
- Kenya National Bureau of Statistics. (2020, August 10). *Comprehensive poverty report*. <https://www.knbs.or.ke/comprehensive-poverty-report/>
- Kwanya, T. (2020). Stigmatisation of indigenous knowledge: The case of night-running in western Kenya. *Journal of Religion in Africa*, 48(4), 376-392.
- Lavrakas, P. J. (2008). *Encyclopedia of Survey Research Methods: A-M*. SAGE
- Levy, P. S., & Lemeshow, S. (2013). *Sampling of populations: Methods and Applications*. John Wiley & Sons.
- Maiti, S. (2004). *The Tharu: Their Arts and Crafts*. Northern Book Centre.
- Mazzarol, T., Reboud, S., Clark, D., Moore, M., Malone, P., & Soutar, G. N. (2022). *Commercialisation and innovation strategy in small firms: Learning to Manage Uncertainty*. Springer Nature.
- Muga, D. K. (2021). The Cottage Industry among the Tharaka People of Tharaka South Sub-County, Tharaka-Nithi County, Kenya (1907–1963) (Doctoral dissertation)
- Osborne, M. (2015). Ethnicity and empire in Kenya: Loyalty and martial race among the Kamaba, c. 1800 to the present. *Choice Reviews Online*, 52(06), 52–3248. <https://doi.org/10.5860/choice.188005>
- Oso, W. Y., & Onen, D. (2009). A General Guide to Writing a Research Proposal and Report Kenya: Jomo Kenyatta Foundation
- Otieno, A. J. (2021). *Analysis of Pottery Production for Rehabilitation of Women Prisoners in Kenya* (Doctoral dissertation, Maseno University).
- Otieno, J. (2022a). Integration of Traditional Pottery into Contemporary Design in Kenya. *Africa Habitat Review*, 16(1), 2389–2396.
- Otieno, J. (2022b). Socio-cultural aspects of traditional pottery production among Jonyuol Nyalo women group, Kisumu, Kenya. *Of Africa*, p. 27.
- Pal, S. K. (2021). Reviving the Pottery Industry by Solving Problems: A Study in a Developing Economy. *IOSR Journal of Business and Management*, 23(7), 44–49.
- Pham Hong, L., Ngo, H. T., & Pham, L. T. (2021). Community-based tourism: Opportunities and challenges a case study in Thanh Ha Pottery village, Hoi An City, Vietnam. *Cogent Social Sciences*, 7(1). <https://doi.org/10.1080/23311886.2021.1926100>
- Santacreu, D. A. (2014). *Materiality, Techniques and Society in Pottery Production: The Technological Study of Archaeological Ceramics through Paste Analysis*. <https://directory.doabooks.org/handle/20.500.12854/52859>
- Smith, C. (2022). *The Ultimate Pottery Guide: Making and Learning the Basics of Pottery: How to Make Pottery*. Independently Published.
- Vasant, K. R. (2019). 'Post-Independence Traditional pottery making industry in rural Kolhapur District: Changes, development and decline.' *International Journal of Research in Social Sciences*, 9(4), 945–953. <https://www.indianjournals.com/ijor.aspx?target=ijor:ijrss&volume=9&issue=4&article=061>
- Vincentelli, M. (2000). *Women and ceramics: Gendered Vessels*. Manchester University Press.
- Wang, L. Y., & Marwick, B. (2020). Standardisation of ceramic shape: A case study of Iron Age pottery from Northeastern Taiwan. *Journal of Archaeological Science: Reports*, p. 33, 102554. <https://doi.org/10.1016/j.jasrep.2020.102554>

47. Suba Women Success and Traditional Beliefs

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Abstract

The study aimed to establish the influence of Suba women's indigenous knowledge on success and their selfless efforts to uplift society. Sustainable Development Goal 5 aims to ensure that there is an end to discrimination against women and girls everywhere and to empower them. The objectives were to establish the role of indigenous knowledge on women's success, determine the impact of indigenous knowledge on women's empowerment, and determine the influence of traditional knowledge and practices on food security, aesthetics, and environmental conservation. The study divides Suba women into two economic blocks: the lower and higher socioeconomic statuses regarding indigenous knowledge of agriculture, food security, safeguarding environment, and education, which has made Suba women strong. The targeted women population was 127,404, comprising 64,406 (Suba North) and 62,998 (Suba South) constituencies. A qualitative research approach was adopted, and 40 information-oriented women aged 30-45 were purposely sampled. Data was collected using questionnaires and interviews and was analyzed thematically. The findings show that women use indigenous knowledge to ensure their success in food security, environmental conservation, and aesthetics. Women's struggle to awaken traditional beliefs has provided societal equity based on conventional rules; their importance dictates responsible care of girls and children in the standard setup and literacy empowerment. The study concludes that women are transformative figures in society. This study is original in terms of subject matter and scope. It highlights Suba women's struggle to succeed. It suggests that women get empowered through proper equity in education that equips them with skills to help them cope with shifting beliefs from traditional to modern.

Keywords: *Indigenous knowledge, women empowerment, women's struggle*

1 Introduction

Indigenous knowledge (IK) encompasses culture, traditional beliefs, and other practices. It is a collection of highly diverse dogmas and indigenous or ethnic religions. Such beliefs are usually oral rather than written. They include belief in several higher and lower gods, a supreme creator, spirits, veneration of the dead, use of sorcery, and traditional medicine (Vanner et al., 2017).

The Suba (Abasuba) is a tribe of Bantu people who speak the Suba language in Kenya (Ogechi, 2019). The Suba language is spoken by the Abasuba community living in Kenya, Uganda, and Tanzania (Owano et al., 2019). The tribe comprises about 14 clans. Due to concerted efforts by elders and youth, there has been a significant increase in fluent speakers. Suba North and Suba South constituencies in Homa Bay County emanated from the former Suba District.

The Abasuba community has maintained their livelihoods primarily by practising fishing, which both women and men. Besides, small-scale farmers grow maize, millet, potatoes, cassava, beans, and fruits. Regarding livestock, they rear cattle, goats, sheep, ducks, and chickens.

In their culture, the Suba people practice circumcision as a cultural initiation passage of rite from childhood to adulthood. According to Ondigi (2019), both boys and girls are circumcised, although, for girls, the circumcision practice is only done in some clans. Accordingly, circumcision was and is still an important cultural activity, as only circumcised males were allowed to go to war or visit some of the sacred places.

The Suba people believe in rainmaking through sacrifices such as animal sacrifices to appease gods and clan spirits. In the Suba language, these are called Emisambwa for a plural and singular Omusambwa (Ondigi, 2019). The sacrifices are conducted in special shrines, “ekiwaga,” in Subaland. They include Utende, Kwitutu, Mungusa, and Kiboye, among others. Rainmaking ceremonies occurred in rock art sites such as Kwitone, Kakiimb, and Mawanga caves on Mfangano Island. The Abasuba also respect snakes such as Pythons. They believed that the Clan spirit lived among them. For example, the Gumba spirit is believed to reside in Rusinga and Kaksingri Mungusa.

The Suba community has a rich culture that has been absolved throughout history. Traditional beliefs are respected by most people in society, making it very difficult for some people to adhere to them. Some cultures dictate that severe punishments befall those who go against the teachings of traditional practices. Women became the primary victims of the rules and perhaps have become the most endangered in traditional beliefs. Despite the hardships and struggles that these beliefs provide, women are assumed to be more successful in Subaland than their male counterparts.

2 Statement of the problem

Societal development involves the overall growth of traditional teachings, indigenous knowledge, and modern lifestyle. The two Suba constituencies, formerly known as Suba District during President Daniel Arap Moi’s era, became a location of concern following notable progress of the women population despite struggling. According to Sleeter and Carmona (2017), women’s population struggle results from standards brought about by modern education and practices. This study was motivated by the hardship triggered by existing traditional beliefs. That notwithstanding, Suba women still make it through and succeed. There is a literature gap on the struggle of Suba women amidst traditional beliefs, which motivated the researchers to carry out this study. Thus, this study aims to establish the role of indigenous knowledge in women’s success so as to discover the impact of indigenous knowledge on women’s empowerment and determine the influence of traditional knowledge and practices on food security, aesthetics, and environmental conservation.

3 Literature review

The total population of the Abasuba community is 247,515, comprising 127,402 women and 120,113 males (Kenya Bureau of Statistics, 2019). This can be broken down as Suba North 64,404, while that for Suba South was 62,998. The Suba women have extensively occupied various positions in academia, administration, and political and social roles in Homa Bay County and across the country (Okeyo, 2018). Some notable figures displayed as Suba Women include politicians such as Hon Millie Odhiambo Mabona, who has enabled women’s empowerment through many avenues in Subaland (Anika, 2018). Additionally, with collaborations with other political figures such as Hon. Gladys Wanga, women empowerment has been enhanced in Subaland to aid in developing women and the girl child.

3.1 Indigenous knowledge

Asimeng-Boahene (2018) refers to indigenous knowledge (IK) as values, beliefs, ideas, rituals, and norms that are instinctive and entrenched in people's minds. Local knowledge is unique to a given culture or society. It is a systematic body of knowledge acquired by local people through the accumulation of experiences, informal experiments, and an intimate understanding of the environment (Asimeng-Boahene, 2018). Local people, including farmers, local artisans, and cattle keepers, are the custodians of IK systems. They are knowledgeable about their situations, their resources, and what works and what does not work in their systems, and they also provide local people with modest livelihoods (Chepchirchir et al., 2018). Indigenous farming practices and knowledge must be validated and improved where necessary (Ronald & Adamchak, 2017). Danquah et al. (2018) reported that IK is essential for identifying appropriate and promising farming methods that can be incorporated into current research. As primary stakeholders, rural people can contribute by sharing their experience and indigenous practices with conventional methods.

3.2 Traditional beliefs

Gewa et al. (2019) assert that traditional customs, beliefs, and social norms have existed for a long time. They are complex and dynamic and govern interactions between people and their environment. It may be challenging for outsiders to understand the traditional beliefs of the Suba people as they have developed and continue to grow through long processes of association and interpretation of natural phenomena (Gewa et al., 2019). The beliefs develop out of religious practices, perceptions of the spirit world, notions of magic, and observation of the environment, and have implications for exploiting resources. Rodela et al. (2017) argue that resource users and stakeholders must fully understand the breadth and depth of traditional resource information. Suba women have gone through many struggles due to traditional beliefs. Gewa et al. (2019) noted that some are a hindrance as the community is categorized into male and female entries, and traditionally, women belong to the kitchen and house chores. Men are entitled to some tasks that women are not allowed to perform, and if they do, it is an abomination and would be treated as a vice in society (Rodela et al., 2017). Some of the beliefs hinder the success of the entire community, hence women's empowerment.

3.3 Women struggle

Religious or customary beliefs about women frequently sanction gender roles regarding traditional beliefs. Coquery-Vidrovitch (2018) states that in many cultures, women with the outside world and with other people, particularly at certain critical stages such as before marriage, during menstruation, before and after childbirth, and following the death of the spouse, were restricted. Besides, such taboos and restrictions often include contact with natural resources like farming, fishing, and significant societal occasions. Efforts to change women's roles in resource exploitation or access to resources in the face of such beliefs may meet strong resistance. Bonvillain (2020) asserts that the various roles of women and their unusual relationship with their community's natural resources and environment often mean they have a very different set of knowledge and skills than men. Women often exploit resources and environmentally friendly niches where men need more experience (Ochieng & Odhiambo, 2019). This advanced expertise and the ability of women to leverage it must be recognized and used in the planning of some social management decisions (Bonvillain, 2020).

Additionally, for a long time, the community has believed that only men need to get higher on the education ladder. This wrong perception greatly affected the Suba women. According to Ochieng and Odhiambo (2019), disparities in education levels for men and women may account for significant differences in outlooks and priorities. The differences need to be understood, and the cultural, social, or economic reasons behind them need to be clarified (Ochieng & Odhiambo, 2019). Many women have defied this notion and have risen to higher ranks of the world's productive lots and proved that women's empowerment is best approached through promoting education in girl children (Bonvillain, 2020). Education is the key to success, and it currently motivates women in Subaland.

3.4 Women empowerment

According to Kinoti et al. (2017), women empowerment ensures that women have a sense of control over their lives and can participate in social, political, and economic domains. It is about understanding gender equality for men and women. In Kenya, particularly in Subaland, girls and women carry untapped potential (Kinoti et al., 2017). Their increased contributions can help Suba achieve some of the development goals. The forces restricting women include less education, land tenure, and fewer employment opportunities (Kinoti et al., 2017). In rural areas, women and girls spend long hours collecting water and firewood and cooking since society believes that is where they belong. The household chores limit school attendance and work options (Kinoti et al., 2017). However, women's empowerment, autonomy, and enhancement of their political, social, cultural, and health status are highly appropriate (Kinoti et al., 2017). It is critical in achieving sustainable development (Diiro et al., 2018). Women worldwide face threats to their lives, health, and well-being because they are overburdened with work and lack power and control (Kinoti et al., 2017). They receive less formal education in most regions of the world than men, while at the same time, their knowledge, skills, and mechanisms for coping often need to be recognized (Diiro et al., 2018). Article 43.1f of the constitution provides that every person has a right to education as one of the most important means of empowering women with the knowledge, skills, and self-confidence necessary for full participation in the development process.

3.5 Literature gaps

Little is presented in the literature on the unique indigenous knowledge that Suba women possess. This study bridges this gap by delving into the indigenous knowledge of Suba women. It sought to establish how the knowledge has evolved and how it directly adds success and empowerment to Suba women. This knowledge's specific aspects of uniqueness are uncovered through case studies and real-life stories of respondents. There is a dearth of literature on Suba women's challenges in traditional beliefs and gender roles. Some pieces of literature note these challenges but need personal touch and experience. The paper covers this gap by giving personal experiences and actual stories.

4 Theoretical framework

The feminist theory states that gender is a societal construct and should now be viewed as a biological characteristic or a fixed factor (Ferber & Nelson, 2009). The theory is critical in understanding power dynamics, discrimination, and societal gender-based inequalities. In regard to Suba women and traditional beliefs, feminist theory expounds on resource access, decision-making power, and opportunities.

Cultural relativism theory states that culture should be viewed as self-sufficient and should never be judged or evaluated by the standards of another culture (Brown, 2008). Culture has no universality or absolute merit; therefore, ethical and moral judgments should be culture-specific. The theory encourages this paper to explore Suba cultural beliefs within their specific context, and there is no room for an outsider perspective.

5 Methodology

Suba North and Suba South Constituencies, often referred to as Subaland in Homa Bay County, were selected as the contextual setting of this study. The two constituencies were chosen because the Suba people majorly occupy them. The study sought to investigate the Suba women's struggle to succeed despite traditional beliefs. The target population for this study was 127,402 women, comprising 64,404 (Suba North) and 62,998 (Suba South). The study adopted a qualitative research approach and purposively sampled 40 information-oriented women aged between 30 and 45 from the two constituencies. Data was collected using telephone interviews due to the COVID-19 pandemic outbreak. The qualitative data obtained from the interview were thematically analyzed. A qualitative approach was suited since the study involved contextual understanding, given that indigenous knowledge is a complex phenomenon. Besides, obtaining the study's data involved narratives and personal experiences.

6 Findings

The findings herein are based on the study objectives, particularly from the information provided by the respondents. Women's struggle in contemporary society was traced back to when traditional beliefs were considered the laws of the land. Daily activities were based on traditional beliefs passed orally to generations over time. However, some are no longer relevant, calling for an understanding of the women's struggle and empowerment of the girl child. The study covers women's struggle to succeed despite traditional beliefs, with a flashback on how women have toiled, notwithstanding conventional views.

6.1 Indigenous knowledge and women's struggle for success

The respondents' views powerfully demonstrate that indigenous knowledge is a great tool that has helped Suba women to forge through their struggle and succeed despite being looked down upon in society and that the community is often regarded as a make-up of traditional beliefs. One of the respondents reported that:

"In Suba, women were not allowed to represent the community in any event, and they could not compete in any community post like being a spokesman or community leader except for domestic responsibility like fetching water or firewood. However, with the introduction of formal education, Suba women have been empowered to participate in County and National politics. For example, Hon. Millie Odhiambo, Member of Parliament, Suba North Constituency, and Madam Kowaje, Member of County Assembly for Lambwe" (Respondent Suba resident 6).

It established that indigenous knowledge is instrumental in ensuring the success of women in society, as was indicated in farming, food preservation, aesthetics, and education systems. All the respondents showed a good grasp of the activities that involved indigenous knowledge.

6.2 Traditional knowledge and practices on food security

Based on traditional beliefs in Subaland, the women IK was instrumental in farming. The women are responsible for caring for the family and homestead when the man is out looking for family sustenance. Some of the respondents said that in the olden days:

“It was the work of women to till the land, plant crops, weed the farm, harvest the crops during harvesting time, and take them home for storage, while men, who were their male counterparts’ main work, cleared the bush and fenced the farms. When the ploughing method was introduced, men started using oxen while women carried out other activities such as milking animals and preparing fermented milk (puoyo-chak)” (Respondent, Suba residents 4, 8, 22, 31, 38).

This notion greatly affected the orientation of women’s lives to such an extent that they entirely resolved to farm to take care of their families. It was noted that Suba women apply traditional methods of farming, which have proven helpful to them. Some of the practices include the use of farmyard and green manure instead of fertilizers in raising crops. In the case of pests and diseases, Suba women have applied traditional pest control methods such as using ash from wood and planting some vegetables, such as Mexican marigolds, which are believed to keep pests and weeds out of the farmyard. One of the respondents reported that:

“women harvested livestock urine and used it to keep pests and diseases off the farms. Indigenous knowledge was also applied during the harvesting of the crops. Cereals were deshbelled and sundried for preservation in traditional granaries” (Respondent, Suba resident 14).

The struggle of women to succeed is evident in the business world. A respondent stated that:

“Nowadays, women have changed history. They are empowered and are given loans from the banks, which enable them to get involved in all kinds of businesses like men” (Respondent, Suba resident 1).

“fishing was a preserve for men only, and women could not touch the boat or nets during certain conditions. Today, women own not only boats but also nets. Some go fishing like men and participate in boat racing competitions during the annual festival” (Respondent, Suba resident 1).

6.2.1 Food preservation

After harvesting, crops are preserved according to their perishability. The perishable ones are harvested in bits to give room for the others. Subaland Waters of Lake Victoria surround is one of the economic activities women venture into. They use their indigenous knowledge to catch the fish out of the water. Some of the respondents reported that they:

“preserve fish by smoking, sun drying, and salting” (Respondent, Suba residents 6, 9, 10, 15, 20).

In terms of the different meat stuff such as beef, mutton, and chicken, among others, they said they:

“employ traditional methods such as roasting (tholo) and drying (aliya) in the sun or by hanging over the cooking area for some time until the meat dries” (Respondent, Suba residents 6, 9, 10, 15, 20).

6.2.2 Aesthetics

Women and home aesthetics are inseparable since this is what keeps the beauty in the lives of humankind. In the traditional setting, apart from personal make-up, the homesteads were ensured to be beautiful and presentable. The conventional knowledge aided in some activities, which included mud smearing (*lango*) using mud of different colours. During *lango*, some of the women stated that they:

“use banana leaf ‘pend bolo’ and aloe vera leaf ‘aka’ to draw the decorations to very presentable grades”

(Respondent, Suba residents 6, 9, 10, 15, 20, 35).

The traditional beliefs have become trivial, as IK has aided the Suba women in making their way through the years.

6.3 Women's empowerment and struggle

Women's empowerment has been the recent wake-up call to ensure the girl child gets their best foot forward and forges their way into society. Many agencies, such as USAID and CARE, promote women's engagement and ensure that women get the best or equal shares of men. However, traditional beliefs have come into play, and some have been dragging their course for a while. It is a beautiful journey by women with tickets of empowerment, which has ensured that women know their space in society. Women's empowerment has confirmed that the girl child has a good education, equal rights as males, and similar societal responsibilities. A number of respondents said:

"When education came, the general perception was that women could not train in law and medicine. That perception has been changed; today, we have lawyers like Hon. Millie Odhiambo (MP Suba North) and Doctor Sharon Manyala, also from Suba North." (Respondent, Suba residents 27, 30, 9, 28, 34).

"with education today, women have acquired knowledge which they use in many banking methods such as having personal accounts, Mpesa accounts, table banking and women Sacco, including being members of Kenya women Microfinance Bank" (Respondent, Suba resident 27, 30, 9, 28, 34).

7 Discussion

Examining how Suba women are empowered within their society reveals an intriguing fusion of history and modernity (Anika, 2018). In the past, women in Subaland were frequently restricted to traditional duties and had little opportunity to take on leadership or participate in community affairs. However, the results show a significant change as education became more widely available. In line with Anika's (2018) study, this study established that women who defied convention and demonstrated that they could significantly impact the development of their communities were prominent leaders, such as Hon. Millie Odhiambo and Madam Kowaje.

One of our most fascinating findings was the significance of indigenous knowledge (IK) in empowering Suba women. As per Asimeng-Boahene (2018), indigenous methods passed down through the years have become vital resources for these women in various fields, including farming and food preservation. They use traditions to survive in the modern world, not only to preserve them. Sustainable empowerment requires the preservation of indigenous knowledge and its integration into development initiatives.

One noteworthy discovery is the increasing penetration of Suba women into fields that men, particularly in business, have historically controlled. Their ability to access financing and chances for entrepreneurship is transforming Subaland's economic environment. This change questions gender norms and demonstrates that women can contribute to creativity and economic success on par with men (Danquah et al., 2018). Suba women are essential to the preservation of traditional customs. Not only do they decorate their environment with ancient aesthetic techniques like mud smearing and ornamental decorations, but they also preserve their cultural history. It is encouraging to see how they overcome contemporary obstacles by drawing strength from their cultural identity.

8 Significance of the study

The study explores the relationship between indigenous knowledge and the empowerment journey of women in Subaland, which helps bridge the research gap. Understanding this paper's intellectual, policy, and practical value requires placing it within the larger conversation on indigenous knowledge systems and women's empowerment. Its empirical insights into how traditional beliefs impact women's experiences and opportunities give rise to scholarly value, enhancing our comprehension of various cultural situations. The consequences of the policy are significant; they provide evidence in favour of inclusive policy measures and emphasize the necessity of incorporating indigenous knowledge into development plans. In practical terms, the study allows communities to use their indigenous knowledge for social and economic advancement. It acts as a model for similar empowerment initiatives around the world.

9 Conclusion

Traditional beliefs have been related to many societal developments. Different teachings, expectations, and assumptions have limited women's struggles. However, Suba women have struggled to make their way through the beliefs and succeeded in high societal achievements. The research confirms that women, like men, have been encouraged to steer towards greatness through education. The study found that indigenous knowledge plays a significant role in developing women's morale to prominence. With indigenous wisdom, it was noted that some of the traditional practices in the society have been modified and upgraded to match the generational requirements. Some developments are in food preservation methods, conventional farming, and aesthetics, among other practices. The women in the society have not been encouraged enough to champion their struggles, as noted among Suba women who barely realize the significance of struggles. The women also hold to the traditional beliefs and fear for abomination in society. The study recommends that the government encourage women with indigenous knowledge in farming and performing other activities to conform to the new societal developments and launch awareness and civic education on the importance of education.

10 Implications and recommendations

In line with SDG 4, quality education, the paper discusses education as a tool for empowering Suba women. The study recommends promoting girls' education that sees quality and inclusive education, as this will make Suba champions for SDG 4. SDG 2 fronts the idea of zero hunger. According to this study, Suba women practice indigenous food preservation and farming practices, which are essential to food security. The paper recommends that women be supported in preserving traditional farming practices and agriculture to attain SDG 2. The report delves into gender equality and women's empowerment, which aligns with SDG 5, gender quality. The paper recommends gender advocacy campaigns, equality initiatives, and skill development programs. These initiatives would aid in modelling gender equality and encourage women and girls to participate in community development.

References

- Anika, J. D. (2018). Women's Public and Private Spaces: The Case of Marriage and Politics in Kenya. MA Thesis, University of Nairobi.
- Asimeng-Boahene, L. (2018). Re-Crafting African Indigenous Knowledge Systems in Culturally Conscious Classroom Contexts. African Traditional Oral Literature and Visual Cultures as Pedagogical Tools in Diverse Classroom Contexts. Information Age Publishing
- Bonvillain, N. (2020). Women and men: Cultural constructs of gender. Rowman and Littlefield Publishers
- Brown, M. F. (2008). Cultural Relativism 2.0. *Current Anthropology*, 49(3), 363–383.
- Chepchirchir, S., Kwanya, T., & Kamau, A. (2018). Maximizing the socioeconomic value of indigenous knowledge through policies and legislation in Kenya. *Global Knowledge, Memory and Communication*, <https://doi.org/10.1108/GKMC-05-2018-0043>
- Coquery-Vidrovitch, C. (2018). African women: A modern history. Routledge
- Danquah, J. K., Analoui, F., & Koomson, Y. E. D. (2018). An evaluation of donor agencies' policies on participatory development: The case of Ghana. *Development Policy Review*, 36(51), 0138-0158.
- Diirro, G. M., Seymour, G., Kassie, M., Muricho, G., & Muriithi, B. W. (2018). Women's empowerment in agriculture and agricultural productivity: Evidence from rural maize farmer households in western Kenya. *PLoS one*, 13(5), e0197995. <https://doi.org/10.1371/journals.pone.0197995>.
- Ferber, M. A., & Nelson, J. A. (Eds.). (2009). *Beyond economic man: Feminist theory and economics*. University of Chicago Press.
- Government of Kenya. (2010). *Constitution of Kenya*. <http://kenyalaw.org/lex/actview>.
- Gewa, C. A., Onyango, A. C., Angano, F. O., Stabile, B., Komwa, M., Thomas, P., & Krall, J. (2019). Mothers' beliefs about indigenous and traditional food affordability, availability, and taste are significant predictors of indigenous and traditional food consumption among mothers and young children in rural Kenya. *Public Health Nutrition*, 22(16), 2950-2961.
- Kenya National Bureau of Statistics (2019). Kenya population and housing census results. <https://www.knbs.or.ke/2019-kenya-population-and-housing-census-results/>
- Kinoti, M.W., Kihiko, M. K., & Cooney, T.M. (2017). Women empowerment through Government Loaned Entrepreneurship Teams. In Ben-Hafaiedh, C., & T. M. Cooney, T.M., Research Handbook on Entrepreneurial Teams. Edward Elgar Publishing.
- Ochieng, C. A., & Odhiambo, A. S. (2019). Barriers to formal health care seeking during pregnancy, childbirth and postnatal period: a qualitative study in Siaya County in rural Kenya. *BMC Pregnancy and Childbirth*, 19(1), 339. Doi:10/1186/s12884-019-2485-2
- Ogechi, N. O. (2019). Ethnicity, Language, and Identity in Kenya. *Modern Africa. Politics, History, and Society*, 7(1): 111–135.
- Okeyo, A. G. (2018). Determinants of women participation in community-based water projects in Homabay County. *International Journal of Novel Research in Humanity and Social Sciences*, 5(4): 307-329
- Ondigi, E. A. (2019). The discursive construction of Kenyan ethnicities in online political talk. PhD Thesis. University of Western Cape
- Owano, A., Adeka, R. & Lusweti, G. (2019). Use of Information Communication Technologies in the Revitalisation of Disappearing Indigenous Languages Through Knowledge Centres:

- Case of Suba. In T. Kwanya, J. K. Kiplang'at, J. Wamukoya, & D. Njiraine (2019). Digital Technologies for Information and Knowledge Management, Pp. 422-428.
- Rodela, R., Bregt, A. K., Ligtenberg, A., Pérez-Soba, M., & Verweij, P. (2017). The social side of spatial decision support systems: Investigating knowledge integration and learning. *Environmental Science & Policy*, 76: 177-184.
- Ronald, P. C., & Adamchak, R.W. (2017). Tomorrow's table: Organic farming, genetics, and the future of food. Oxford University Press.
- Sleeter, C., & Carmona, J. F. (2017). Un-standardizing curriculum: Multicultural teaching in the standards-based classroom. Teachers College Press.
- Vanner, C., Akseer, S., & Kovinthan, T. (2017). Learning peace (and conflict): the role of primary learning materials in peacebuilding in post-war Afghanistan, South Sudan and Sri Lanka. *Journal of Peace Education*, 14(1), 32-53.

48. The bumpy road to gender equality, women empowerment and girls' education in Malawi: Insights from Chichewa proverbs as wisdom of the people

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Abstract

It has been documented globally through many empirical studies on how African proverbs are a hindrance and an obstacle to the realisation of Sustainable Development Goal (SDG)5, which talks of gender equality and women empowerment. Proverbs have been used to facilitate the transmission of knowledge, beliefs, values, and traditions from generation to generation. In Malawi, proverbs are used as a socialisation tool on various occasions. Although there are benefits derived from the proverbs as a cultural indigenous knowledge system, proverbs have been at the centre of the construction of masculinity and femininity gender identities of what it means to be a woman or a man. Chichewa proverbs have the potential to reinforce and perpetuate stereotypical ideological beliefs that portray men as superior, men as leaders by birth and owners of intellect, while women are portrayed as inferior, less intelligent, people who cannot lead, irrational and even worse, portrayed as gossipers and evil. This has affected the realisation of (SDG) 5 as well as the Education for All (EFA), which is that the country aspires to close the gender gap. Since the proverbs cannot be erased from society, the paper recommends that the negative and counterproductive proverbs should be used in gender activism to teach against gender inequalities. Teachers need to be equipped with gender skills so that they teach in a gender sensitive manner. Because the country is deeply entrenched in patriarchal ideologies, ongoing gender awareness is required in schools and society at large to keep on equality issues and change attitudes towards women and girls.

Keywords: *Masculinity, femininity, gender identities, sustainable development, patriarchy*

1 Introduction

Globally, it has been widely acknowledged how African proverbs express the patterns and hierarchical social structures of culture and relationships between men and women. Proverbs are a powerful component of oral literature, which is regarded as storehouses or kernels of societal wisdom that are rich in society's knowledge. Zegeye and Vambe (2006) argue that proverbs are reservoirs and repositories of society's collective wisdom. They are wisdom-imparting tools associated with the elders, the wise people, the grey-haired people and people who have seen many rains and experienced a lot in life (anthu a mvula za kale). In African traditions, it is a common practice for elders to inject proverbs into their daily speeches as a sign of being wise. The eloquent use of these proverbs in one's speech is usually a mark of a person's depth of wisdom. Chinua Achebe, one of the most celebrated Nigerian and African writers, mentions that within Nigeria's Ibo society, "proverbs are the palm oil through which words are eaten".

Growing up in a rural village in Malawi, I directly engaged with such wisdom in Chichewa proverbs. Traditionally, it is a common practice in Malawi, if not all African societies, that a fireplace is used as a symbol and place of unity. This is where family members sit to warm themselves while discussing issues concerning their family, clan and community. Sitting with our grandparents around that big fire, we would listen to different stories and folktales associated with family values, traditions and cultural heritage of our society. Traditionally, the proverbs teach young boys the spirit of being courageous, adventurous, and people who take up challenges, while girls were taught feminine gender roles and society etiquette as women. With such teachings, boys grow up with authoritarian leadership ideologies in mind, while girls grow up with the mindset of being future wives and mothers (Kamwendo & Kaya, 2016; Owour, 2007).

Moto argues that Malawi is one such society where some proverbs illustrate the power of men in society while oppressing and excluding women from taking active roles because of the fact of being women. The proverbs safeguard society's wisdom across and through generations and inspire children as future wives/mothers and fathers/husbands.

2 Social economic, political and gender relations in Malawi

The analysis of Chichewa proverbs and gender cannot be analysed without understanding the landscape of the country's social, economic, and gender relations. Malawi is a landlocked country located in the southern African region and shares borders with Mozambique to the east and south, Zambia to the west and Tanzania to the north. Economically, the country ranks among the world's poorest countries, with almost 80% of the people living in rural areas and two-thirds of the population living below the poverty datum line. The economy of Malawi depends largely on donors and subsistence agriculture. As such, the majority of Malawians suffer from chronic food shortages that are caused by unreliable climate changes and a lack of farm inputs. The economic situation of Malawi keeps on declining due to a sour relationship with the donor community, corruption, and financial mismanagement issues. This situation has paralysed the country, and the most affected groups are the landless, in which the majority are women (Binauli, 2010; Gross-Berg, 1991).

Binauli highlighted that, apart from the unfavourable climate and donor freeze conditions that Malawi faces, patriarchal cultural practices and traditions that undermine and exclude women are also factors contributing to this low social and economic status. As women make up more than half of the entire population of Malawi, which is currently estimated at 20 million according to 2018 household Census Statistics, Malawi cannot afford to exclude women/girls in its developmental programs. As a result, the Malawi gender policy was enacted in 2002 as a response to the 1995 Beijing Platform for Action to eliminate all elements of discrimination in both the public and private sectors. Under the umbrella of the national gender policy, education affirmative actions were taken with the aim of overhauling the entire education system to be gender-friendly and gender sensitive. This allowed the development of a gender-sensitive curriculum, repurposing teaching and learning materials and texts, as well as expansion of 'girls' only hostels' with an aim to bring schools closer to the community to reduce walking distances for girls and bring girls to school. In addition to curriculum issues, there is an initiative that allows girls to resume school after they drop out due to pregnancies. This initiative has allowed many girls to complete their education (UNDP, 2013). However, despite all these positive measures registered, women/girls in Malawi still remain vulnerable and at risk due to challenges caused by social, economic, cultural and political marginalisation.

This paper then critically analyses Chichewa-gendered proverbs of Malawi to establish how they may act as a hindrance and obstacle to the realisation of Sustainable Development Goal 5, which in turn affects the other Sustainable Development Goals (SDGs). The paper argues that in the process of safeguarding society's wisdom, some of the proverbs are outdated as they contain negative and stereotypical gender connotations on gender norms and traditions in Malawi.

3 Theoretical framework

This paper adopts Critical Discourse Analysis (CDA) by Fairclough and Structuralism feminist Theory as analytical. CDA provides the social-historical conditions that govern. As Grossberg observes, "texts reveal their significance, not on the surface of images and representations, but rather in the complex ways that they produce, transform and shape meaning structure". This goes further to analyse how patriarchal and power relations are revealed through written and spoken proverbs to reveal male dominance, subordinate, oppress and marginalise women and girls. Grossberg argues that through the manipulation of language, those in power (men) have managed to create an ideology that defines their supremacy as the natural owners of the intellect and as people with rationality and power to rule.

4 Methodology

The paper adopts a qualitative approach, which is desktop, to analyse and synthesise data that is already in the public domain. The paper relied on a compendium of proverb text by Chakanza. In his book, Chakanza managed to compile at least 2000 Chichewa proverbs. It was out of those in which twenty-seven (27) gendered proverbs in this paper were selected. Only those proverbs that talk about human beings and those of animals as representations of human beings shall be picked. The gendered proverbs are examined with the objective to (i) establish the historical and cultural background of Chichewa proverbs, (ii) identify connotations inscribed in Chichewa proverbs, (iii) explore implications of Chichewa proverbs in relation to gender equality, women empowerment and girls' education in Malawi (Chakanza, 2001).

5 Reflections on Chichewa proverbs

One way in which Chichewa proverbs create distinctions between women and men is by constructing a male dominance scenario and placing me as a leader and family provider.

A. Proverbs and male dominance

- (1) *Mvamuna ndi kabudula, amathera moyenda* (a husband or a man is like a pair of short trousers; it gets worn out due to travelling).
- (2) *Tonde akadula sabwerera* (When the he-goat cuts the tether, it does not come back).
- (3) *Mzako akapsa ndevu mzimile-meaning* (extinguishing fellow man's beards).
- (4) *Mbeta silola tsiku limodzji* (The unmarried girl does not readily consent to a marriage proposal in one day).
- (5) *Mphongo ya chimwala sichepa* (The male grasshopper is never too small for its female).
- (6) *Atambala awiri salira mkhola limodzji* (Two cocks do not crow in the same chicken pen).
- (7) *Mvamuna mzako ndi pachulu umalinga wakwerapo* (Your fellow man is ant hill, and you can

only celebrate when you are on top).

- (8) *Wakwata kwa mphenzi saopa kung'anima* (When one marries a thunder, he should not fear the lightning)- A man is expected to take control of situation no matter how cunning a woman is. This is about being courageous and strong.

B. Proverbs on gender roles and women's dependence on men

- (9) *Mkazi ndi chitenje chimathera pakbomo* (a woman is like a wrapping cloth which is worn explicitly at home only).
- (10). *Mkazi wophika nsima yosazizira* (A real woman is the one who does not cook cold pap).
- (11). *Mlereni bwino aiwale kwawo* (keep the husband well so that he may forget his home)
- (12). *Mkamwini ndi mlamba sachedwa kuteleleka* (a husband is like a fish he slips easily so the wife should take care).
- (13). *Mvamuna kumamyang'ana pamimba* (the wife is supposed to check the husbands' tummy to make sure he is alright and well fed).
- (14) *Ovala nyanda salumpho moto* (one putting on sanitary cloth should not engage in fire skipping games)

C. Proverbs portraying women as weak and lacking decision making skills

Proverbs in Chichewa also perpetuate the idea of women being weak, powerless stereotypes and a group that lacks decision-making skills, as in Proverbs 15-18 below.

- (15). *Mbeta silola tsiku limodzi* (The unmarried girl does not consent to marriage in one day)
- (16) *Akazi ndi malwa sachedwa kulakatika*-meaning-Women are flowers that blossom nicely in the morning but wither and die quickly in the afternoon).
- (17). *Tinhu m'kuni adalekera mwana mkazi mnzake ku njoka* (The one who said, "there are things in firewood bundle", left her fellow women child to a snake. Not being prudent.
- (18). *Adagula mbereko mwana asatabadwe* (She bought the baby carrier bag before the child was born).

Meanwhile, Proverbs 19-22 portrays women as irrational people who rush to do things before thinking.

D. Proverbs portray women as evil and gossipers

Chichewa proverbs discriminate against women by portraying them as, firstly, as evil beings and, secondly, as gossipers.

- (19). *Mfiti yaikazi kulimba moyo*- meaning-A female witch is hard hearted.
- (20). *Paunjikana ntchembere pali bodza*-meaning- where women gather, just know there are plenty of lies
- (21). *Mkazi wa mfumu asamati mlomo tolotolo ataya mudzi*. (A wife of a chief should not be too talkative; otherwise, she destroys the village).
- (22). *Mkazi wa mfumu asamati khutu petupetu*. (a wife of a chief should not listen to roamers)

Some positive proverbs Group E and F

E. Women and/or mothers as symbols of warmth

23. *Mako ndi mako, angachepe mwendo.* Your mother is your mother, even if she has tiny legs.
24. *Mwana sakulira nakubala.* A child never grows too big for those that bore him.
25. *Illi ndi make sikugwa m'mbuna.* The little one, which has a mother, does not fall into the game pit.

F. Proverbs that encourage women's empowerment and agency

26. *Ntchembere yamapasa izigona chagada.* The mother of twins should sleep on her back.
27. *Papita mkazi mnzako, nawenso pitapo- meaning-* You pass where your fellow woman has passed.

6 Discussion and analysis

To begin with, it is imperative to make it clear that Chichewa proverbs are not used haphazardly. They are systematically crafted to represent different situations and people of different age groups, social groups, men/women, married and unmarried people, and different ranks and statuses in society. The ideologies in Chichewa proverbs can be summarised as follows:

1.1 Institutionalised patriarchal power relations in heterosexual marriages

As already indicated, the construction of Chichewa proverbs reflects the customs, traditions, beliefs and values about heterosexual orientation as opposed to other forms of sexual orientation. The construction of proverbs reflects the customs, traditions, beliefs and values about heterosexual orientation as opposed to other forms of sexual orientation. In Malawi, marriage is considered the noblest institution and an important achievement in one's life. To be unmarried is a condition that is usually frowned upon. Heterosexual marriage is widely acknowledged and endorsed by society as opposed to homosexuality and other forms of sexual orientation. In fact, homosexual orientation is a criminal act which can lead a person to 14 years in jail if found publicly showing off their sexuality.⁴ Whatever ambitions, dreams, and education a woman may have, her life is not complete if she is not married and does not have children. Being married, being known by the husband's name (*may use* –Mrs so so), and bearing a child for the husband is something that any woman aspires for. The proverbs, therefore, are tools used for the early socialisation of boys for future endeavours as heads of families and providers and girls as wives and mothers.

As such, Kamwendo (2015) argues that just like in many African societies, in Malawi, men/husbands are considered the heads of families, breadwinners, providers, leaders and protectors/custodians of clan beliefs. Chichewa proverbs inspire men/boys to be courageous, take control of situations, and not allow anyone to overpower them. When a boy shows characteristics that are similar to those of a girl, he is considered to be weak, stupid and less accepted in the group of other men or boys. In fact, when a boy cries, people will always laugh at him and compare him to a girl. This is why, in Malawi, crying is a woman's behaviour and not for men. In fact, it is shameful for a boy to report issues of being bullied by girls or when a man is abused by his wife. These findings correspond with what was obtained in another African country, the Democratic Republic of Congo, where a real man is intelligent, rational,

courageous, strong and gifted. In addition, a real man should be able to make decisions, be firm and determined, and not track back, even in the case of opposition. On the other hand, Kamwendo explains that Malawian girls are taught not to be outspoken but to be good and submissive women wives, as well as issues concerning sexuality because a successful marriage depends on how gloomed a girl is. The marriage rites are conducted both formally and informally, for example, through initiation schools.

The Gender Links News report of Mbwana village, TA Kawinga, in Machinga, that it takes three months to attend initiation camps, which results in children being absent from school. Initiation is a common practice in many parts of Malawi. Without necessarily undermining these traditional schools, in some households, after initiation schools, most of the girls are given away for marriage as the parents believe they are now adults. Studies conducted in Malawi by Chikhungu et al. (2020) show that in Malawi, 47% of girls marry before the age of 18, while only 7% of boys marry at the same age. This makes Malawi one of the highest school dropout rates in Southern Africa, with 15% of girls (three in every twenty) dropping out between standard 5 and 8. This is one area that is uncontested in many African societies. While some countries such as Botswana and Mauritius have lowered the school dropout rates, and the gap is at 7% and 2%, respectively, Malawi still suffers and is haunted by early pregnancies and drops, as observed by some researchers. With all that Malawi has achieved in trying to make education a gender-free zone, the country is still failing to close the gender parity. Although the authors have cited a number of factors, such as poverty and financial issues, the authors highlighted that cultural factors are another contributing factor. Proverbs are probably one dimension that needs scrutiny, as well as the culture, traditions, and attitudes in which Chichewa proverbs are the vehicle for such wisdom.

The situation is also pervasive in Sub-Saharan Africa despite several implemented education initiatives. For example, studies conducted in Kenya, Ghana, Nigeria, Cameroon, and Mozambique show that adolescent girls and young women are particularly vulnerable due to various factors that include gender inequality, discriminatory gender norms and lack of access to sexual reproductive health (SRH) services and HIV prevention and information are fueling high rates in teenage girls. Kenya, in particular, registered a 40% increase in teen pregnancies during the three months of the Covid-19 lockdown. The pandemic has revealed the government's social and economic policies, which resulted in families marrying their girls in search of financial assistance from in-laws (UNICEF (2022 annual report)).

1.2 Doubted women capabilities

Doubting women's capabilities in decision-making is another element identified in Chichewa proverbs. Chichewa proverbs portray women as weak, slow in thinking, and lacking in proper decision-making skills. Chichewa proverbs go beyond showing women as slow-thinking, unreasonable, and irrational, as well as people who just rush to do things before thinking, as seen in group C. Similar proverbs are also evident in other African societies. For example, a Setswana proverb of Botswana which says '*magadi ke di etelehwa pele ke tle di wele ka selomo*', meaning an ox cannot be pulled by cows, it will fall into a ditch. As well, as a Sepedi proverb '*Tsa etna keya tshadi pele di wela leopeng*' means if a leader is a woman, disaster is bound to happen (Nhlekisana, 2007).

1.3 Negative portrayal of women

Gender discourses have occupied an important position in African scholarship. Many

societies have taken responsibility for the construction of female identity based on some gender stereotypes. Evidently, Chichewa proverbs show a portrayal of women as gossipers. Through such beliefs, subjugation and oppression of women is being perpetuated. Such proverbs resonate with an Igbo proverb which says, “Never marry a woman with big feet”, as cited by Chikwelu (2017). Proverbs indicate another form of women oppression of women. With such proverbs, in many cases, women are scared to take up decision-making positions as they are scared of being opposed and not being supported as they are already labelled gossipers and evil. Even women themselves are not ready to be led by a fellow woman; hence, they are at the forefront of sabotaging whatever other women are trying to achieve. The situation breeds low self-esteem, self-doubt and lack of confidence in women themselves. No matter how qualified women are, most of them find it challenging to excel in decision-making positions. Women accept to be led and dominated by men, hence the challenge of gender representation that we see in many organisations, in politics and social economic activities.

UNICEF’s (2022) annual report stresses the imperative to realise that sustainable development depends on maintaining long-term economic, social, and environmental capital. This is from the understanding that in Malawi, women and girls represent half the country’s population. Failing to make the best use of the female population in countries is an underestimation of the implications that it would cause. Putting women and girls at the centre of economies will fundamentally drive better and more sustainable development outcomes for all rather than perpetuate negative stereotypes of women as gossipers or evil, which in some instances has been used as a root cause of marginalisation, exploitation, and oppression and undermine women’s capabilities. Contemporary world developments have proven wrong, such as gender beliefs. Women all over the world, including African women, have demonstrated that they, too, have the intellectual and physical capabilities to perform all the functions which society tends to attribute to the capabilities of men.

6.4 Proverbs and implications to education in Malawi

Nelson Mandela, one of the great global icons, once said that education is the most powerful weapon one can use to change the world and its status. It is through education that the daughter of a peasant can become a doctor that the son of a mine worker can become the head of the mine, that the child of farmworkers can become the president of a great nation”. As emphasised in (the AU) Agenda 2063 and (the UN) statutes on SDGs (2022), it is also imperative that education is the catalyst towards the other sustainable development goals. This means sustainable development cannot be achieved by technological solutions alone but by educating the nation on aspects of life.

Shefer, Kruger, and Schepers (2015) argue that because schools operate in Malawi, the school curriculum and teachings conform to the society’s beliefs. As such, the manifestation of patriarchy, the education hidden curriculum education accepts the hierarchical order; hence, schools are organised in the hierarchical principle of authority and control. Schools in Malawi serve as sites for the construction of masculinity and femininity with regard to subject choices. For example, subjects such as Mathematics, Engineering, Computer Science and Technology (STEM) are still considered male subjects. Teachers, in most cases, do not engage girls as they do with boys. A study conducted by Donald reveals that schools as socialisation agents reproduce and perpetuate the masculinity and femininity gender construction as they discourage one sex to work harder on the so-called masculinity subjects. The constructed masculine attitude had led to few female students wanting to pursue such subjects, hence the

low representation of STEM. Maluwa-Banda (2004) observed that Malawi is a country that suffers from a lack of scientists and the underrepresentation of women in the science field.

6.5 Proverbs influencing subject choice for girls

Further to subject choice, the Chichewa proverbs continue to perpetuate the biased sets of relationships of dominance and abuse in schools in Malawi. Because boys are socialised born leaders, they end up dominating and intimidating girls in schools, denying them equal participation opportunities. Shefer, Kruger and Schepers (2015) argue that gender-based violence, abuse and exploitation that the schools experience are directly a result of learned behaviour from society, and proverbs are at the centre of such grooming. In a study conducted by Morojele (2013 in Lesotho, the researcher observed how boys in schools exploit such cultural ideologies to act violently and sexually harass and abuse girls. With such an uncondusive environment, girls feel intimidated and shy, not wanting to participate in class and the school environment. While others quit school altogether, it has been argued by researchers that the education setup that enables transformative changes largely depends on both teachers, their capabilities, and their willingness to support such processes. Since teachers are at the centre of teaching and learning, schools in Malawi require not only innovations in teaching and learning but also teachers who can identify and challenge society's ideologies with a gender lens.

7 Conclusion

The paper has identified some counterproductive wisdom, for example, male dominance over women, negative portrayal of women as people who cannot make decisions, and women as gossipers and evil. Only in a few cases have proverbs been used positively towards women. The paper challenges the stagnation of wisdom, which continues to impede women and girls without envisioning a long-term impact. Mahatma Gandhi, one of the world's leading icons and scholars in IKS, once said, "The wisdom that is not open to scrutiny can be dangerous, unhelpful and hindrance to women empowerment and development". Since it is impossible to erase the negative and counterproductive proverbs, they can actually be used as stepping stones in bringing awareness and used by Malawian gender equality activists in their campaigns. In addition, tools such as education can be used to redress male dominance in many ways. Not educationally empowered, patriarchy finds favourable conditions to manifest itself by exploiting, oppressing and subordinating vulnerable and powerless women since they depend holily on their husbands for finances and survival.

8 Recommendations

- Although, to a larger extent, gendered proverbs encourage male dominance over women and portray women in a negative light, there are still some gendered proverbs that say positive about women and mothers and also encourage women's agency. Most profoundly, the teaching in the proverbs E and F is about respecting women in general, irrespective of whether she is your mother or not. Malawian society upholds such values and traditions that recognise the critical role mothers/women play in the lives of children. Gender activists must take up awareness initiatives and use the negative and counterproductive proverbs as a stepping stone in educating the nation on gender equality advances that the country aspires for while focusing more on positive and empowering proverbs.

- The education curricula and school syllabus need to be revisited to make them more gender-sensitive and responsive by incorporating more positive and empowering proverbs. Focusing more on negative proverbs will only perpetuate gender inequality, which works against transforming societies.
- Proverbs themselves should not be abandoned in the syllabus, but it requires teachers who are equipped with gender skills so that they teach in a gender-sensitive manner while interrogating the negative proverbs.

References

- Africa Union Agenda. (2063). The Africa we want. <http://au.int/agenda/2063>.
- Binauli, S. L., (2010). Gender mainstreaming in national programmes and research: Experiences lessons learnt from Malawi. In: *Gender mainstreaming experiences from Eastern and Southern Africa: Organisation from science research in Eastern and Southern Africa (OSSREA)*. Ethiopia: s.n., pp. 101-122.
- Chakanza, J. (2001). Wisdom of the people, 2000 Chinyanja proverbs. Published by the Christian Literature Association in Malawi
- Chikhungu, L., Kadzamira, E., Chiwaula, L., & Meke, E. (2020). Tackling girls dropping out of school in Malawi: Is improving household socio-economic status the solution? *International Journal of Educational Research* vol103.
- Chikwelu, E. J. (2017). Never marry a woman with big feet: The proverbial oppression of women in Igbo African culture-Nigeria. Un published Thesis submitted for the fulfilment of the requirements for the Degree of Master of Social Science in Anthropology. Faculty of Humanity-UKZN
- Chinua, A. (1982:5). *Things fall apart*. Heinemann: London.
- Donald, A. (2013). Reinforcing gender stereotypes: How our schools narrow children's choice. The Guardian News, Monday 9 Dec.
- Gross-Berg, L. (1991). Strategies of Marxist Cultural Interpretation. In: *Critical Perspectives on Media and Society*. New York: Guilford Press, pp. 126-159.
- Kamwendo, G. (2015). Those promoting and practising homosexuality are worse than pigs and dogs: Linguistic assault on homosexuals in Malawi. *Agenda: Empowering women for gender equity* 29 (1): 177–182.
- Kamwendo, J., & Kaya, H. O. (2016). Gender and African proverbs. *Studies of Tribes and Tribals*. 14 (2): 92-99.
- Kanjere, M. M., Thaba, K. L. & Teffo, L. J. (2011). Stereotypes against women principals in rural communities: An individual or cultural issue? A synthesis into indigenous Knowledge systems. *Indilinga-African Journal of Indigenous Knowledge Systems*, 102(1), pp. 245-256.
- Kolawole, K. D. (2009:12). Situating local knowledge within development agenda. Some reflections. *The Journal of Sustainable Development*, issue 2, pp 1-23.
- Maluwa-Banda, D. (2004). Gender sensitive educational policy and practice. The case of Malawi. *Quarterly Review of Comparative Education*, Volume 34, pp71-84.
- Moto, F., (2002). Language and Societal attitudes; A case study Malawi's "new language". *Nordic Journal of African Studies*, 10(3) 320–343.
- Morojele, P. (2013). Rural teacher's views: What are gender-based challenges facing free Primary education in Lesotho? *South African Online Journal of Education*, Vol 33, N 3.

- Nhlelakisana, R. O. (2007). Gender audit at the University of Botswana: The case of The Faculty of Humanities. *Pula: Botswana Journal of African Studies*, 21(1), pp. 113-129.
- Owour, J. A., (2007). Integrating African Indigenous Knowledge in Kenya's Formal Education System: The Potential for Sustainable Development. *Journal of Contemporary Issues in Education*, 2(2), 21-37.
- United Nations Development Program. (2013). available at <https://www.undp.org/publications/undp-annual-report-2013>.
- United Nations Department of Economic and Social Affairs, Population Division report. (2020). <http://www.worldometers.info>. Retrieved on 18/11/2023.
- UNICEF. (2022). Annual report on gender equality: <https://.unicef.org>reports>
- Shefer, T., Kruger, L. M., & Schepers, Y. (2015). Masculinity, sexuality and vulnerability in 'working' with young men in South African contexts: 'you feel like a fool and an idiot... a loser'. *Culture, Health & Sexuality*, 17(sup2), 96-111.
- Zegeye, A. & Vambe, M., (2006). Knowledge Production and Publishing in Africa. *Journal of Development Southern Africa*, 23 (3), pp. 333-349.

49. The Impact of Globalisation on Culture among the Indigenous Women Entrepreneurs in Africa

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Abstract

The concept of globalisation has gained intensive debate across disciplines. The debate often takes divergent views and positions, especially the meaning and the theoretical tools that are best to understand it. This study examines the impacts of globalisation on the culture of indigenous women entrepreneurs in Africa. Further, this paper suggests a distinguished activity called indigenous entrepreneurship, which indigenous women entrepreneurs practice within the context of globalisation. Indigenous entrepreneurship is important because, though indigenous African women have long remained unnoticed, there is a turnaround in the role of women and their contribution to the economic development of communities. Indigenous populations throughout the world suffer from chronic poverty, lower education levels, and poor health. In addition, in Kenya, just like the rest of Africa, women have mostly been involved in household activities and subsistence farming, and they are rarely found in micro and small enterprises. However, due to globalisation, which has led to liberalisation and the opening of the world's attitudes towards women, roles that have always had a traditional outlook have been interfered with, resulting in greater contributions to the sustainable development agenda. A descriptive review of the literature was used, which took the form of an in-depth analysis of content presented by studies in this area. The study considered four groups of indigenous women entrepreneurs located in the Eastern, Southern, Northern, and Western of Africa. Findings show that globalisation has brought both positive and negative effects within the community.

Keywords: *Globalisation, indigenous women, entrepreneurs, cultural transformation, economic development*

1 Background information

Globalisation is variously defined depending on the referenced points of view. This includes lived-in experiences and the extent of involvement of people in international activities. The Oxford Dictionary (2024) defines globalisation as the process whereby people, places, regions, and countries become more interlinked and more interdependent at a planetary scale. Further, Scholte (2017) defined globalisation as the intensification of worldwide social relations that link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa. Globalisation can also refer to increased integration and interaction among the countries of the world, fuelled by sophisticated and advanced communication technology, for trade, political, economic, social, and cultural networking.

The phenomenon of globalisation creates a platform where developing countries showcase their local products, expertise, culture, and traditions, among other things, to the world. In contrast, the technology, culture, and traditions of Western society are also globally ubiquitous. It has been argued that globalisation creates equal platforms for all countries of the world

(Steger, 2023). Therefore, as different countries interact, their culture and traditions also come into contact, and this brings about the interface of various cultures across the globe. In the process, the countries that have control of highly developed information technology tend to exert influence on other countries that are not as advanced as them in this respect.

The trend of growing worldwide interconnectedness is presently accompanied by several coinciding and clashing notions of cultural change. Over the past fifty years, globalisation has risen dramatically as goods traded amounted to roughly 45% of the world GDP in 2019, up from only 20% in 1970. International travel, media, tourism, and the Internet facilitate this rise or spread.

Internet use in Africa, for instance, increased by the year 2005 from 2% to 39.7% of users in 2021 (Sarpong et al., 2022). Other modes of spread are by transportation, technology advances, social modernisation, connectivity, communication, liberalisation of policy, Foreign direct investment (FDI), international trade, international organisations like the World Health Organisation (WHO), sports and games like athletics, music, free market, and removal of trade barriers, form the other mode of entry.

The pace of social change and transformation worldwide seems to have quickened dramatically in one or so decades, with implications on many dimensions of social life and human culture. The influence of globalisation on the indigenous entrepreneurial culture among women in Africa and its consequential effects are the primary concerns of this study. Indigenous populations throughout the world suffer from chronic poverty, lower education levels, and poor health.

2 Dimensions of globalisation

Globalisation is a complex phenomenon that encompasses various dimensions. Steger (2017), a professor of Global Studies at the University of Hawaii at Manoa, argues that globalisation has four main dimensions: economic, political, cultural, and ecological, with ideological aspects of each category.

- a) **Economic globalisation** is the prevalent cross-border flow of goods, services, capital, technology, and labour. Its main characteristic is the increasing economic integration and interdependence of regional and national economies.
- b) **Political globalisation** - This is often referred to as multilateralism. It involves the creation and the rapid increase or proliferation of multilateral organisations such as the United Nations (UN), World Bank, International Monetary Fund (IMF), and World Trade Organisation (WTO). These institutions watch over the member nations, as evidenced in the mission statement of the World Bank, “to reduce poverty and improve living standards by promoting sustainable growth and investment in people.” The institutions have been criticised for the influence they have over the member states.
- c) **Cultural globalisation** - According to Fukuyama (2001), culture encompasses the values, norms, interpretations, and modes of behaviour that characterise societies or other social groups.

Culture also encompasses language, beliefs, customs, dress, diet, roles, knowledge, and skills, and all the other things that people learn that make up the ‘way of life’ of any society. Culture is learned consciously and unconsciously. It should, therefore, be distinguished from human

nature, on the one hand, and from individual personality, on the other. Cultural features are passed on in socialisation processes. That is why culture cannot be changed in the short term: it has a long-term character (Hofstede, 1994). According to Zimmerman (2015), culture is the characteristics and knowledge of a particular group of people defined by everything from language, religion, cuisine, social habits, music, and arts. Culture can influence economic activity in variable ways. For example, it is known for influencing attitudes towards work and consumption. Some tribes are said to be more entrepreneurial than others. It also influences the organisation of economic activity and the shaping process of institutions' effectiveness. Besides, culture has an impact on social networks and confidence building within social groups (Fukuyama, 2001).

The globalisation dimensions are important because they explain the effects of globalisation in one way or another and contribute to the entrepreneurial culture of indigenous women in Africa. This includes cultural diffusion. Cultural diffusion is the process by which culture is spread across the globe. It occurs when cultural items such as ideas, styles, religion, technologies, languages, sports, traditional music, and traditional instruments spread across the globe.

Moreover, traditional music, artefacts, and sports have an essential role to play in the development of the economy during globalisation. While cultural diffusion refers to the transmission and exchange of ideas, values, norms, and beliefs between countries, cultural globalisation is directly linked with economic globalisation, which is the exchange of economic factors across national borders. It is often considered a two-edged sword as cultural clashes abound when immigration or the free movement of labour across national borders is allowed. The openness of a society, often restricted by national governments, defines the potential degree of cultural assimilation. The exchange of ideas has the capacity for innovation, including technological change and economic development.

3 Statement of the problem

The influence of globalisation on the indigenous Entrepreneurial culture among women in Africa and its resultant effects are of major concern in this study. Indigenous populations throughout the world suffer from chronic poverty, lower education levels, and poor health. However, due to globalisation, which has led to the liberalisation and opening of the world, women's roles that have always had a traditional outlook have been interfered with, resulting in greater contributions to the sustainable development agenda.

Several studies (Satar & Natasha, 2019; Shinnar et al., 2018) have studied women and gender issues, but little has been done directly on indigenous women entrepreneurs as they relate to globalisation.

This paper examines the impact of globalisation on the culture of indigenous women entrepreneurs in Africa. This phenomenon is important because, though indigenous African women have remained unnoticed for a long time, there has been a turnaround of events regarding the role of women and their contribution to the economic development of the community. This paper suggests that there is a distinguishable kind of activity appropriately called indigenous entrepreneurship and explores how the culture of women entrepreneurs has been changed by globalisation. The future of globalisation is predicted to grow; however, since COVID-19, some indications show lessons have been learnt, and the likelihood is that governments are likely to start looking inward and adopt more protectionist policies. So, this study will be helpful to policymakers and other government institutions.

4 Literature review

Several secondary sources related to this study were reviewed to shed light on matters relating to women entrepreneurs. Some of the studies reviewed included individual social entrepreneurship orientation (Satar & Natasha, 2019); women entrepreneurs in developing nations: growth and replication strategies and their impact on poverty alleviation (Shah & Saurabh, 2015); the promise of entrepreneurship as a field of research academy of management (Shane & Venkataraman, 2000); Entrepreneurial Intentions and start-up (Shinnar et al., 2018) and toward nurturing the entrepreneurial intentions of neglected female business students of Pakistan through proactive personality, self-efficacy and university support factors, Globalisation challenges faced by women entrepreneurs (Suriyamurthi et al., 2009), among others. However, the common themes resonated with women entrepreneurs in different aspects besides being in Africa and being marginalised and influenced by globalisation.

4.1 African culture

African culture is different from that of other continents. According to Antia (2005), culture consists of both material and non-material aspects. Material culture refers to the visible targetable objects that man can manufacture for purposes of human survival. Non-material culture comprises people’s norms and morals. Culture is also dynamic in the sense that it is continually changing, thus not permanent or fixed. Africa is a multi-ethnic, multi-religious continent comprising several indigenous peoples in various parts of Africa. Each has its own culture, norms, values, perspectives, and perceptions. Much of the population migrated into their present states from the neighbouring regions of the African continent, so there is a likelihood that some aspects of their culture are related.

4.2 Entrepreneurial culture

Entrepreneurial culture is a collective programming of the mind which distinguishes category of one people from another (Liaskos et al., 2017). It is also a way of embracing the concept of finding new opportunities in business and gathering the necessary resources to find the opportunity. Enterprise culture enhances economic growth, builds social capital and job creation, and influences internalisation in terms of technology, human resources, and information flow, and primarily acts as a source of innovation.

Further, entrepreneurial culture is a process within an environment where someone is motivated to innovate, create, and take risks. In a business, an entrepreneurial culture means that employees are encouraged to brainstorm new ideas or products. Several cultural habits promote entrepreneurship development, and others that inhibit entrepreneur development. These habits are as follows:

Table 1: Cultural habits that promote and inhibit entrepreneurship.

Cultural habits promote Entrepreneurship	Cultural that inhabits entrepreneurship
Money orientation	Beliefs, language, religion, lifestyle
Foresight (visionary, futuristic)	Personal relationship
Time-conscious (right time is a resource)	Technology
Work ethics (hand work)	Attitude toward innovation
Social status (promote competition)	Mentality
Reward (appreciate humble beginnings)	Family background

4.3 Indigenous people in Africa

Among Africa's many indigenous peoples are the hunter-gatherer forest peoples of Central Africa, nomadic pastoralists such as the Maasai and Samburu in East Africa, the San in Southern Africa, and the Amazigh people (Berbers) of North Africa and the Sahel. The Hausa are primarily located in West Africa in northwestern Nigeria and southern Niger, but they are also found in Cameroon, Togo, Chad, Benin, Burkina Faso, and Ghana. They are notable because they are the largest ethnic group in Africa, with a population of 78 million.

Table 2: The Indigenous People of Africa

Indigenous Group	Region in Africa
Khoisan	South Africa
Hausa	West Africa
Maasai, Samburu	East Africa
Amazigh	North Africa
Hunters and gathers(pygmies)	Central Africa

4.4 The indigenous women in Kenya, the case of Maasai

In Kenya, just like the rest of Africa, indigenous women have mostly been involved in traditional household activities, like milking cows, cleaning and clearing bushes, building traditional houses, and subsistence farming, with the greatest extent taking the form of small-scale trades. However, due to globalisation, which has led to liberalisation and the opening of the world, women's roles that have always had a traditional outlook have been interfered with, resulting in greater contributions to the sustainable development agenda. The challenges of resource mobilisation are reducing as globalisation impacts resource mobilisation factors.

4 Methodology

A descriptive review of the literature was used, which took the form of an in-depth analysis of content presented by studies in this area. Thereafter, interpretations were made to make a meaningful sense of the data and to help conclude. The study considered four groups of indigenous women entrepreneurs located in the Eastern, Southern, Northern, and Western of Africa.

5 Findings of the study

Globalisation has brought many effects on the indigenous female entrepreneurial community. It has provided immense opportunities for profitability and establishment of new enterprises, creation of jobs, and raising standards of living. It has also enabled women to interact socially and form welfare groups that help in sourcing credit facilities. However, it has been criticised for creating both positive and negative impacts. Globalisation has been advancing, erasing cultural differences in its way, and now not only the gains of raising the standards of living but also creating the losses in the form of alienation, displacement, and marginalisation that are becoming apparent in the world (Pieterse, 1996).

5.1 Positive impact

Globalisation has positively impacted marginalised indigenous women entrepreneurs in Africa by providing access to new markets and information, preserving and promoting their

cultural heritage, empowering them to take on leadership roles, building their capacities and skills, and fostering community development through reinvestment of profits. This has led to increased economic opportunities and social empowerment within marginalised indigenous communities. However, challenges such as unequal access to resources and cultural exploitation persist. Efforts to support indigenous women entrepreneurs should prioritise inclusivity, cultural sensitivity, and sustainable development.

5.2 Negative impact

Negative impact affects individuals' work and local economies by increasing competition, causing the loss of jobs, exploiting workers in developing countries, and causing environmental degradation because of increased consumption and degradation. It also causes cultural homogenisation (loss of cultural diversity-promoting Western values), for example, foods from other countries that are considered exotic or foreign that have become common, for example, the fast-food industry that is growing with great speed and creating challenges with policymakers, erosion of labour standards, widening inequality, financial instability.

5.3 Implications of globalisation on the culture of indigenous women entrepreneurs in Africa

Globalisation and economic liberalisation have often destroyed indigenous subsistence economies and displaced indigenous women from their land. In many countries, indigenous peoples are displaced from their lands due to modernisation-related activities like the construction of communication infrastructures.

In addition, indigenous women entrepreneurs have been relieved of their imposed duties to some extent but have lost their livelihoods due to globalisation's impact. Manufactured goods and service industries have replaced some of their natural resources.

Indigenous men move from their communities in search of grass for cattle, others to urban centres for security jobs and other types of work, in some cases leaving indigenous women and children behind. This has caused indigenous women to develop an eye for entrepreneurial activities as an alternative.

There has also been an increase in the migration of indigenous women to urban cities not only for micro and small enterprises but also in search of employment.

6 Conclusion

Globalisation is predicted to expand; however, since COVID-19, some indications show lessons have been learnt, and the likelihood is that governments are likely to start looking inward and adopt more protectionist policies. This means they will look more into localised resources rather than imports.

Women are toppling their male counterparts with economic empowerment programs that are being put in place. For example, indigenous women entrepreneurs are now grouping into small economic teams to act as support systems to each other. These have provided synergy to overcome the challenges posed to them by the cultural patterns and experiences that have overburdened them for several decades now.

Enlightened men are creating inclusivity tactics in their strategic economic approach to allow for more flexibility. They are relaxing the stringent traditional rules they hold against women. This can be attributed to high poverty levels and the changing climatical patterns being

witnessed the world over, which have not spared the indigenous communities either. So, the patriarchal systems are fading away to accommodate the contribution of all the persons in the community, which was not the case before. With more open systems of approach, sustainable economic strategies are more inclusive, allowing women to participate. Today, we witness so much innovation from these indigenous women entrepreneurs, who translate indigenous culture into various types of small-scale enterprises.

Moreover, creating an entrepreneurial culture within a society drives many benefits. However, the establishment of a robust entrepreneurial culture is not an easy task; hence, the process must involve some risky situations. Participation of leaders (political, business, opinion): Community Elders and political and religious leaders should promote entrepreneurship as a solution to current economic problems faced by indigenous women. A charismatic leader is required to transform a community. Changing the mentality from the 'traditional way of doing things' to the modernisation mindset requires a psychological 'push' that can be facilitated by people who can influence the community. For example, the patriarchal leadership should be more flexible in dealing with issues of women, especially where there is prejudice.

7 Recommendations

- Findings show that indigenous women are greatly enhanced in their representation not only in enterprising trades but also in politics. When indigenous women are more involved in decision-making processes, their voices are heard, and their interests are considered.
- Since the contribution of indigenous women entrepreneurs cannot be over-emphasised, there is a need to break the barriers associated with the culture, especially when it comes to accessing collateral for credit for enterprise development.
- Provide capacity-building, training, and mentoring programs to women and girls and equip them with market information, entrepreneurship opportunities, and the necessary skills to attain economic independence, for example, through our Pathways to Prosperity and African Women Entrepreneurs Program.
- There is a need to put in place policies that recognise the role of equal power structures and discriminatory social norms in driving gender equality and highlight the nature of economic empowerment for indigenous women entrepreneurs.

References

- Antia, O. R. (2005). *Akwa Ibom cultural heritage: Its incursion by Western Culture and its renaissance*. Uyo, Nigeria: Abnny Publishers.
- Gupta, R. S., Hsu, D. K., Powell, B. C., & Zhou, H. (2018). Entrepreneurial intentions and start-ups: Are women or men more likely to enact their intentions? *International Small Business Journal*, 36(1), 60–80.
- Hofstede, G. (1994). The business of international business is culture. *International Business Review*, 3(1), 1–14.
- Hussain, S., & Imran Malik, M. (2018). Towards nurturing the entrepreneurial intentions of neglected female business students of Pakistan through proactive personality, self-efficacy, and university support factors. *Asia Pacific Journal of Innovation and Entrepreneurship*, 12(3),

363–378.

- International Monetary Fund. Strategy, Policy, and Review Department. (2018). *Pursuing women's economic empowerment*. International Monetary Fund.
- Liaskos, J., Manolakopoulos, S., Samonakis, D. N., Koskinas, J., Papageorgiou, M. V., Ketikoglou, I., ... & Papatheodoridis, G. V. (2017, October). Efficacy and safety of treatment with direct-acting antiviral(s) in Chronic Hepatitis C (CHC) patients with compensated advanced liver disease and signs of portal hypertension. HERACLIS: A Hellenic multicenter real-life cohort clinical study. In *HEPATOLOGY*, 66, 813A-814A. Hoboken, NJ, USA: Wiley.
- Monetary Fund. Strategy, Policy, and Review Department. (2018). *Pursuing women's economic empowerment*. Washington, DC: International Monetary Fund.
- Oxford University Press. (2024). Entry. In *Oxford English dictionary*. Retrieved February 12th, 2024 <https://www.oed.com/search/dictionary/?scope=Entries&q=globalization>
- Sarpong, B., & Nketiah-Amponsah, E. (2022). *Financial inclusion and inclusive growth in sub-Saharan Africa*. *Cogent Economics & Finance*, 10(1), 2058734.
- Satar, M. S., & Natasha, S. (2019). Individual social entrepreneurship orientation: Towards the development of a measurement scale. *Asia Pacific Journal of Innovation and Entrepreneurship*, 13(1), 49–72.
- Shah, H., & Saurabh, P. (2015). Women entrepreneurs in developing nations: Growth and replication strategies and their impact on poverty alleviation. *Technology Innovation Management Review*, 5(8), 34.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217–226.
- Shinnar, R. S., Hsu, D. K., Powell, B. C., & Zhou, H. (2018). Entrepreneurial intentions and startups: Are women or men more likely to enact their intentions? *International Small Business Journal*, 36(1), 60–80.
- Steger, M. B. (2023). *Globalization: A Very Short Introduction*. Oxford University Press.
- Steger, M., & Wahrab, A. (2016). *What is global studies? Theory & practice*. Routledge.
- Sunil, M. S., & Natasha, S. (2019). Individual social entrepreneurship orientation: towards the development of a measurement scale. *Asia Pacific Journal of Innovation and Entrepreneurship*, 13(1), 49–72.
- Zimmermann, K. A. (2015). *What is culture? Definition of culture*. Live Science.

SECTION TEN:
INDIGENOUS
ARTS, MUSIC,
DRAMA, THEATRE
AND SOCIETAL
TRANSFORMATION

50. A Portuguese Soldier in Kondoa, Tanzania

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Abstract

Among the thousands of figurative images painted on rock surfaces in the Kondoa Hills of Tanzania, one differs from the rest. Using The Afro-Portuguese Ivories, Benin Bronzes, visual images and historical texts, the author argues that this figure probably represents a Portuguese soldier from the 1500s to 1600s. Dating this isolated figure does not offer clues to other works in the corpus. Identification as a Portuguese soldier is tentative even though the data marshalled is extensive and very persuasive. The purpose of this paper is to draw attention to a rock painting that possibly dates back to the 1500s in Tanzania. The paper was developed using observation, extensive archival research, and insightful visual data analysis. The key findings of the study are that the human image conforms to European military fashions between 1498 and the mid-1600s. This analysis questions the assumption that all the Kondoa paintings are millennia-old. It provides a time frame of about 150 years for the painting's creation within the last 500 years.

Keywords: *Rock art, interpretation, Tanzania, fashion history, Portuguese in East Africa*

1 Introduction

Many humans and humanlike creatures are painted on the rock faces in the Kondoa Hills of North Central Tanzania. One may shed light on the history of Portuguese activities in the region. Mary Leakey dubbed the figure “Munenia Man” in her 1983 book “Africa’s Vanishing Art.” Because dating most rock paintings is speculative, Munenia Man offers an uncommon opportunity (Figure 1). This isolated figure enables dating within a 50-year time frame in the first half of the 1500s. Fashion history shows the possibility that it was painted up to the mid-1600s. Munenia Man is also significant among two other renowned corpi of African art, the Sapi/Afro-Portuguese ivories and the Benin bronzes. This interpretive effort to read and date the image uses archival materials to interpret rock art. It shows that a little-used parameter, fashion history, can inform understanding of peoples, places and times where recorded information can be aligned with information presented in the field.

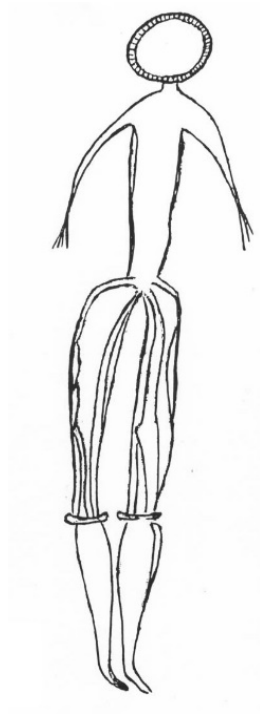


Figure 1: Munenia Man. This is an outline drawing of the figure. No in situ photo of the painting is available. The original tracing is in the National Museum vault. Visitors' reports suggest that local people may have destroyed the image.

Source: Leakey (1983)

Noting the similarity of Munenia's breeches to a Portuguese soldier on a Benin bronze plaque in the British Museum, the author searched the literature for European military attire from the 1500s and 1600s. Research was done in the New York Public Library, the Hispanic Society of America Library in New York and the author's library. Dr Meave Leakey of the National Museums of Kenya kindly allowed a look at a reproduction of Munenia Man in the Museum. Years later the author also accessed the original tracing of the figure in the national Museum's vault.

2 The Kondoa Hills

The Kondoa Hills are a cluster of outcrops on the central Tanzanian plains about 90 miles south of Kilimanjaro and 150 miles from the Indian Ocean (Figure 2). Between the hills and the sea lies the Nyika, the semi-arid strip, which named the German/British colony of Tanganyika. The Hills are a warren of rock faces, overhangs and shelters where people have painted thousands of simple stroked and daubed images of humans, animals, objects and abstractions over an undetermined period.

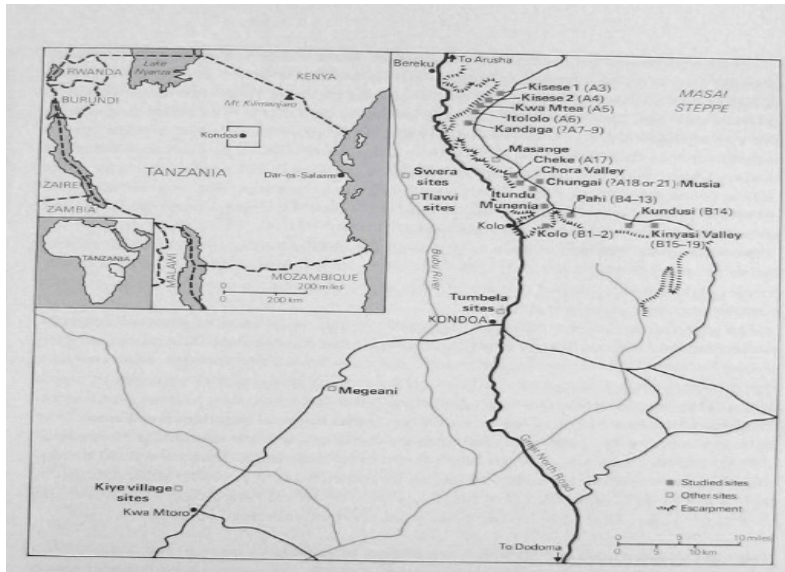


Figure 2: Map of the Kondo Hills with an inset showing Tanzania.

Source: Leakey (1983)

3 The Kondo Corpus

Dr T A M Nash saw the paintings in 1929 and published a note in *The Journal of the Royal Anthropological Society* (Nash, 1929). Mary Leakey studied them in the 1930s. She developed a typology of styles. She describes two shades of red pigment and yellow, white and black images. Some figures are in the solid form of daubed white pigment, while others are outlined. Some are white or yellow pigment outlined in red (Figure 3).

Leakey tried to identify and interpret the depictions. She described the Munenia man as a unique human with a disc-like head wearing 'knee breeches' (Leakey, 1983). The book was an effort to publish before they disappeared due to vandalism and weathering. Several other scholars have written about them, but Mary Leakey's 1983 book is in colour and black and white. Emmanuel Bwasiri and Benjamin Smith published an article in *Azania* in 2015, giving statistical analysis and revised typology. They considered links among the paintings and their features to some linguistic groupings and contemporary practices in the Kondo Region.



Figure 3: DP Photo

Source: Adapted from a replica in the National Museum of Kenya, Nairobi

4 The Munenia figure

Unlike most humanlike figures in the Konda corpus, Munenia Man is a stroked outline about 11 inches high. It is neither among nor in association with other figures. Its style is compatible with the others but shows specific differences that possibly connect more to the subject than representational conventions. The hips, upper legs, one calf and part of the upper body are drawn in a double outline. The head is not a solid but in outline as two closely nested circles with hatches linking the perimeters. There is no other recorded figure in the region that resembles Munenia Man.

5 Issues of dating and Interpretation of the Konda Corpus

Dating and interpreting the Konda paintings are problematic. Leakey is noncommittal, saying some paintings may be 1500 years old. She notes that ochre crayons found near some sites date to 29,000 years BP, though such paintings would have disappeared by now (Leakey, 1983).

Many figures resemble clothing, body ornaments, and hairdos among people of the last 150 years. Some headgear can be seen in Egyptian paintings of the 1300s BCE, Renaissance engravings, and 1900s Kenyans. Some resemble materials and images from the late 1800s onward in photographs and collections (Pido, 1990). One group of females can be dated to the late 1800s using fashion history.

Relative time shows when one image overlays another without telling when or how long apart they were made. In Kenya, the Il Kepali warriors' cohort founded in 1983 is identifiable by the large triangular pendant on its headbands (Figure 4). In Maasai society, fashion history marks political and other kinds of history.



Figure 4: Image of the concrete water tank in Najile, Kenya, in 1985

Source: Author

Dating without knowledge of fashion among the people represented gives us only a gross measure, better than nothing. Understanding more about the Kondo paintings requires the interpretation of codes that are tenuous at best, without knowing the object represented or the artists' conventions. At a cultural and temporal distance, things represented have no meaning to outsiders or non-contemporaries who have no point of visual reference on which to base interpretation.

6 Importance of the image

Non-Africans often consider age a critical question. East Africans are much less concerned with object age than foreigners, who are obsessed with quantifying time. The extreme depth of human life and culture in East Africa makes the Kondo paintings very important in a setting where great age is possible but not guaranteed.

The Munenia figure resembles images of Portuguese soldiers in two well-studied corpi of African art, the Sapi-Portuguese ivories of the late 1400s to early 1500s and the Benin Bronzes, which began at about the same time. In both bodies of work, the Portuguese soldier is both subject matter and icon. The image of the 1500s Portuguese soldier in Benin became continuous long after the Portuguese left West Africa. It became a symbol in abstract and realistic form. (Travis, 1987; Ben Amos, ca 1980; Dark, 1973, 1982). The West Africans worked in 3 dimensions for a vigilant 'tourist' market, while the Kondo artist may have been showing their friends something they had seen.

If the Kondo figure is a Portuguese soldier, it verifies at least one period when people painted on the rocks. That makes the image very important. A search of Portuguese sea captains' accounts of the East African Coast between 1498 and the mid-1600s yielded nothing about their uniforms. There is only occasional mention of cloth and garments given to local dignitaries. The sea captains' accounts indicate ample opportunity for their underlings to desert and disappear into the interior (Freeman-Grenville, 1975).

7 Munenia Man and His Clothing

Munenia Man looks like he is wearing slashed breeches and either a pale-coloured shirt or is stripped to the waist. The outline treatment of his head suggests it is unfilled due to pale facial colouration. The hatched double outline may represent close-cropped hair and a stubble of beard. These could have been accommodations for the East African climate or lice.

The Kondoia figure is in outline with a partial double outline for the lower legs and upper body and a pronounced double outline for the hips and thighs, an outline that almost converges near the knees. The 'breeches' appear full to billowing at the hips, possibly narrowing toward the knee, though this is not clear. The breeches are finished at the knee with a distinctive sausage-like roll or thick Rouleau. There is no indication of distinct shoes. The hands and feet are treated like others in the Kondoia corpus. This and the disproportionately large head without facial features suggest that an African did the image.

If a European, he could have been Portuguese, British, German, French, Dutch or even American; all were active on the East African Coast and some inland between 1498 and the present.

The Portuguese landed on the Coast in 1498, 1499, 1502, and onward. By the mid-1500s, they were established in factories and settlements in Mozambique. They began building Ft. Jesus in Mombasa in 1593. They held sway over trade and politics all along the Coast but did not establish permanent settlements inland & Dutch maps of the late 1500s suggest that they had detailed and accurate knowledge of the Eastern shore of Lake Victoria. The Anglophone historical record downplays the Portuguese involvement in East Africa. Portuguese records point to established settlements and churches in Lamu (Lobo, 1984). They sent emissaries and churchmen to the court of the Ethiopian King (Sanceau, 1944) (Figure 5). They searched for Prester John and established an embassy in Addis Ababa for decades into the 1600s (Corteseo, 1969; Rey, 1929).



Figure 5: Sanceau's facsimile of the Alvares illustration. The soldier at left is wearing slashed or paned breeches with Rouleau trim at the knees.

Source: Sanceau (1944)

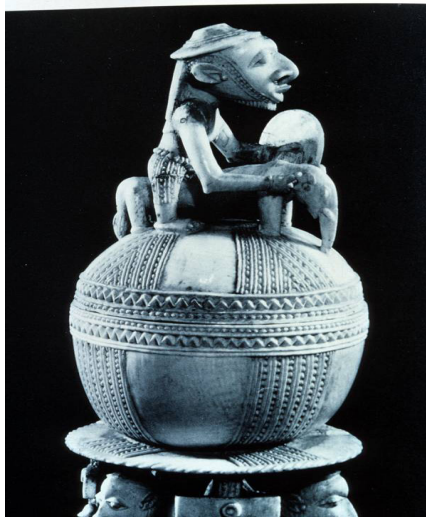
In the 1600s, prisoners drew outline images on the Fort. Jesus, dungeon walls using charcoal. (Figure 6). Unlike the Kondoia artist, the prisoners represented humans in profile with features. They drew themselves in full uniform - doublet, shirt, breeches, and hat.



Figure 6: Inmates in Fort Jesus drew on the stone walls.

Source: DP Photo

The observation that the Munenia figure is only partially dressed suggests two things. One, he was in an informal situation, giving in to the heat of the day. Second, the artist either had not seen a European in full dress or did not care. So, we see an ordinary man in an informal setting. He may be a drawing from memory on a 'bulletin board' rock face having been seen elsewhere.



He could have been a soldier, sailor, deserter, explorer or merchant. We see men like this in the Sapi- and Afro-Portuguese ivories (Figure 7). We can explore the well-documented history of European dress to discover when European men wore similar clothing.



Figure 7: Sapi-Portuguese salt cellars illustrating degrees of undress common among Portuguese soldiers in the 1500s

Sources: Bassani & William (1988), DP Photos

8 European Fashion History

European costume, especially soldiers and sailors

The primary sources for knee breeches are late Renaissance paintings, prints, and costume history (Boucher, 1966; Anderson, 1979; Batterberry, 1977). Within these various illustrations, both the leaders and the lowly underlings, servants, retainers, executioners, and soldiers appear (Figure 8).

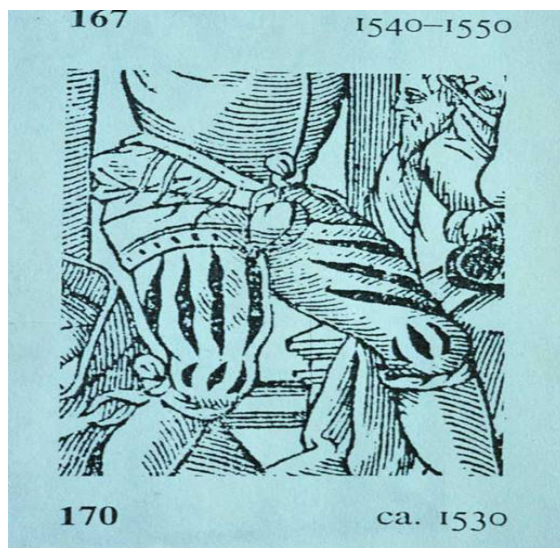


Figure 8: Executioner's Breeches from Anderson

Source: Used with permission of the Hispanic Society Library, New York

Western European men have worn knee breeches since the late 1400s. They were worn, especially by soldiers, hunters, footballers or schoolboys, as late as the 1930s in America and Naples at present. The tradition spans 500 years. Clearly, the painting could not have been done before 1498 (Wikipedia, Slashing and Dagging). Slashing began in 1477 and became influential in European fashion throughout the 1500s and 1600s (Encyclopedia of Fashion). There are many ways of finishing the bottom end of breeches. If they hang loose, there is more freedom but nothing to hold up the stockings. So they can be tied by extensions in knots or bows. Plackets with buttons and buttonholes, narrow or wide bands. Placing the band below the knee forces ballooning to accommodate bending. The breeches can be shortened to free the knee joint or lengthened for bending. The pictorial and artifactual evidence shows four surface treatments common among European soldiers in the 1600s and 1700s.

In the European record and West African sculptures, some breeches are represented with vertical lines enclosing rows of raised dots. These could be puffs of fabric from small slashes. Slashes, pleats, or panes could run vertically, diagonally, or alternately (Figures 7, 8). Munenia Man's outlines seem to indicate simple vertical panning or slashing. Both panning and slashing could have been dangerous for sailors. Slashing would have been more likely for Munenia Man. In the first half of the 1600s, Peruvian weavers represented Spanish soldiers wearing dichromate breeches, suggesting that theirs were paned (Cummins, 2001) (Figure 9).

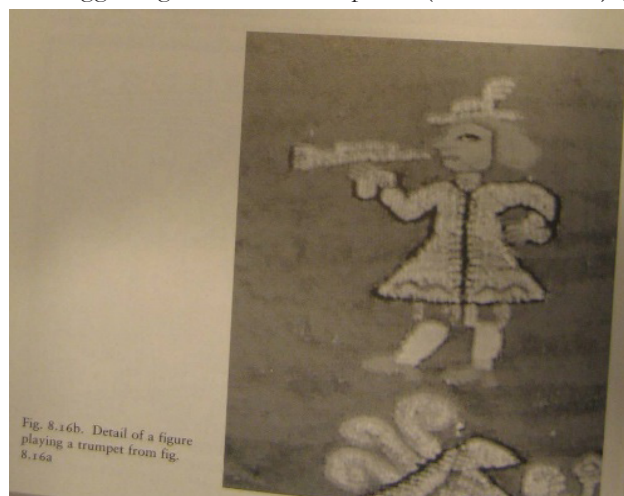


Figure 9: A Peruvian image of a Spanish soldier, first half of the 1600s

Source: Cummins (2001); Hispanic Society and Los Angeles County Museum of Art

Fashion history enables us to piece together a chronology of the rises and falls, straightenings and ballooning, embellishments and simplifications of men's knee breeches and their interaction with stockings, boots, tunics and jackets for about 250 years (Batterberry, 1977; Black & Madge, 1975; Boucher, 1966; Carman, 1957; Cunnington & Willett, 1948; Willett & Cunnington, 1950; Chardron, n.d.; Racinet, 1888; Ribeiro, 2000; Taxinha & Guedes, 1975; Souza, 1925; Thiel, 1985; Tincey, 1988).

Fashion 500 years ago worked much as it does now. Each group copies another. In the 1500s, the 'Spanish style' was in vogue in Italy, Germany, the Netherlands and England. Late in the 1600s, Derrick's description of Ireland includes a whole army wearing breeches with various lower edges, mostly thick Rouleau (Derrick, 1581; Carman, 1957) (Figure 10).

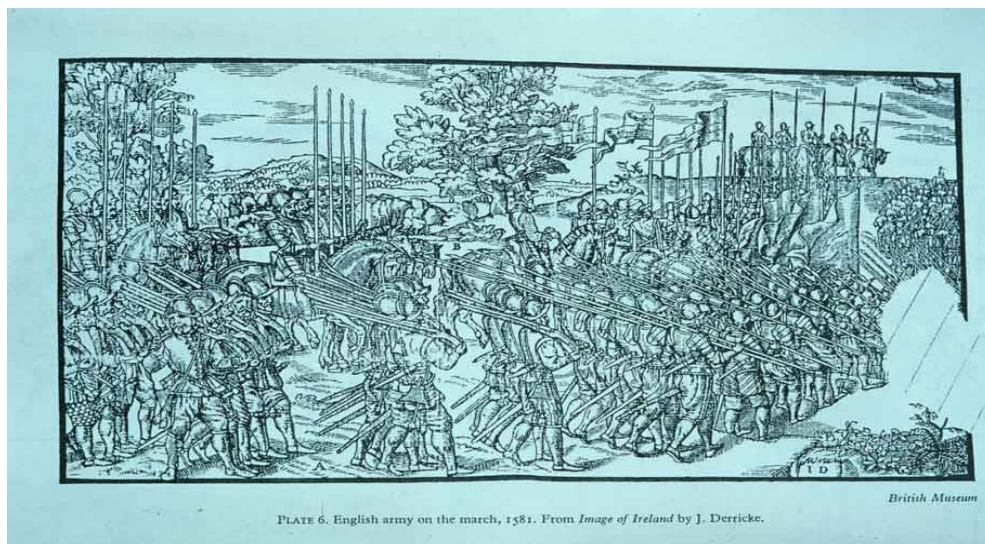


Figure 10: An English army marching from Derricke, Images of Ireland, 1581

Source: NYPL rare books, or University of Edinburgh

Portuguese woodcuts of the 1500s illustrate men wearing the Rouleau finishing on breeches, at least until the beginning of the 1570s. The possibility that the Munenia man was painted any later than the 1650s is very slim.

9 The Silhouette

Above all, the silhouette rules out a later date than 1650 for the Kondo figure. Throughout Africa, silhouette paintings of animals are accurate enough to have enabled a detailed history of domestic species (Epstein, 1971).

According to fashion historians (Boucher, 1966 et al.), Euro male and female clothing silhouettes of the 1500s and early 1600s were burly, emphasizing heavy shoulders and thighs. All extremities are tapered at the wrists, and skin-tight, fairly sheer stockings. The feet were tiny or at least had to look that way.

The silhouettes of the late 1600s and 1700s emphasize shoulders less. Euro men's costumes of the period sloped to a broad, low jacket hem, as seen in the image of a generic, well-dressed man of the mid-century in Figure 11. This illustrates the shift in body mass, the silhouette's primary distinction from the 1500s silhouette (Figure 11).

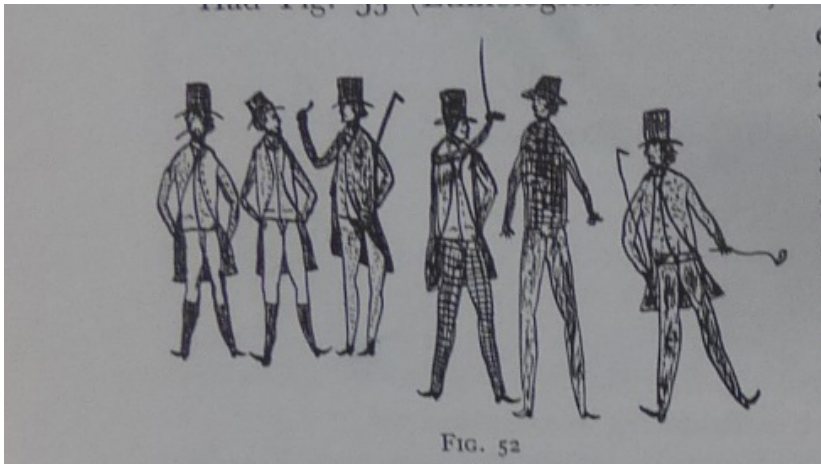


Figure 11: Australian images of Europeans of the late 1700s

Source: DP Photo

In the Kondoia image, the burly silhouette is unmistakable. The upper arms are thick, tapering to minuscule hands. The thighs are heavy, and the feet are tiny and pointed. This figure seems to validate the European ideal form of the 1500s.

9.1 The Sapi-Portuguese Ivories

Between 1490 and 1530, the Sapi people of Sierra Leone produced art that blended African and Portuguese traditions. Among the many human figures represented in these works are lowly soldiers in various states of dress. Those who appear stripped to the waist support the conjecture that Munenia Man could represent a shirtless person. Within the Sapi corpus are all four surface treatments for breeches.



Figure 12: Two Sapi Portuguese Saltcellars

Source: DP Photo

9.2 The Benin Corpus

The Portuguese first made contact with Benin in 1485. The documentation of Benin art indicates that there was an efflorescence of bronze casting due to Portuguese-supplied brass.

The Benin bronzes, including plaques) made for the Oba's court from about 1475 up to the present. Images of Portuguese soldiers appear in high relief on the bronze plaques (Figure 13). Many representations of the soldiers show their knee-length breeches.



Figure 13: British Museum Benin Bronze If the shot is straight frontal, the kilt covers the breeches

Source: DP Photo

Images of Portuguese soldiers in their breeches among the Afro-Portuguese ivories prove that casual appearance and postures could have been familiar enough for local artists to represent them. The contrast between the formal images made by the Portuguese on the dungeon wall in Fort Jesus and the informally dressed Munenia Man painted by an African may be parallel.

9.3 Textual Evidence

Accounts of Portuguese voyages to the East Coast do not mention anyone going inland. By the end of DaGama's first voyage, Portuguese attention was firmly on India, where trade prospects were more significant than those in East Africa (Winius, 1977; Subramanyam, 1997). During the three subsequent voyages, Da Gama and others had enough time for travel, but no records or narrations exist. None of the captains mentions desertions or leaving a garrison behind.

By 1512, Portuguese attention was on Mozambique and the Zambezi (National Archives of Rhodesia, 1962; Newitt, 1973; Axelson, 1960). In the North, they established alliances with the Kings of Malindi and Mombasa (Strandes, 1960; Oliver & Gervase, 1965; Nicholls, 1971), but their attention was on the Somali Coast as an entry point to Ethiopia (Sanceau, 1944; Rey: 1929; Lobo, 1984). The eventual establishment of Fort Jesus in Mombasa in 1593 was more for acquiring provisions than trade. Once the Portuguese satisfied their curiosity about the hinterland, they were not motivated to travel there again because there was so much more in Calicut. There is no record of large-scale or crucial Portuguese incursion between Sofala and Mombasa. Nonetheless, local people around Kondoa can still point out features left behind by *Wareno* (Swahili word for Portuguese).

Munenia Man may never have been in the Kondoas if someone from there travelled to the Coast, returned home and drew a stranger on the rock wall. He could have been accompanying an Arab slaving mission, but there are no images of guns or humans that look like Arabs in the Kondoas.

10 Summary and conclusions

The rock paintings in the Kondoas Hills of Tanzania represent various peoples at various times. Dating and interpreting them could not be more problematic. One figure probably represents a Portuguese soldier. Investigations of archival material suggest that the image does represent a European of the early 1500s or 1600s. West African art from the 1500s is corroborative.

Texts of the period exclude the possibility of non-Portuguese Europeans in the 1600s. Cartographic evidence and history strongly suggest that the Portuguese visited the Lake Victoria region in the early 1500s,

Considering the prominence of slashed, paned and pleated knee-length breeches in military attire throughout the 1500s and the burly silhouette that changed in the late 1600s. It is reasonable to conclude that Munenia Man is a Portuguese soldier. Lamentably, dating Munenia Man can tell us only roughly when he was painted and does not enable dating of other images.

Bibliography

- Anderson, R. M. (1979). *Hispanic Costume*. New York, the Hispanic Society of America plate 170 detail from an execution 1530.
- Axelson, E. (1960). *Portuguese in South East Africa 1600-1700*. Witwatersrand: Witwatersrand University Press.
- Bassani, E., & William, B. F. (1988). *Africa in the Renaissance: Art in Ivory*. New York: The Center for African Prestel Verlag.
- Batterberry, M. (1977). *Mirror Mirror, A Social History of Fashion*. New York: Holt Reinhart and Winston.
- Ben, A. (1980). *The Art of Benin*. London: Thames and Hudson.
- Black, J. A., & Madge, G. (1975). *A History of Fashion*. New York: William Morrow and Company Inc.
- Boucher, F. (1966). *20,000 Years of Fashion, the History of Costume and Personal Adornment*. New York: Harry Abrams Inc.
- Bwasiri, E., & Smith, B. (2015). *The Rock Art of Kondoas District, Tanzania*, in *Azania: Archaeological Research in Africa*, 50(4), 437-459.
- Carman, W. Y. (1957). *British Military Uniforms from Contemporary Pictures*. London, Leonard Books Limited.
- Corteseo, A. (1969). *History of Portuguese Cartography*. Coimbra: Junta de Investigações do Ultramar.
- Cummins, T. B. F. (2001). *Toasts with the Inca: Andean Abstraction and Colonial Images on Quero Vessels*. Ann Arbor: University of Michigan Press.
- Cunnington, P., & Willett, C. (1948). *The Art of English Costume*. London Collins St. James Place.
- Dark, P. (1973). *An Introduction to Benin Art and Technology*. Oxford: The Clarendon Press

- Derrick, J. (1581). Images of Ireland. London: British Museum. In the New York Public Library, Rare Books collection.
- Epstein, H. (1971). *The Origins of the Domestic Animals of Africa*. New York: Africana Publishing Corporation.
- Freeman-Grenville, G. S. P. (1975). *The East African Coast*, 2nd edition, London, Rex Collings Ltd.
- Leakey, M. (1983). *Africa's Vanishing Art: Garden City, NY, Doubleday*.
- Livraria, C. (nd). *Historia do Trajo em Portugal*. Lisbon.
- Lobo, G. (1984). *Itinerario*. Translated by Donald M. Lockhart. London: The Hakluyt Society
- Nash T. A. M. (1929). *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* Vol. 59 (Jan. - Jun. 1929), pp. 199-206.
- Newitt, D. D. (1973). *Portuguese Settlement on the Zambezi*. London: Longmans Group
- Nicholls, C. S. (1971). *The Swahili Coast*. London: George Allen and Unwin Ltd.
- Oliver, R., & Gervase, M. (1965). *History of East Africa*. Oxford: The Clarendon Press
- Pido, D. (1990). *Imagery and Insight*. A paper presented at the meeting of the African Studies Association Baltimore November 6-9th, 1990.
- Pido, D., & Kratz, C. (2000). *Gender, Ethnicity and social Esthetics in Maasai and Okiek Beadwork in Rethinking Pastoralism in Africa*. Dorothy Hodgson ed. Athens, Ohio: Ohio University Press.
- Racinet, M. A. (1888). *Le Costume Historique*. Paris: Firmin-Dido et Cie.
- Rey, C. F. (1929). *The Romance of the Portuguese in Abyssinia*. London: H. F and G Witherby.
- Ribeiro, A. (2000). *The Gallery of Fashion*. London: National Portrait Gallery.
- Sanceau, E. (1944). *The Land of Prester John*. New York: Alfred A. Knopf.
- Souza, A. (1925). *O Trajo Popular em Portugal, Nos Seculos XVI e XVII*. Lisbon.
- Strandes, J. (1960). *The Portuguese Period in East Africa*. Nairobi: The East African Literature Bureau.
- Subramanyam, S. (1997). *The Career and Legend of Vasco Da Gama*. Cambridge: Cambridge University Press.
- Taxinha, M. J., & Guedes, M. C. (1975). *O Bordado no Trajo Civil em Portugal*. Lisbon: Secretaria de Estado da Cultura.
- Thiel, E. (1985). *Geschichte des Kostums, Die Europaische Mode von den Anfängen bis zur Gegenwart*. Wilhelmshaven: Heinrichshofen's Verlag.
- Thomas, H., & Armando, C. (1938). *The Discovery of Abyssinia by the Portuguese in 1520*. London: The British Museum.
- Tincey, J. (1988). *The Armada Campaign 1588*. London: Osprey Publishing.
- Travis, S. Q. (1987). *The Image of the Portuguese on the Brass Plaques of Benin*. MA thesis, Columbia University.
- Willett, C., & Cunnington, P. (1950). *A Picture History of English Costume*. New York Mac Millan and Company.
- Winius, G. D. (1977). *Foundations of the Portuguese Empire 1415-1580*. Minneapolis: University of Minnesota Press.

51. A Review of Intangible Cultural Heritage Elements of Isukuti Artefact and Ritual among the Isukha Community, Kakamega, Kenya

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Abstract

Intangible Cultural Heritage (ICH) is a priceless indigenous knowledge treasure globally, and its full use has cultural and socioeconomic development value as espoused in Sustainable Development Goals 4, 5, 8, 11 and 16. ICH is manifested through oral traditions, expressions and language, performing arts, social practices, cultural spaces, rituals and festive events, knowledge and practices about nature and traditional craftsmanship. Intangible cultural heritage is fragile and requires urgent safeguarding, yet its transmission remains neglected. The paper reviewed Isukuti artefacts and rituals as intangible cultural heritage in the Isukha Community, Kakamega, to promote and facilitate their use to attain SDGs 4, 5, 8, 11 and 16. The objectives were to identify the SDGs linked to Isukuti artefacts and rituals, establish enactments of Isukuti rituals and artefacts, and ascertain the challenges of Isukuti artefacts and rituals as intangible cultural heritage among the Isukha community. Theoretical triangulation of symbolism and semiotics, functionalist perspective and cultural evolution approaches were employed. The methodology adopted was a descriptive qualitative approach and content analysis. It focused on Isukuti artefacts and rituals by observing and interviewing knowledge holders and practitioners. For truth value in qualitative research findings, crystallisation, authenticity and integrity were maximised. Findings show that Isukuti artefacts and ritual endangerment and fragility can be mitigated. The heritage has contributing potential to the achievement of SDGs such as cultural preservation (SDG 11), promotion of gender equality (SDG 5), economic growth through tourism (SDG 8), education and awareness (SDG 4), and peace, justice and vital institutions (SDG 16).

Keywords: *Intangible cultural heritage, sustainable development, Isukuti, Kakamega, Kenya*

1 Introduction

Takase (2018) asserted that the goal of SDG 11 is to preserve and maintain the world's natural and cultural assets. Intangible Cultural Heritage (ICH) distinguishes people and communities regarding their history, nationalities, languages, ideology, and values (Kim et al., 2019). ICH is the legacy of physical property and intangible attributes of a group or society inherited from past generations, maintained in the present and bestowed to future generations (Okumu, 2016). According to Lenzerini (2011), ICH constitutes the following aspects: one, all immaterial manifestations of culture, and two, the variety of existing heritage. Cultural manifestations and events directly affect all aspects of local economic activity (Teixeira et al., 2023). The cultural heritage of a community is based on the cultural traditions and history of a community, which is thus significant in building national sovereignty (Otiso, 2023). This paper reviewed documentation on two ICH elements of Isukuti artefacts and

rituals in Isukha Community, Kakamega County. There is a growing concern that the young generation is slowly engulfed by modernism and abandoning what they perceive as boring indigenous knowledge. This threatens Isukuti artefacts and rituals as elements needing urgent safeguarding through transmission for preservation. Understanding communities' cultural practices has the potential to create harmony through intercultural dialogue, as laid in SDG11. The context of this study is the Isukha community. Administratively, Isukha is located in Kakamega East Sub County of Kakamega County with six wards. The community's total population is 167,641 (Kenya Bureau of Statistics, 2019). Isukha means first or forward, and the people are called Abiisukha. The Isukha people are divided into sixteen (16) clans (Kibigo et al., 2019). Agriculture is the main economic activity, with 80% of the population involved in small-scale subsistence farming activities and cash crops of tea and sugarcane (Kavulavu et al., 2020). Isukha community is the home of isukuti dance and bullfighting (Kiiru & Mutonya, 2018).

2 Literature review

The literature review zeroed in on historical research via written records and archives to trace the history and evolution of artefacts and rituals, structures and forms, significance and context, rites of passage, and spiritual significance.

2.1 Isukuti artefact

Kiiru and Mutonya (2018) note that early Christians, primarily Quaker Protestants, disliked traditional music. Contrary to the Catholic mission established in Mukumu village in 1906, which supported the development of the isukuti dance genre. Then, the head of the Mukumu mission, in its early days, used to organise the local youth for dance sessions on Sundays after service. The impact of these dance sessions was so significant that the community elders stated, "Isukuti started there. In common with the observation in Chacha (2007), they trace the etymology of isukuti during a Luhya party where white men were guests and treated to the entertainment of the artefact and the ritual. In the end, the guests said, "It is good". The locals translated this to mean "Isukuti." Since then, the ritual and artefact have been called "Isukuti". According to UNESCO (2018), Isukuti is an essential cultural expression among the Isukha and Idakho communities and a symbol of unity in the family and society. The ritual expresses the community's aspirations, philosophy about life and death, fears and hope. Isukuti is a repository of the community's history transmitted from generation to generation (UNESCO, 2023). The isukuti is both an artefact (the drums) and a ritual (the dance). Isukuti rituals and artefacts are rooted in tacit knowledge that is difficult to capture as it resides in the context (practitioners and bearers). Kimutai et al. (2014) emphasise using information communication technology (ICT) to preserve Africa's culture. Isukuti elements must be embraced, appreciated, promoted and protected as articulated through the National Policy on Culture and Heritage (GOK 2009) and in its commitment to the Convention for Safeguarding the Intangible Cultural Heritage (CSICH).



Figure 1: Isukuti drums

Source: Kenya Department of Culture (2013)

The features of the Isukuti artefact comprise three hollow pieces of carved wood drums, namely Isukuti Isatsa (Man), Isukuti Ikhali (Woman) and Isukuti Mwana (Child). These drums are made from *mukomari* (*Cordia Abbysinica*), *mung'oma* (*prunus africana*) or *murembe* (*erithrina*) species of trees. Materials that make up the Isukuti artefacts are wood chopped and chipped from either Mukomari, Murembe or Mung'oma trees. With observation in Lisimba (2022), the carving of the log leaves a hollow canal on one end (head) covered with the hide of a lizard, referred to in the local dialect as *Imbulu* (*matobosaurus validus*). This hide is skillfully fastened using small wooden *mubande* tree pins for original sound. The drums are sun-dried for a week to be ready for performance. Furthermore, getting *Imbulu* to hide 'Saurus' in Latin translation for lizard is hard. It requires hunters with trained dogs to lay an ambush on the reptile near river banks (Lisimba, 2022).

In enacting the artefact, Salazar (2023) noted that Isukuti is hung over the shoulder and played by rhythmically striking the lizard's hide (*Imbulu*), covering the head end of the drum with fingers and palms. Enactment of Isukuti is witnessed daily across the various clans and villages that constitute the Isukha community. The practitioners and bearers hold constant informal consultative meetings about the enactment of the element. This contributes to the artefact's viability and safeguard measures (UNESCO, 2023). Occasions for using the artefact include child naming, initiation, burial and wedding. Other spaces included installing leaders, religious functions, sporting events and public congregations (UNESCO, 2018). Experience of this artefact is without discrimination as everybody can enjoy diverse styles, irrespective of age or sex (UNESCO, 2023). Kiiro and Mũtonya (2018) point out specific priests' liking for Isukuti dance as a user; hence, they were permissive of Isukuti mainly as a form of pastime or entertainment. This finding concurs with the assertion by Lusambili and Okoth (2022) that the artefact has recently been introduced into the Catholic mission through the spirit of Vatican Council II (1962-1965). The advocacy was to use local languages and instruments instead of foreign songs and instruments. Cultural clubs in schools and institutions of higher learning use Isukuti artefacts. Other users include but are not limited to over 50 dance groups spread in rural and significant towns in Kenya, apprentice and master players, practitioners, bearers and the community (UNESCO, 2023).

Among the challenges facing the artefact, UNESCO (2023) posits prohibitive regulations over animal species like the dik-diks (*Shisere*) and monitor lizards (Imbulu) that are a source of hides used on the artefacts. Practitioners and bearers have had to go as far as Naivasha in search for hides of dik-diks run over by vehicles. Lack of funds and the necessary materials to make the instruments and costumes also present an obstacle. Moreover, the counterfeit art of playing Isukuti being experienced today has adulterated the original beats of the 70s and 80s through contemporary fusion and the regulatory restriction on monitor lizards' (Imbulu) hide harvesting (UNESCO, 2023). Integrating Isukuti artefact and ritual as a resource in development initiatives for attaining SDGs is necessary. For the young generations to be aware of the cultural legacy and pass it on to future generations, teach-back must occur regarding ancient rituals and artefacts, which can be a crucial component of the local CBC curriculum. To achieve this, it is necessary to strengthen the link to SDG 4: Quality Education. Besides, SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss. This has a direct correlation to the challenge of Isukuti artefact materials.

2.2 Isukuti ritual

Isukuti dance is not just performed for its cultural significance but as a repository of the history of the community that is transmitted and re-used from one generation to the other. The ritual symbolises unity as it attracts masses, strong family bonds (symbolised by the three drums), and a strong call offering peace in the community. (UNESCO, 2023). Isukuti ritual has a home for integration in SDG 11 to benefit the Isukha community. Informal integration of dance in the school's co-curricular activities has positively impacted the viability and further links to SDG 4: quality education. UNESCO (2014) requires state parties to take safeguarding measures to strengthen the viability of its elements on the list of ICH in need of urgent safeguarding. Pato (2018) emphasises the role a dance serves in the community, especially when women are together or talk about life in general. Isukuti ritual derives its name from the drums used in the performance. The drums are played in a set of three: the big drum (Isukuti Isatsa-Father), medium drum (Mutibo-Mother) and small drum (Mutiti-Child). The set is accompanied by an antelope horn and assorted metal rattles; *bikbuli* (jingles), and *bisili* (metal gongs); whose 1980s professional players of Museno in Isukha southward like Shamwama, Shindu, Shitakhwa, and Balini all deceased without successor save for surviving Shihachi, *imbati* (trumpet from antelope horn) and *Shisiliba* (trumpet from water buckhorn). The ritual constitutes the structural complexity, and free movements (*mwinuyo*) depict it as a cultural expression of great aesthetic value. UNESCO (2018) notes that the enactment of the ritual has been ongoing as knowledge and skills are passed from one generation to another through lineage. Enactment of the Isukuti ritual has improved tremendously from 96 apprentices in 2018 to 240 in 2023. It is performed almost daily in the clans and villages where different occasions occur. Because the Isukuti ritual renders itself suitable for any social function, it is performed in weddings, sports, burials, naming, initiation, some religious events and almost all gatherings (UNESCO, 2023). Isukuti ritual has a social and cultural significance at all stages in the life cycle, including birth, initiation, marriage and death.

2.2.1 Shiselelo - Wedding

Abiisukha defines marriage as a covenant between a non-related mature man and woman for procreation.

Marital and love songs

Adom (2020) noted that African music occasionally expresses moral judgments and identifies moral depravity and injustices in many African spaces. Obaje (2018) asserts that African music also includes any sound produced by Africans with their mouths, popularly known as the “African Voices”.

Sheselelo songs included yikolakola yikolakola mukhana yikolakola uloli muyayi weve imbeli, yaka namana kanatola khunjila, nubutinyu aeee, and nubutinyu khulekha benyu khutsia haundi aeee and konga butswa mukhana weru konga butswa eeeeeee.

Dance

Shiselelo dictates the free dance styles on offer irrespective of who (age or sex) is present and ready to participate. *Lipala* dance involves moving both feet rhythmically, holding the waist and the forehead (Mueni & Omollo, 2015). Values are in the songs; the songs articulate the philosophy and values of the community and make commentaries on social issues, nature, and life (UNESCO, 2018; Obaje, 2018).

2.2.2 Khura - Burial

Isukha people bury the dead in their ancestral homes. The community do not consent to their dean being buried elsewhere.

Songs

Adom (2020) notes that African music occasionally expresses moral judgments and identifies moral depravity and injustices in many African spaces. Obaje (2018) asserts that African music also includes any sound produced by Africans with their mouths, popularly known as the “African Voices”. Night vigil songs included, *Unanjili kabili, mukumu kwa yele mukumu kwa yela hangoand Mbee mukoye mbohele mala munda.*

Dance

The *Shimambo* dance is performed when a middle-aged man or woman dies. Isukuti players are invited to entertain the bereaved. During the singing, people chant comforting songs to the accompaniment of *lwika* (horn) (Senoga-Zake, 1986). *Shilembe* dance is performed for the death of old males who met the following attributes: fought in any war(s) and made a mark, killed a fierce animal like a leopard or was a leader of exemplary characteristics.

2.2.3 Khukulikha - Naming

This ceremony played a very significant role in a child’s life. The ritual songs and dances associated with it defined the sanctity of life.

Songs

Adom (2020) notes that African music occasionally expresses moral judgments and identifies moral depravity and injustices in many African spaces. Obaje (2018) adds that African music includes any sound produced by the Africans’ mouths, popularly known as the “African Voices”. Naming songs included “*mwana wamberi nshikhooyo and ing’ombe yikuri baba*”.

Dance

Khukulikha occasion dictates dance style irrespective of who (age or sex) is present. In the *Lipala* dance, a person moves both feet rhythmically, holding the waist and the forehead (Mueni & Omollo, 2015). Values are in the songs; the songs articulate the philosophy and

values of the community and make commentaries on social issues, nature, and life (UNESCO, 2018; Obaje, 2018).

2.2.4 Shishebo - Initiation

In Isukha, three stages of initiation were done for young male adolescents.

Songs

Initiates went round the village singing and dancing Isukuti tunes. *Shishebo* songs included *wooyi baboli ulimusatsa baba wooyo, musatsa niyatukba yasinjila watinya and bamubali baria kbushebwa wooi mbwambo bakwa mmatsi.*

Dance

Shishebo occasions dictate the dance style irrespective of who (age or sex) participates. For example, the three initiation songs here symbolise a male warrior of valour. They are derogatory for cowardice, which denotes the community's message through songs to the initiates and other commentaries on social issues, nature and life (UNESCO, 2018; Obaje, 2018). In the *Lipala* dance, a person moves both feet rhythmically, holding the waist and the forehead (Mueni & Omollo, 2015).

Over the years, there have been challenges of gradual disappearance from the death of knowledge holders and abandonment of the practice (UNESCO, 2018). First, the Isukuti ritual trainee apprentices fail to graduate into master players as some exit the groups in search of greener pastures (UNESCO, 2023). Second, the county regulatory restriction on monitoring lizards' (*Imbulu*) hide harvesting is an endangered species. Third, although learning institutions, including schools and colleges, transmit Isukuti dance and playing skills through school drama festivals, this is not continuous. The ritual heavily relies on the college's and schools' annual event calendars. Fourth, because so many Isukuti rituals happen almost daily, it is impossible to structure the capturing of all enactments. Fifth, there is inexhaustive documentation of some of the activities because Isukuti is not an institutionalised cultural element (UNESCO, 2023). Sixth, Namli (2018) confirms that it ravages cultural spheres like intangible cultural heritage. Seventh, there is an emerging trend of counterfeit art of playing Isukuti due to contemporary fusion. Unfortunately, the output of this fusion does not match the original beats of the 70s and 80s that had the beauty of form (flavour-*bundle* and body moves-*minute*).

The ritual depicts cultural significance via cultural preservation (SDG 11- Sustainable Cities and Communities): By preserving rituals like Isukuti, we preserve the cultural heritage of communities. According to Takase (2018), the goal of SDG 11 is to preserve and maintain the world's natural and cultural assets. Pursuing this objective promotes and appreciates artistic genres. Promoting Gender Equality (SDG 5- Gender Equality): In many traditional rituals, there are specific roles for men and women.

Analysing and changing these roles ensures that both genders are properly and equally represented in line with SDG 5 (Eden & Wagstaff, 2021). Economic Growth via Tourism (SDG 8) - Decent Work and Economic Growth: Kiiru (2020) notes that people are no longer theorised as passive objects of the tourist gaze but as active subjects who consciously build representations of their culture for tourists. Isukuti ritual, for example, can draw tourists and provide a source of income for the artists, community, and nation. Peace, Justice, and Strong Institutions (SDG 16) points to what Whitehouse (2021) calls rituals that bond families because family is an essential locus for ritual life in most settled societies. Such rituals

frequently foster social cohesion, fairness, and dispute resolution. This is accomplished by acknowledging indigenous forms of governance and peacemaking techniques. Consequently, the transmission of the ritual through seminars and training sessions is impacted by incorporating the ritual into school programmes as local content guarantees viability.

Occasionally, Isukuti songs express moral judgments and identify moral depravity and injustices in many African spaces. Obaje (2018) asserts that African music also includes any sound produced by Africans with their mouths, popularly known as the “African Voices”. Some of the Isukuti folk songs include but not limited to *mwana wambeli nishikehoyelo*, *Ing’ombe yikeuri baba ilabumila shimoli*, *nzakbulola busala ikambi kbombekhu* (general entertainment), *unanjili kabili*, *mbee mukoye mbohele malaa munda*, *bayokha bene naboo tsingoiko...haa nukbutsi ntingoi*, *iminyo ikonanga bena munzu yabuya.... and mukaa mulala shimbuya..... (land tilling song)”*



Figure 2: Isukuti Dance

Source: Kenya Department of Culture (2013)

Kiiru (2021) contend that communities continue with contemporary identities and increased interest in culture, including its effect on dance practices. The study of Isukuti ritual performance as a valued heritage of the Isukha community needs to take into account its accessibility, context, and recurrence of *Isukuti dance*.

Certain traditional features associated with the Isukuti ritual have a striking similarity. Obaje (2018) refers to these features: the role of each drum, the harmony of the drums, the meaningful values in the songs, and the flavour and spirit in the synchrony of the performance. Songs articulate the community’s philosophy and values and comment on social issues, nature and life (UNESCO, 2018; Obaje, 2018). The following dances are discussed as a popular aspect of the Isukuti ritual and tied to particular occasions. Mueni and Omollo (2015, note the *Lipala* dance, where a person moves both feet rhythmically, holding the waist and the forehead. *The Shimambo* dance is performed when a middle-aged man or woman dies. Isukuti players are invited to entertain the bereaved. During the singing, people chant comforting songs to the accompaniment of *hwika* (horn) (Senoga-Zake, 1986). *Shilembe* dance is performed for the death of old males who met prescribed attributes, fought in any war(s), made a mark, killed a fierce animal like a leopard, or was a leader of exemplary characteristics. It is believed shilembe gave birth to the present bullfighting (GOK, n.d.). Carr (2023) avers

that the cultural significance of dancing is all too often undervalued, and significant dance practices are vulnerable to being irretrievably lost.

3 Theoretical framework

The origins of Isukuti artefacts and rituals can be found in the society's sociocultural practices, religious convictions, and worldviews. The study employed, firstly, symbolism and semiotics Peña-Alves (2020) that dealt with symbolism inherent in Isukuti and associated artefacts, drumbeat, dance moves and song meaning. Secondly, the functionalist perspective of Dinh et al. (2021) assessed Isukuti's purpose within the community, for example, social, religious and political functions. Thirdly, the cultural evolution and continuity approach by Brand et al. (2019) sheds light on the adaptability and resilience of elements under study, how Isukuti has been evolving, and how changes are incorporated and consistent.

4 Methodology

Mishra and Alok (2022) averred that descriptive research assists in obtaining the characteristics of a particular problem. The conceptual perspective of the study was based on qualitative research that included designs, techniques and measures that do not produce discrete numerical data. Merriam and Grenier (2019) observed that data in qualitative research is in the form of words rather than numbers, and these words are grouped into categories. According to Klenke (2016), ontology addresses the first question: "What is the nature of reality?" Qualitative researchers endorse a relativistic ontology that is always inter-subjective, socially constructed and shaped by context. The study adopted a descriptive qualitative approach and content analysis focused on Isukuti rituals and artefacts through observation and interviews of knowledge holders and practitioners. Historical research was also applied using written records and archives to trace the history and evolution of the artefact and ritual. For truth value, reliability and validity, the study employed crystallisation, authenticity and integrity of qualitative research findings (Miles et al., 2014)

5 Findings

The enactment was twofold: Isukuti artefact that delved into its features, materials, when to use, and users and linked to SDGs and Isukuti rituals via occasions, songs, dances and challenges. For the 2018 reporting period, enactment showed two workshops with 76 participants, 50 cultural groups registered, and collaboration between the Department of Culture and the Ministry of Education for local content. Besides, introducing special awards has enhanced enactment and artefact raw materials through the planting of 2000 seedlings project. The enactment of the Isukuti ritual and artefact for the 2023 reporting period shows that every group continually trains their apprentices, with approximately 240 apprentices per year. Further enactment has been achieved through annual National Schools and College Drama and Music festivals. Challenges affecting Isukuti ritual and artefact include globalisation, the Counterfeit art of playing Isukuti, the low retention rate of trained apprentices, and limited research, particularly the independent relevance of *basil* (metal gongs), a facet of Isukuti ritual.

Additionally, formal documentation, commercialisation of the Isukuti ritual by the practitioners and bearers, and persistent financial constraints affect the elements. Due to the daily occurrence of the ritual within clans and villages on varied occasions, there is a need to strengthen research and documentation. The study found resilience in the locals' perception of the Isukuti ritual, aesthetic inspiration, cultural identity, and sense of home. Moreover, there is a high correlation

between Isukuti artefact materials and SDG 15. Finally, the Isukuti ritual and artefact heritage is a century old in the Isukha community (Lusambili & Okoth, 2022).

6 Discussions

Protecting and promoting traditional knowledge and cultural expression framework is necessary to effect Articles 11, 40, and 69 (1) c of the 2010 Constitution. Such steps will help institutionalise the linkage of SDGs 4, 5, 8, 11, and 16 for Isukuti artefact and ritual benefit at the local, county, and national levels for sustainable development. Furthermore, an analysis of the national inventory of the ICH 2018 and 2023 UNESCO periodic reports pointed out myriad persisting limitations to Isukuti artefacts and rituals. This need to find sustainable homegrown mitigation. Mainstreamed use of Isukuti artefacts and rituals for education and knowledge transfer in the community is long overdue.

Promoting SDGs can take on a unique and memorable dimension when Isukuti artefacts and rituals are incorporated into development activities. Increasingly, there are demands to make strict IK development strategies and programmes. To fully utilise IK's potential to empower communities and foster a feeling of ownership over development processes, it must be meticulously recorded, conserved, archived, and applied to all development activities. IK's nature threatens its survival if its favourable ecology is destroyed or depleted.

7 Implications

IK must be carefully documented, preserved, stored, and applied in all development interventions to unleash its power to empower communities and foster a sense of ownership of the development processes. This recognition of IK as a significant resource for development is coupled with other related factors. Additional implications include preserving cultural heritage, promoting cultural understanding, tourism opportunities, contextual interpretation, cultural appropriation concerns, reaffirming identity, potential for evolution and academic interest. Besides, the study gives additional impetus to county policy on culture and heritage to mainstream culture in education and to have inclusive societies to ensure that culture is a driver and enabler of economic development, particularly access and benefit sharing (ABS).

References

- Adom, D. (2020). Celebration of African music and song at the First Aswan Music Festival. *Journal of African Studies and Ethnographic Research*, 2(2).
- Brand, C. O., Acerbi, A., & Mesoudi, A. (2019). Cultural evolution of emotional expression in 50 years of song lyrics. *Evolutionary Human Sciences*, 1, e11.
- Carr, J. (2023). The tangible and intangible: dance and the safeguarding of intangible cultural heritage. *Dance Research*, 41(1), 66–78.
- Chacha, L. (2007). A sketch of Kiswahili comic discourse in Nairobi. *A Sketch of Kiswahili Comic Discourse in Nairobi Leonard Chacha Ruralité et redistribution de la population au nord du Tanganyika Alain Cazénave-Piarrot*, p. 1.
- Dinh, L. N., Minh, H. N., Khac, D. L., & Van, S. Q. (2021, September). Folk music in the cultural and religious life of Katu ethnic group in Thua Thien Hue province, Vietnam: A functionalist approach. In *AIP Conference Proceedings* (Vol. 2406, No. 1). AIP Publishing.

- Eden, L., & Wagstaff, M. F. (2021). Evidence-based policymaking and the wicked problem of SDG 5 Gender Equality. *Journal of International Business Policy*, 4, 28-57
- Government of Kenya. (2009). *National Policy on Culture and Heritage*. <https://fr.unesco.org/creativity/sites/creativity/>
- Government of Kenya. (n.d.). *National Inventory on the Safeguarding of Intangible Cultural Heritage*
- Government of Kenya. (2016). *Protection of Traditional Knowledge and Cultural Expressions Act*. <http://kenyalaw.org:8181/exist/kenyalex/>
- Government of Kenya. (2010). *Constitution of Kenya*. <http://kenyalaw.org/lex/actview>.
- Kavulavu, L., Chang'ach, J. K., & Tanui, P. J. (2020). Conception and Perception of Marriage among the Isukha People, Kakamega County, Kenya, 1990-2010. *Journal of African Interdisciplinary Studies*, 4(2), 4-15.
- Kenya Bureau of Statistics (2019). *2019 Kenya Population and Housing Census Results* <https://www.knbs.or.ke/2019-kenya-population-and-housing-census-results/>
- Kenya (2013). Isukuti Dance of Western Kenya Inscribed for Urgent Safeguarding by Kenya Department of Culture. <https://worldmusiccentral.org/2014/11/27/isukuti-dance->
- Kibigo, M. L., Choge, S. C., & Simiyu, F. W. (2019). The Role of Language in Facilitating Culture: A Case Study of the Isukha Community, Kakamega County in Kenya. *East African Journal of Traditions, Culture and Religion*, 1(2), 16-24. <https://journals.eanso.org/index.php/eajtcr/article/view/33>
- Kiiru, K. (2021). *Cultural dances and the politics of culture in contemporary Kenya: case studies of isukuti and gonda dances in Western and Coastal regions* (Doctoral dissertation, Paris 10).
- Kiiru, K. (2020). Colonial Choreography: How the British Administration Shaped Dance Heritage in Kenya. *Music and Dance in Eastern Africa: Current Research in Humanities and Social Sciences*, pp. 16–31. <https://books.openedition.org/africae/1707?lang=en>
- Kiiru, K., & Mutonya, M. W. (Eds.). (2018). *Music and Dance in Eastern Africa: Current Research in Humanities and Social Sciences*. <https://www.academia.edu/37056906/>
- Kim, S., Whitford, M., & Arcodia, C. (2019). Development of intangible cultural heritage as a sustainable tourism resource: The intangible cultural heritage practitioners' perspectives. *Journal of Heritage Tourism*, 14(5-6), pp. 422–435.
- Kimutai, M. S., Mzee, A. F., Kogeda, O. P., & Kimutai, K. V. (2014). Ethnocomputing: Using ICT to preserve the Culture of the People of North-Rift Region of Kenya. *International Journal of Scientific Research in Knowledge*, 2(4), 199.
- Klenke, K. (2016). *Qualitative research in the study of leadership*. Emerald Group Publishing Limited.
- Lenzerini, F. (2011). Intangible cultural heritage: The living culture of peoples. *European Journal of International Law*, 22(1), 101-120. <https://academic.oup.com/ejil/article->
- Lisimba, H. (2022). *Isukuti: Infectious traditional drum that makes Luhya people ungovernable whenever it's played*.
- Lusambili, K. M., & Okoth, P. G. (2022). Evaluating opportunities for evangelisation in the historical development of the Catholic Diocese of Kakamega since 1978. *Research Journal in Advanced Humanities*, 3(3), 59-77.
- Merriam, S. B., & Grenier, R. S. (Eds.). (2019). *Qualitative research in practice: Examples for discussion and analysis*. John Wiley & Sons.
- Miles, M., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Los Angeles, CA: SAGE.

- Mishra, S. B., & Alok, S. (2022). Handbook of research methodology. <https://www.nkrgacw.org/nkr%20econtent/nutrition%20and%20dietetics/PG/II.M.Sc%20N&D/BookResearch-Methodology.pdf>
- Mueni, J., & Omollo, L. (2015). Our Pregnancy, My Choice: A Feminist Critique of Nerea. https://ijlass.org/data/frontImages/gallery/Vol._3_No._6/6._55-66.pdf
- Namli, E. (2018). Critique of human rights universalism. *Relativism and post-truth in contemporary society: Possibilities and challenges*, pp. 123–140.
- Obaje, O. J. (2018). *Aesthetics in African cultural performance: a critical study of Ote'gwn festival among the Igala people in Nigeria* (Doctoral dissertation). <https://ukzn-dspace.ukzn.ac.za/>
- Okumu, O. S. (2016). The concept of intangible cultural heritage in Kenya. *AM Deisser and M. Njugguna, Conservation of Natural and Cultural Heritage in Kenya*.
- Otiso, K. M. (2023). Mapping Kenya's Diaspora and Its National Economic, Social, Cultural, and Political Impact. In *The Palgrave Handbook of Contemporary Kenya* (pp. 347–366). Cham: Springer International Publishing. <https://link.springer.com/chapter/>
- Pato, J. S. J. (2018). *The role played by Swazi literature in preserving and promoting the culture of Swazi people* (Doctoral dissertation, Stellenbosch: Stellenbosch University). <https://scholar.sun.ac.za/handle/10019.1/103285>
- Peña Alves, S. (2020). Outspoken objects and unspoken myths: The semiotics of object-mediated communication. *Symbolic interaction*, 43(3), 385-404.
- Salazar, D. (2023). African Englishes in the Oxford English Dictionary. *Lexikos*, pp. 33, 24-40.
- Senoga-Zake, G. W. (1986). *Folk music of Kenya*. Uzima Publishing House.
- Takase, C. (2018). Implementing SDG 11—key elements, challenges and opportunities. *The United Nations Centre for Regional Development*.
- Teixeira, M., Júnior, A., & Sesinando, A. (2023). Sport Events as a Catalyst for Economic, Sociocultural, Tourism, and Environmental Sustainability in Portugal. *Sport Management in the Ibero-American World: Product and Service Innovations*, 258-273.
- UNESCO. (2023). *Report on the Status of an Element Inscribed on the List of Intangible Cultural Heritage in Need of Urgent Safeguarding*. <https://ich.unesco.org/en/USL/isukuti-dance>
- UNESCO. (2018). *Report on the Status of an Element Inscribed on the List of Intangible Cultural Heritage in Need of Urgent Safeguarding*. <https://ich.unesco.org/en/state/kenya>
- UNESCO. (2014). Roadmap for implementing the global action programme on education for Sustainable Development. <https://www.voced.edu.au/content/ngv:70467>
- Whitehouse, H. (2021). *The ritual animal: Imitation and cohesion in the evolution of social complexity*. Oxford University Press. <https://books.google.com/books?hl=en&lr=&id=z>

52. Indigenous Art: Paintings in the Lodwar

Catherdral

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Abstract

By focusing on a body of art that was produced for an indigenous community, this paper offers a critique of the binary approach between indigenous knowledge and Western worldviews. Western knowledge relies on established laws through the application of the scientific method to phenomena while indigenous or African traditional knowledge comprises understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings. The unsustainability of a structural binary opposition that contrasts one knowledge system to the other is the subject of this paper. The chosen illustration is a collection of religious art, the Stations of the Cross, in the Lodwar Cathedral, Kenya. The paintings were executed in response to the 1995 Synod of African Bishops. They depict present-day Turkana subjects re-living Jesus Christ's 2000-year-old narrative. Critical questions are posed to the reader: Should we consider the paintings indigenous or Western? Subsequently, how can we archive them –within or without the local indigenous knowledge systems?

Keywords: *Indigenous community, Art, traditional knowledge, Turkana*

1 The Turkana stations of the cross

Indigenous knowledge can be expressed variously and may be logged in people's interactions with other communities or with their environment; the interactions are distilled into common wisdom. Forming an integral part of a cultural complex, indigenous knowledge encompasses rituals and spiritualities, among other facets (UNESCO, 2022). The paintings discussed in this paper serve ritual and spiritual purposes in today's Turkana community. Further, they are extracted from a historical moment, the last decade of the 20th century to date; they are a testament to an existing relationship between the indigenous community and tenets of the Catholic Church. The collection comprises a set of fourteen paintings that line the walls of the cathedral in Lodwar, a town of roughly 50,000 people that forms the heart of the Turkana region of Kenya. It ranks 47th out of Kenya's 47 counties on every index of development, including per-capita income, share of the population in extreme poverty, access to safe drinking water, and so on (2017 Allen). The paintings represent the 2000-year-old story of Jesus Christ being condemned to death by Pontius Pilate. The theme belongs to a foreign, universal religion but is executed using visual symbols that are indigenous to the Turkana. Does this qualify the collection as indigenous art? Or does it remain foreign/Western on account of its theme? The ensuing argumentation demonstrates the unsustainability of an either/or answer; structural binary opposition that contrasts one knowledge system to the other does not render helpful service to the visual arts.

The paintings were executed in response to the 1994-1995 Synod of African Bishops. Deliberations on challenges and opportunities facing the Catholic Church in Africa, as one of the synod's concerns, emphasised the importance of integrating local cultures and traditions in expressing the universal message of Christianity. Heeding this call, paintings for the see of Lodwar were commissioned. A team of Kenyan artists was asked to paint a set of stations

[of the cross] that reflect the life and environment of the Turkana people. Faces, dress and places be authentically Turkana (O’Neil, 2000). All stations of the cross, in catholic church buildings, re-trace the journey Christ made on his last day on earth. They capture the segment following his condemnation to death by Pilate, the then Roman prefect (governor) of Judea (r 26-36 AD). Figure 1 illustrates movements that preceded Christ’s last journey. It is this latter segment of the journey (from the Antonia Fortress to Golgotha. no. 7 in Figure 1 below) that is represented, in paintings or carvings, as the fourteen Stations of the Cross.

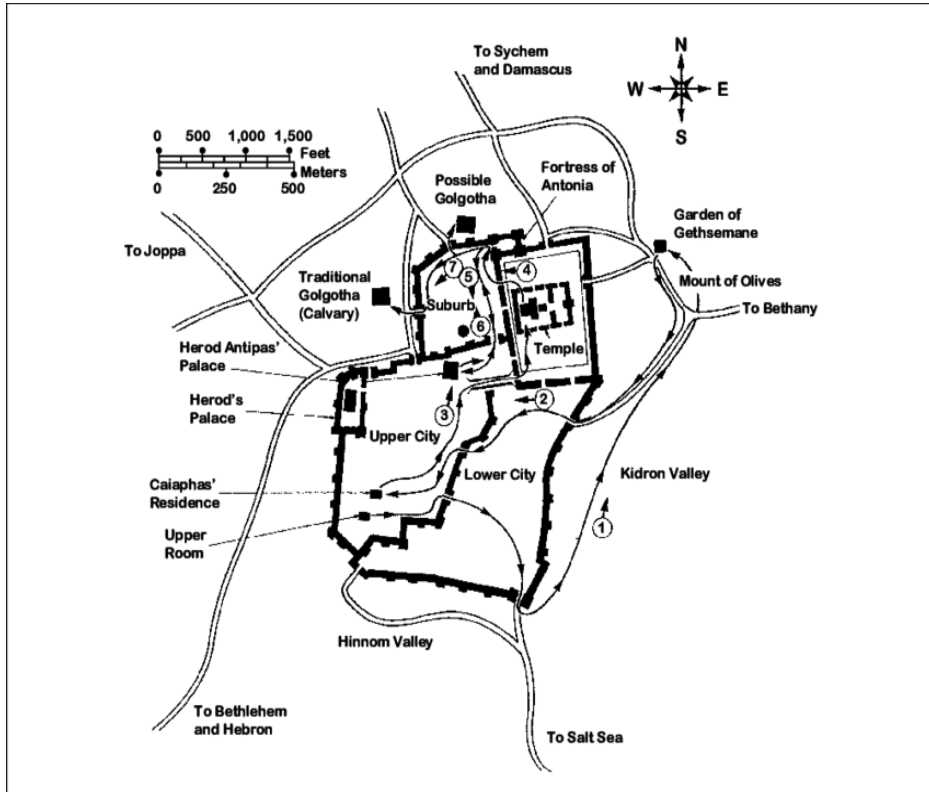


Figure 1: Map of Jerusalem at the time of Christ.

Source: Edwards (1986)

Jesus left the Upper Room and walked with his disciples to the Mount of Olives and the Garden of Gethsemane (1), where he was arrested and taken first to Annas and then to Caiaphas (2). After the first trial before the political Sanhedrin at Caiaphas’ residence, Jesus was tried again before the religious Sanhedrin, probably at the Temple (3). Next, he was taken to Pontius Pilate (4), who sent him to Herod Antipas (5). Herod returned Jesus to Pilate (6), and Pilate finally handed Jesus over for scourging at the Fortress of Antonia and for crucifixion at Golgotha (7).

Stations of the cross serve visual and performing roles in catholic liturgy; they are a 14-step devotion that focuses on specific events between Christ’s condemnation by Pontius Pilate and his journey to the crucifixion on Golgotha. They are guides to a mini, metaphorical pilgrimage performed/prayed by individuals or groups as they move from station to station. At each

station, a specific event from Christ's last day is meditated upon. Specific prayers are recited, and then the individual (or group) move to the next station until all fourteen are complete.

Those praying the stations of the cross do not have to physically go to Jerusalem since paintings or carvings representing the events line the walls of catholic churches the world over. The Turkana, for instance, are invited to re-live Christ's last journey through the paintings in the Lodwar cathedral. The two paintings in Figure 2 are a visual re-enactment of one of the fourteen stations –the 4th station. The one on the left 'places' Christ in the physical environment of the Turkana, while the other (on the right) depicts an imagined Romanised Jerusalem. The painting on the left – in Figure 2 – is our focal point. It 'integrates local cultures and traditions in expressing the universal message of Christianity', as required by the 1995 synod of African bishops.

Buildings in the background – within this painting frame – are true to Lodwar's architectural morphology. The red, blue and white KIMBO signage serves to anchor and date the activity portrayed in the foreground. Although this action (Christ meeting his mother while walking to his death) took place 2000 years ago in Jerusalem, it is here re-enacted in the context of a local Kenyan town. Christ is not depicted as Judean; he is a Turkana man while his mother dons the iconic beaded necklace worn by Turkana women. The soldier behind Christ, in the same frame, is not Roman but Kenyan. The viewer is led to imagine the log on Christ's shoulders as having been cut from a local indigenous tree –the acacia of Lodwar. Thus, the visual referents lift Christ's action from Jerusalem, Palestine, into Lodwar, Kenya. Both the location and the historical time of Christ's action are transposed by narrating his story using visual language indigenous to the 20-21st century Turkana.

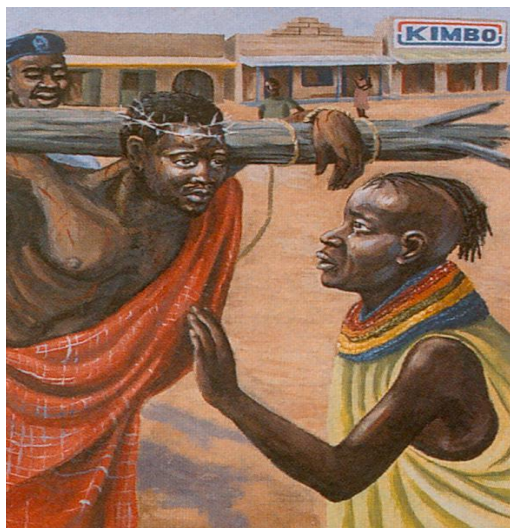


Figure 2: 4th station – his mother meets Jesus.

Lodwar Cathedral

Through Nomadic Eyes

Turkana Artists, photo: G. Howley

St. Patricks, Seneca Fall

Catholic Courier

photo: online public domain

Figure 3 below depicts another step in Christ's journey. It is the ^{seventh} station where Jesus

falls the second time on his way to Golgotha. The Turkana painting is placed next to an equivalent from a church in Britain. Such an image (the one on the right) is a famous rendition found in many Catholic churches regardless of the historical and geographical setting of the immediate worshipping community. Visual culture is taken for granted when communicating the message of Christianity, as pointed out by the 1995 synod.

In depicting the 7th station, the frame on the left (in Figure 3) contextualises the fall of Jesus within the terrain of Lodwar. The acacia trees are the indigenous flora of the locale; they are not the proverbial cedars of Lebanon. Again, the CLOSE-UP signage brands the building, anchoring it in a specific time and place. All the figures in this frame are representative of the local people. Further, the building's blue fascia board is used to create visual depth and perspective, lending unity between the action in the foreground and the blue sky in the background.

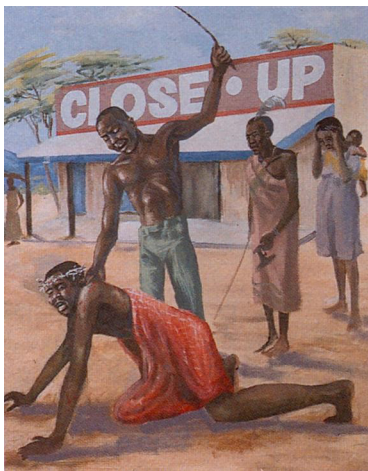


Figure 3 7th station –Jesus falls the second time.

Lodwar Cathedral

Through Nomadic Eyes

Turkana Artists, *photo: G. Howley*

Our Lady of the Valley, UK

olotv.org.uk

photo: online public domain

In both frames (Figure 3), Jesus falls a second time; each artist used creative license to portray this fall. The choice, though, falls outside this paper's discussion; instead, the focus is the attempt to communicate Christ's action using a visual language that resonates with the Turkana people. The 1995 synod referred to the phenomenon as *inculturation*. I consider inculturation a form of indigenisation that unfolds into the prevailing local indigenous knowledge system.

2 Several meanings of indigenous knowledge

The term 'indigenous knowledge' can carry a variety of meanings. It may denote a knowledge system circumscribed to a local community, like the Turkana, a singular system defined by the people who interact within it. In this case, provenance confers certain indigeneity, that fact of originating or occurring naturally in a particular place. The Luhya dance is indigenous (to

the Luhya) because it originated from their community. Likewise, a bard – not the Google Collaborative AI tool – was originally a Celtic composer of eulogy and satire. The provenance of bards is Celtic, though they have come to mean any tribal poet-singer who composes verses about s/heroes. Bards are indigenous to the Celts; the provenance of an art form is equated to its indigenous status.

A further debate on indigeneity may take its cue from Edmund Husserl's phenomenology. In *Logical Investigations* (2021), Husserl expounds the autonomy of objectivity (the content to be apprehended) from the constraints of subjectivity (the one who knows). From Descartes' "*cogito, ergo sum*" (I think therefore I am), he proposes "*cogito cogitate*" (I think objects of thought). Husserl distinguishes the phenomena of consciousness from the objects that appear in it; thought has a content. If I think, I necessarily think *something*. He also highlights the self-evident nature of the laws of logic; the validity of first principles is based on their self-evidence as true rather than on the subject's feeling of certainty. Truth goes beyond the contingent relation with the subject that knows. It requires an absolute in nature, Husserl asserts in his quest for a firm foundation on which to build the objectivity of knowledge even as he provides a detailed explanation of the intentionality of consciousness. An act of knowing is moving or tending towards something (*in-tender*, intend). Consciousness is always a consciousness of *something*. The *something* (object, content) can be indigenous, or the knowing consciousness (mind, internal faculty of the subject) can be indigenous. Any of these two poles may be applied to qualify knowledge as indigenous.

"Indigenous knowledge" can also point to the relationship between local knowledge and mainstream Euro-American knowledge systems, where the latter is seen as global, making the former local, traditional and therefore indigenous. A scientific approach is taken as the bedrock and epitome of mainstream Western worldviews, while indigenous knowledge – though not openly referred to as unscientific– is described as ancestral wisdom that can aid in making scientific policy. The definition rests on *relating* one knowledge system to the other with an insinuation of hierarchy; Indigenous comes below scientific mainstream knowledge systems.

This essay suggests a third denotation or perspective, where universal knowledge is integrated into local cultures and traditions in order to belong –more profoundly and intimately– to a given indigenous community. This is the case with inculturation. The example cited is the attempt to integrate the story of Christ's death into Turkana visual idioms. The aim of the paintings of the stations of the cross in the Lodwar cathedral is to make the story more intimate and immediate to the Turkana people, to make it indigenous to them –their knowing faculties.

The provenance of the story (the stations of the cross as the known object) is neither Turkana nor British; it is the lived experience of 1st century AD Christians of Judea. The *stations* are indigenous to these Christians (as the knowing consciousness and the objective *something* or content) who later proceeded to live far from their homelands, becoming diaspora communities. This begs the question, how can the Lodwar paintings be simultaneously indigenous (as *something* objective) to the Turkana, diaspora Christians and any other localised Christian community? How can they be indigenous to multiple consciousnesses (knowing subjects)? 'The theological import of Christ's story is universal to humankind in all places and at all times', answers Catholic teaching. Theological universality accounts for the synod's call to distil the Christian message and form or cloth it in various cultural idioms as the need arises

–to enculturate the message. The Lodwar paintings are an instance of visual inculturation, an embedding of an aspect (*something* objective) of the Christian message to make it indigenous (to the consciousness) of the local community –in this case, the Turkana people.

A binary opposition approach to knowledge systems—while ignoring the objective/subjective phenomena—makes it difficult to decide whether inculturation is genuine indigenous knowledge or mainstream Western worldview. The qualifiers (indigenous or mainstream) can point to the objective content or the knowing subject. Classical modernism leans toward clear binary categories without clarifying the relation between the two phenomena. It considers indigenous knowledge as ‘other’ (relative to the known subject) in comparison to the mainstream Euro-American knowledge system. Meanwhile, postmodernism dismisses this binary approach, condemning it as too traditional. Postmodernism questions the necessity of any knowledge system to be comprehensive. It blurs the lines between local and global knowledge to come up with the concept of *global*.

The categories and classifications of indigenous, local, global, or global knowledge are pertinent to the discipline of knowledge management.

3 Art and indigenous knowledge

Modernism considers visual art part of the cache of indigenous knowledge but is careful to accord it the status of crafts. Once, when asked about this nuance, I answered using a postcard, as illustrated in Figures 4 and 5.

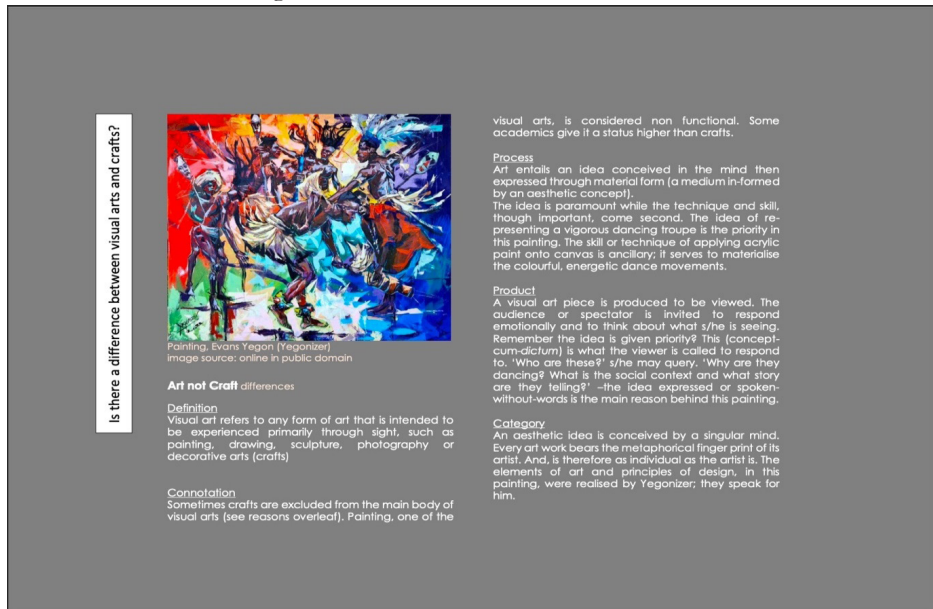



Figure 4 Art not Craft
postcard front side © Muthuma, L. 2023

Is there a difference between visual arts and crafts?



Beaded Bracelets, Maasai Market
Image source: Africa Safari Blog (in public domain)

Craft not Art differences

Connotation
Crafts comprise functional objects. Some academics accord them a status lower than visual art.

Process
In crafts the order of idea-then-technical skill is reversed; the skill is brought to the fore. Function is everything. The craftsman/woman works according to a set template. These beaded bracelets must, first and foremost, function as wristbands. Other novel decorative ideas come second.

Product
Crafts are produced primarily to serve a utilitarian function. The beaded band is to be worn around the wrist as an ornament. It must function properly i.e. be the right fit, weight and not a hindrance to the wearer as s/he continues to use his arm and hand. Any novel expressive ideas, no matter how captivating, are secondary to the functionality of the bracelet. The craft item may express ideas of aesthetic merit but if it fails to fulfill the basic function, it becomes useless.

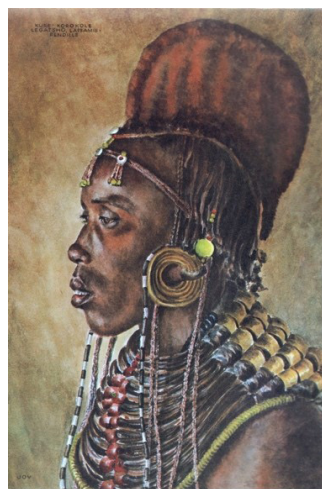
Category
Craft ideas do not belong to individuals; they belong to a tradition. Communities are the bearers of traditions. Unlike an artist's singular finger print, crafts often carry the common tradition of a culture or region. Visual art refers to any form of art that is intended to be experienced primarily through sight, including decorative arts (crafts). Their style tends to be developed over a period of time.

Figure 5 Craft not Art
postcard reverse side © Muthuma, L. 2023

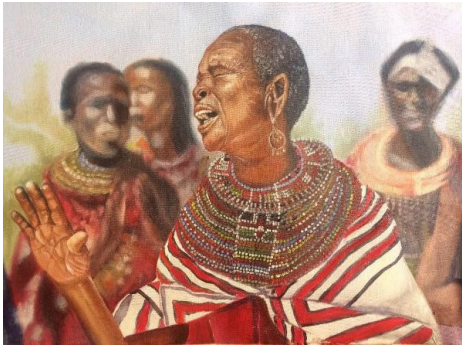
However, to be fair to postmodernism, the term indigenous becomes problematic when applied to the visual arts. In Figure 6 below, the subject depicted in the painting is indigenous, while the artist is not.



Joy Adamson painted a portrait of a Masai woman in Kenya in 1960. Kenneth Rittener—Hulton Archives/Getty Images.



Joy Adamson, Rendile Woman ca. 1945



Anon. Maasai Women ca. 2017



Anthony Mwangi, Maasai Women ca. 2017

Figure 7: Indigenous women painted by an indigenous artist

The imprecise definition of the term (cf. section on Several meanings of indigenous knowledge above) makes it difficult to determine those specific variables that qualify a body of knowledge as *indigenous*. What makes a collection of visual works of art indigenous needs to be clarified. These vary and may be hinged on the theme depicted (women in traditional dress), the medium used (gouache or acrylic paints), the audience addressed (today's patrons or last century's), the artist (indigenous or foreign) as the author of the work. Issues of belonging to a culture and its community are as poignant as the evolving nature of lived experience, specifically in matters pertaining to indigenous visual art and, in general, indigenous knowledge.

4 Knowledge and information

In an attempt to elucidate visual art as one more expression of indigenous knowledge, I try to untangle the concept of knowledge, distinguishing it from information (data). Whether indigenous or otherwise, knowledge refers to the understanding, awareness, and familiarity that an individual or entity possesses about facts, concepts, principles, skills or experiences. It goes beyond mere information by encompassing the ability to interpret, apply, and critically analyse data, allowing for informed judgment and problem-solving.

The painter of the image in Figure 8 (part of the Lodwar stations of the cross) can be said to possess specific information/data about the story of Christianity. Further, s/he expresses the information as knowledge by displaying an ability to interpret, apply and create a visual ensemble out of the given facts. The idea (the story of Christ) is not indigenous to the Turkana community; it has, however, been expressed using a visual language that resonates with the community. Although the caption reads 'Jesus meets the women of Jerusalem', he is meeting the women of Lodwar. The audience is asked to equate the 'women of Jerusalem' with those of Lodwar – be they townsfolk, rural or, more aptly, nomadic. Their style of life or geographical location is not as significant as their empathy with the suffering figure of Christ. The artist conveys considered knowledge of the sentiments between the women and the story's protagonist; knowledge is acquired and disseminated through learning, observation, study, and practical experience by a human agent.

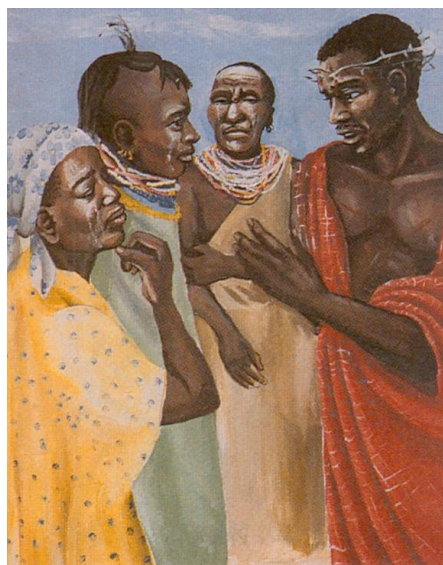


Figure 8: 8th station - Jesus meets the women of Jerusalem

Lodwar Cathedral

Through Nomadic Eyes

Turkana Artists, photo: G. Howley

Information, on the other hand, refers to data that may not necessarily reside in the human faculty, which is called intelligence. Information can be organised, structured, or processed in a meaningful way; lack of direct involvement with the capacity (or faculty) of intelligence differentiates it from knowledge. A published book possesses information, and this same information becomes knowledge once a living intellect processes it. Knowledge (or the act of knowing) requires the intervention of a live human agent in processing information into human meaning.

Information is raw data that a human agent acts on, gaining insight and understanding that leads to knowledge. To the quip of whether Figure 6 is indigenous art, a reasonable answer ought to be pegged on human agency. What was Joy Adamson calling her audience to see (by painting)? According to this author, Adamson found the outward appearance and the apparel of the woman she is painting picturesque, perhaps because it was different from Western dress. The woman model wears her garments and ornaments as she would her identity. They express who and what she is. While Adamson, who is not indigenous (not native to what she is painting), is relaying information, the woman model is native in dress, ornaments and person –she mediates self-knowledge.

While different from knowledge, information is valuable for various purposes. To get to know or to acquire knowledge, one needs information. Without Adamson's informed paintings, we would perhaps not know how women in local Kenyan communities dressed *circa* 1940-50s. Her paintings, though in a sense not indigenous, help actualise the human capacity to know (to acquire knowledge).

The enlivening role of the knower distinguishes knowledge from information; indigenous knowledge results from fulfilling human internal capacities. It is a misnomer to refer to

accumulated information about a traditional African society as indigenous knowledge. For instance, Adamson's collection, housed in The National Museums of Kenya (NMK) Nairobi, *As the peoples of Kenya*, Is a cache of information, not of knowledge.

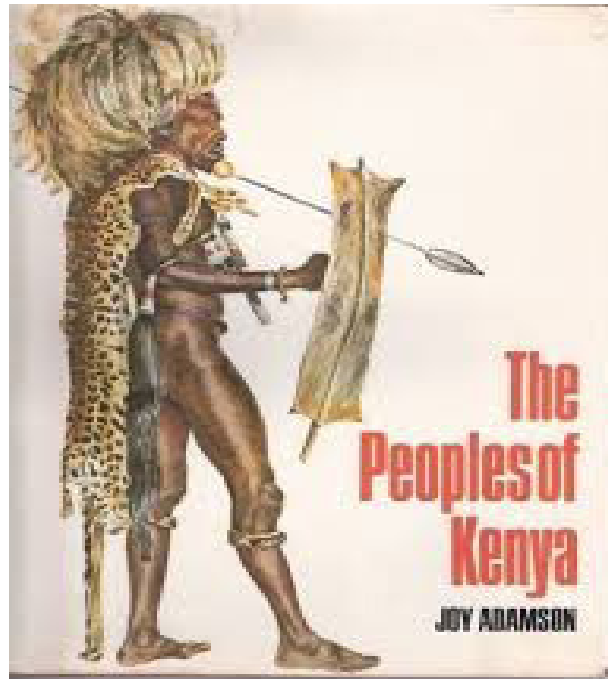


Figure 9: Book cover of *The Peoples of Kenya*

Published in 1975 by Harcourt (1st edition) and later by Collins & Harvill, London

Image source: online, in the public domain

NMK states about her book and other portrait paintings, “*The Peoples of Kenya* remains a valuable resource for anthropologists and others who seek **information** [emphasis mine] about Kenya’s traditional heritage.

Concluding queries

Extracted from a historical moment that straddles the 20th and 21st centuries, stations of the cross in the Lodwar cathedral have been examined as indigenous visual art. The category is problematic because it lends itself to multiple meanings that go beyond the art of traditional societies. As one more manifestation of indigenous knowledge, visual art registers changes that affect a community in its cultural expressions. As paintings hung on the walls, the Lodwar stations of the cross present artwork in a Western-style tradition. However, the provenance of their iconography belongs to the Judeo-Christian traditions arising from the ancient Near East. Further, the iconography has been rendered in the local visual idiom in an effort to enculturate it (to render it Turka-nese). The result is an anomaly to the popular understanding of indigenous knowledge.

One is still determining to categorise these Lodwar stations as indigenous; the relation of the artist to a given culture and community impinges on indigeneity. It is also possible to equate indigenous with provenance. Therefore, more questions than answers regarding indigenous

art have been raised in this paper. Apart from deciding between modernism's binary opposition and postmodern *glocal* knowledge, the indigenous knowledge discipline may find it expedient to clarify the concept of information in relation to knowledge. A sketch has been attempted in this essay that may (or may not) be fit for purpose. Lastly, a defining perspective of indigenous knowledge needs to be settled. Is it dependent on an accumulation of facts, an actualisation of the human capacity to make meaning or the tracing of provenance for collective knowledge? Is indigenous knowledge simply the 'other' to Western worldviews?

References

- Adamson, J. (1975). *The people of Kenya*. Harcourt. Also, Collins & Harvill, London
- Allen, J. L. (2019). A week in Kenya. *Crux, taking the Catholic pulse* <https://cruxnow.com/author/john-allen>
- Catholic Church. Synodus Episcoporum. Coetus Specialis Pro Africa, & Thiadoum, H. (1994). *The church in Africa and her evangelising mission towards the year 2000*. Typis Vaticana.
- Davis, J. (1991). Museum highlights. *Kenya Past and Present*, 23(1), 3–5.
- Edwards, W. D., Gabel, W. J., & Hosmer, F. E. (1986). On the physical death of Jesus Christ. *Jama*, 255(11), 1455-1463.
- Erasmus Mundus Glocal Programme <https://globallocal-erasmusmundus.eu/about-glocal/programme-overview/>
- Husserl, E. (2012). *Logical Investigations Volume 1*. Routledge
- Maluleka, J. R., & Ngoepe, M. (2018). Accumulation of cultural capital: the acquisition of indigenous knowledge by traditional healers in the Limpopo province of South Africa. *International Journal of Knowledge Management Studies*, 9(3), 278-292.
- Muthuma, L. (2023) unpublished postcards about art history in Kenya
- Nakashima, D., & Nilsson, A. (1945). Linking biological and cultural diversity. Local and Indigenous Knowledge Systems (LINKS) project. *Sixty years of science at UNESCO, 2005*, 385-388.
- O'Neill, S. (2000). Through Nomadic Eyes. *Africa: St Patrick's Mission magazine*
- Onyancha, O. B. (2022). Indigenous knowledge, traditional knowledge and local knowledge: what is the difference? An informetrics perspective. *Global Knowledge, Memory and Communication*.
- Whitehouse Government (2022). Indigenous Knowledge: Climate and the Environment <https://www.whitehouse.gov/ostp/ostps-teams/climate-and-environment/indigenous-knowledge/>

53. Indigenous Arts: Significance of Indigenous Knowledge Art Form

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Abstract

Kenya is notable for its diverse cultures. However, this diversity may have been undervalued when it came to the application of indigenous knowledge as a form of artistic expression. From that observation, this excerpt sought to highlight the significance of indigenous knowledge of some African communities as an artistic form of communication, expression, innovation and aesthetics. The objective of this study, therefore, is not only to highlight the significance of indigenous knowledge in art but also to showcase how these expressions can be innovatively adopted in modern-day living for both functional and economic sustenance. A descriptive research design was the ideal data collection method because it provided context on the relevant data by discussing its origin, significance and implementation, whereby qualitative analysis was presented as findings. Secondary data was sourced from the National Museum of Kenya, African Heritage and the National Archives (all in Nairobi), as these institutions contain information on indigenous knowledge of some Kenyan communities. In contrast, primary data was collected using questionnaires. The sample population consisted of entrepreneurs in the creative industry as they influence market trends and their consumers. Data was presented using qualitative analysis. Findings confirmed that IK is indeed of significance in both pedagogical and economic gains, as discussed in the study, and the overall recommendation is to encourage creativity by promoting the extensive advancement of indigenous knowledge as a viable product.

Keywords: *Indigenous knowledge, art form, creativity, expression, material culture*

1 Introduction

In this particular study, art will be interpreted as a form of communication and expression, and it will be interpreted for its aesthetic value since African culture did not separate these three functions. They were referred to as African aesthetic art, and culture was often presented as one entity intertwined (Abiodun, 2001). Art communicated every aspect of African culture: day-to-day life, traditional ceremonies, worship rituals and rites of passage. Art represented social standing, wealth, occupation, ranking, and achievement, which benchmarked the status/rank and significance of the role each member played in society (Ben-Amos, 1989). Various traditional African cultures practised animism, which is a belief that objects, places, animals, and people possess some spiritual essence guided by a force that animates and coordinates the entire universe. It is from this practice that they derived artistic inspiration elicited by their quest for new knowledge.

Indigenous societies at large were influenced by traditional beliefs backed by myths, legends and prophecies (East African Living Encyclopedia, 2019). Political, economic and environmental factors also influence and inform the daily lives of members of society (Sobania, 2003). This prompted the creation of art forms that would represent and express these customs, which would later be classified as IK. With this philosophy in mind, using a few examples from

some African communities, this study will showcase the role art played in the transmission of IK. This will be done by describing how and why these art forms came to be and their relevance in those particular roles. Their significance as IK in the current society (preferably Kenyan) will also be highlighted as part of the contribution of new insights in regard to this particular research topic.

1.1 What is indigenous knowledge (IK), and why is it relevant?

Otherwise known as traditional knowledge, IK is both tangible and intangible knowledge derived from nature/ environment, human experiences and spiritual discoveries that is essentially a preserve of indigenous people or communities that have long interacted with their natural surroundings (Jessen et al., 2021). This type of knowledge is/was recorded and passed from generation to generation through oratory narratives, body art, rituals, ceremonies and visual art practices (painting, sculpture, weaving, crafts, ironsmiths, leatherwork, pottery) (Owusu-Ansah & Mji, 2013).

Not only was IK significant in providing insight into the integral functions of traditional communities, but communities also derived distinctive identities based on how they interacted with this knowledge (Gope et al., 2017). Some of these IK practices led to their prosperity due to the resources their surroundings provided, like precious stones, salt, spices, fabric, and so forth. IK also impacted belief systems that influenced forms of worship and ritual practice (Gope et al., 2017).

1.2 Functions and examples of indigenous knowledge

Material culture may be described as tangible items sourced from nature. They are integral to IK because they are regarded as valuable raw materials; they were used as ingredients in making medicinal herbs and traditional supplements to improve body immunity. They were significant in costumes/attire for various ceremonies. Mediums, herbalists, blacksmiths, and court leaders used them as tools of their trade (Ngulube, 2002). These art forms played a significant role as community members used them to distinguish their roles and establish their rank in society.

Examples of material culture include precious stones, shells, horns, natural beads, iron ore, leather, animal hide, wood, and clay soil. These materials would be used to make ornamental pieces, royal furniture, pottery items, containers/utensils, spears/weapons, paint, traditional clothing, ceremonial clothing, ceremonial/symbolic artefacts, herbal medicine, and so forth (East African Living Encyclopaedia, n.d.).

IK was significant in this case as it played a role in sourcing and studying this material culture and ingeniously adopting the skills necessary to create these artefacts. Due to IK acquired over time, the use and conservation of the same artefacts improved as well. Intangible Indigenous Knowledge involved spiritual/ritualistic practices that were customarily passed through observation, experimentation, and cognitive learning within their environment (Mosweunyane, 2013).

2 Significance

In the Western world, art was considered a pleasurable experience, especially by affluent societies. In Africa, art was perceived as a source of insight and awareness that could not be sufficiently expressed verbally, and it would help one view the world from a new or different perspective (Adams, 1989).

To Africans, Art provided insight into the past, future, and spirit world. This was evident in the kind of artefacts produced at the time. The artefacts either represented an African deity, a spiritual animal, or an ancestor. Symbols were commonly used for religious purposes, such as the *Veve* symbols from the *Vodun* culture, as well as a form of communication, such as the *Adinkra* symbols from West Africa.

A different view opines that one cannot learn from Art because Art does not provide definite truth as in scientific research. The justification behind that is that scientific experiments/observations are premised on tangible knowledge, unlike IK, which is premised on both tangible and intangible knowledge (Art and Epistemology/Internet Encyclopedia of Philosophy, n.d). It may not be possible to ascertain whether spiritual experiences are truthful. The other lingering interrogation from the above statement would be whether one could learn any new insight from art or artistic expression. Given African culture, one would be curious to know what insight African societies had to come up with their various art forms as part of their IK. Is it possible to prove that intangible knowledge is beneficial to indigenous communities? If so, how can this be done? This may have been the challenge in mapping knowledge from indigenous communities as factual.

The following are a few examples that provide insight into the inspiration behind some African art forms and their significance in contribution to Indigenous Knowledge.

2.1 Abstract: Minimalism in African Art

Pablo Picasso was a renowned fine artist from Spain and is regarded as the originator of the early 1900s art movement known as cubism (Modiano, 2022). Few Academic scholars have published articles attempting to prove that African Art prominently influenced Picasso's style despite the artist not acknowledging this fact. A critical comparison between his famous pieces and some of the African masks exported to Paris during the Cubism era has some uncanny resemblance.



Figure 1: Dan Mask vs A model from the *Les Demoiselles D'avignon* Painting
 Note: Rockefeller, 1964. Accession Number: 1978.412.303. Zucker,n.d. CC- BY- NC-SA, 2.0.



Figure 2: Mbundu Mask Vs A model from the Les Demoiselles D'avignon Painting

Note: Daderot, 2013. Zucker, n.d. CC- BY- NC- SA, 2.0.

The images (Figures 1 and 2) above are a side-by-side comparison of detail of women's faces from Picasso's famous painting *Les Femmes d'Alger (O.J. Version O)*, 1907 (top and bottom right) vs a Wooden Dan face mask, mid-19th-20th century (top left) and Mbanga Mask (bottom left), central Pende, Bandundu, Democratic Republic of Congo via Apollo Magazine. Via the Metropolitan Museum of Art, New York.

From the figures above, it can be observed that the simple line contouring of the facial features by the African masks has been replicated in Picasso's paintings, including the tonal variation of light and dark on the nose and cheeks. The artistic distortion of the nose and mouth from the Mbanga Mask has also been captured in the painting.

It is this simplistic approach by Picasso that made cubism famous at the start of the 20th century as it was considered to be different from what art lovers were used to. The abstract nature of his paintings was considered to have the appeal of modernity at the time.

Historically, the West classified African Art forms as Primitive, and this was based on the minimalistic nature of the artworks (Primitive Art/ MoMA, n.d). Unlike the meticulously curved sculptures displayed in museums and churches in Europe, African masks and sculptures took on simple basic shapes with bold contouring and colours, as displayed in the above images (fig. 1). They were described as flat because they showed only one dimension and no depth (Curnow, n.d.).

On the other hand, the prominent features of the Cubism movement, which was also classified as the origin of modern art, comprised of minimalistic flat shapes with bold contouring and colours (Cubism-Routledge Encyclopedia of Modernism, n.d), similar to the African primitive art forms.

It also emerged that Picasso was drawn by the spiritual energy that emanated from the African artefacts (a name they were given at the time as they were considered to have no value). During that period, Picasso had taken to studying African Art looted from Africa as a result of colonial conquests where most were displayed in a rundown museum known as Trocadero Museum of Ethnology situated in Paris (Modiano, 2022). He was drawn to the artefacts while he embarked on studying their origins and their usage. The idea that they were used for spiritual rituals is what endeared him to the artefacts, as he believed they still possessed spiritual energy.

The Abstract nature of African Art is a practice that precedes history. Looking back to Egyptian hieroglyphs found inside the pyramids during BC, dating all the way to the early 20th

century, African Art has maintained its simplicity (Leakey,1983). The minimalist approach was inspired by the secretive nature of African culture in all its aspects. African indigenous languages are expressed with a lot of proverbs and wise sayings because it is believed that spirits are always lurking and listening; therefore, one should be cautious when talking lest an offended spirit strikes (Iteyo, 2009). Secret societies usually practised their rituals in secret. As a result, they developed symbols as a way of communication that would only be recognised by people within the same secret society. The symbols adopted a minimalist nature to avoid them being too conspicuous (Butt, 1929).

The abstract artefacts found in indigenous communities in Kenya, for example, were a result of their nomadic culture, which required them to travel light. For this reason, they resorted to carving out portable figurines that they could quickly move around with. East African communities also practised body art, such as henna drawings, tattooing, and scarification (Von, 1975).

West and Central African communities made masks out of wood because it was the most readily available material in their tropical climate. The wood used to make masks was considered unique, and for this reason, they would offer sacrifices to these forests in order to appease the spirits of the wood and provide them with material for making these masks. A close observation of the masks as in (fig.1) The eyes, ears and noses on the masks were designed based on the outstanding features of the human face. Certain body parts on the artefacts were more exaggerated than others to emphasise the symbolic function/ value of the art piece (Ladislas,1976)

What qualifies African art as authentic is its creation by an indigenous craftsman, who destined the artwork to be used by the tribe in a ritual or culturally functional way. (Kamer, n.d). African rituals involved interaction with the spirit world, and sacrifices were offered in order to appease the ancestors' spirits. It was customary for artefacts used for spiritual rituals to undergo sacred rituals as it was believed that the ancestor's spirit would manifest in this manner (Olupona, 2014).

The above are examples of both intangible and tangible IK that indigenous communities believe in; however, their benefits cannot be proven scientifically. From the above example, the abstract nature of African art has contributed a great deal to modern forms of expression and communication and even art for functional use. Cubism, which is an inspiration of African Art, was termed the origin of modern art movements because it allowed for the experimentation of new styles of art that were not part of the old traditional ways of expression in the West (Cubism-Routledge Encyclopedia of Modernism, n.d).

The English 26-letter alphabet in itself has been inspired by the Egyptian alphabet that was written in BC, which was also simplistic in visual expression (Clayton, n.d.). The contemporary abstract designs inspired mainly by flora and fauna in household items like furniture and lighting derive their inspiration from the abstract forms of African artefacts, which were made from indigenous material culture, something the West has also replicated. In the present day, there is also an emphasis on the usage of recyclable, environment-friendly materials.

In East Africa, for instance, most nomadic communities carried with them a simple portable piece of furniture that would both act as a stool and a headrest. The same idea has been replicated in modern functional items where there is demand for them to have more than one purpose: nowadays, couches can be converted into beds; for instance, Fig. 3 below is a picture of an artefact from the Karamojong community found in Uganda who lead a nomadic

lifestyle. The item serves two functions: as a stool and as a headrest. From the image below, it looks simple and light to carry around. Another essential function of the item in Figure ii) above is that it could also be used as a weapon (Israel Museum, Jerusalem, n.d.).

In the Southern African community of the Shona people, headrests were principally used by adult males to protect their elaborate hairstyles from dust and flattening when sleeping. It was also believed that dreams were an essential way of acquiring indigenous knowledge, solving problems, and discovering new creations; therefore, headrests played a significant role in ensuring that the owners had a relaxed posture while resting so as to tap into that realm.

The item mentioned above demonstrates a skill in technology in its simplest form, which is also influenced by functionality and style.



Figure 3: Karamojong Stool/ Headrest Uganda

Note: randafrikanart.com, n.d.

Much modern décor has adopted abstract art forms, which are akin to African geometric patterns that were expressed through body art, especially when it comes to fashion and print, as in the example below (fig 4). The markings below were used in rites of passage; one's age and social ranking would be determined by the markings on one's body (Hadithi Africa, 2019).



Figure 4: Scarification

Note: tymackin.wix.com, n.d.

2.2 Symbolic purpose of material culture

Colour coding was a part of the Agikuyu and the Maasai communities of Kenya. Colours symbolically represented elements of some aspects of their lives. These colours were made by mixing natural ingredients like plants and minerals. Due to the nomadic nature of these

East African communities, body art was their preferred method of expression. The Maasai, for example, had spiritual leaders known as the *Laibon*, who applied white markings around their eyes in order to perform sacred rituals. The white markings signified the possession of ancestral spirits, thus giving them mystical powers to perform these rituals (Fisher, 1984). The *Laibon's* role was to conduct protection rituals for the *morans* (warriors) during raids, as well as circumcision rituals during rites of passage ceremonies (Fisher, 1984). The body markings on the *Laibon's* face signified both his rank and his role as a sacred leader. The white colour in various indigenous communities represented the spirit world (Bucuvalas, 2011).

The members of the Maasai community adorned themselves with red ochre paint during rites of passage ceremonies. When former warriors were being initiated into elderhood, their heads would be clean-shaven-shaven, after which they would be anointed with red ochre mixed with animal fat to signify the transition into their new life (Fisher, 1984). For the Maasai warriors, it signified bravery, which distinguished them as warriors and no longer young boys (Fisher, 1984). The paint was made by mixing animal fat with red clay soil and iron ore residue (iron oxide) (McQuail, 2002).

Famous for their beadwork, the Maasai infused beads, which were a British import, into their culture. The beads themselves are not indigenous; however, the art of crafting beads is classified as IK because it is a skill that is synonymous with this community. This skill is passed down from generation to generation by women to their daughters (Carey, 1986). What makes Maasai beadwork unique is that their style of sequencing resonates with their belief systems. For instance, the long blue beads symbolise 'God' because the colour of the sky is blue, and that is where God is considered to reside according to Maa culture. The long blue beads are only worn by married women. Green beads signify vegetation after rainfall, which represents peace (Wambugu & Sylvester, 2006).

Both Kikuyu and Maasai cultures had leather shields painted in earth colours: Red, black and white. The colours were arranged in a manner symbolising a form of heraldry that distinguished different clans from each other. For the Maasai, it also played a role in displaying the level of bravery of the *morans*. Those that included the lion's mane, for instance, signified that they had killed a lion; therefore, their rank was much higher (Cornish & Hutchinson, 2013, p. 344).

From the above description, and in translation to modern-day application, one can argue that the colours of the Kenyan flag and its sequencing were inspired by IK systems borrowed from the communities that resided within its borders at the time of Kenya's independence from British rule. Throughout the world, colours have always carried with them subliminal messages. In most countries, red usually means danger or caution, which would probably be why they feature in most warning signs (Wogalter et al., 1999). The red on the Kenyan flag signifies the bloodshed during the fight for independence. The white colour on the global spectrum is usually connected with healing or peace, which is why it is synonymous with hospitals and medical institutions. The white colour on the Kenyan flag also signifies peace, while the green colour represents the vegetation found within the Kenyan borders. Green is a symbol of health and clean energy. It is the predominant colour in the recycling industry. The colour black on the Kenyan flag signifies the people of Kenya, who are initially of the African race (Knowles, 2011). Black has mixed meanings in the international community. Some consider it a symbol of strength, while others consider it a symbol of evil. The constant in all these references is that black is associated with power.

The above excerpt indicates the significance of colour coding systems and interpretations in indigenous communities. This interpretation of the above knowledge could have been replicated when designing the Kenyan flag, which is a significant national symbol for the country. The majority of Kenyan communities widely accept the colours of the Kenyan flag because these communities identify with those colours, and that is why the flag is widely accepted as a symbol of national unity.

3 Findings

The following findings emanated from the above research.

3.1 Indigenous knowledge inspires creativity and discovery.

The purpose of Indigenous knowledge was and still is to improve the quality of life as well as enhance the experiences of African societies. The West has come back to Africa looking for inspiration in the film industry, fashion industry, music creativity, furniture, and the construction industry, not forgetting scientific discoveries. They have also expressed a keen interest in African narratives as they now believe African knowledge would benefit the rest of the world. The research literature above has discussed how Traditional African communities relied on all the above examples for survival and growth. The communities that thrived are said to have tapped into their natural resources through spiritual worship for inspiration as it enjoined their spirits with nature. They believed their ancestors would connect with them and provide this knowledge.

3.2 Spiritual knowledge can inform indigenous knowledge

The findings from the literature above have highlighted a significant concern: African countries seem to be trapped in a zone. Due to the effects of colonisation, Africans found themselves forced to abandon their traditions in favour of Western culture. This action left many African countries trying to play catch-up as they tried to match themselves to Western ideals because, to the African mindset, the Western lifestyle was the more desirable way of life.

This struggle could be because the core values and learning systems in Africa are very different from Western systems of learning, leaving Africans confused and pushed and pulled between African traditions and Western culture. This confusion is likely what is breeding turmoil, leaving many Africans feeling trapped. One would term it as a tag of war between the ancestors and the West.

Even though Africa has adopted decolonisation approaches in an attempt to do away with colonised mindsets, it still proves to be a difficult task due to years of indoctrination, as many African societies have little to no records about their historical and cultural practices.

3.3 Indigenous knowledge enhances learning through curiosity

Even though currently it looks like African scholars have some considerable stake in controlling the narrative, the scientific method of research, which is synonymous with Western knowledge, has not made it easy to verify indigenous knowledge because of variations in methods of experimenting and cataloguing. It would be challenging to test African knowledge with Western approaches. Learning systems in traditional Africa were practice-based; much cognitive learning took place because Africans believed the natural environment was the classroom. Nature is always riddled with evidence and clues.

One of the best practices to have emanated out of IK is the practice-based learning method, which is now widely adopted in formal education by many developed countries. The generation currently going through schooling is exposed to a lot of cognitive (hands-on) learning. They are being taught how to incorporate all their senses into the learning process, as most of the learning is outdoors, especially for the lower grades. This is believed to encourage their already curious minds, as they are enthusiastic about exploring.

3.4 Indigenous knowledge can elevate economic value in Africa

For the longest time, through their media, the West played an influential role in portraying Africa as a primitive continent, which, in the long run, has had a long-term negative psychological effect on Africa as a continent. Fortunately, with time, African art historians and scholars have struggled to dispel the above notion. The narrative that Africa has nothing of value to offer is gradually being debunked by the very many creative hubs emanating from Africa to the rest of the world. African Art Historians and Scholars have since contributed a lot in placing African indigenous knowledge on the map not only as a creative hub but also as a discovery hub, which in turn has attracted different types of investors looking to plough in money in various African ventures. This aspect can be attributed to the clues and signs African ancestors left behind in search of inspiration and new knowledge.

3.5 Other findings

Considering the positives and the negatives drawn from the above study, African artefacts have increased in value because of their authenticity. However, African art historians and academic scholars have not been given the opportunity to define how they had classified their own (African) art, which Indigenous Knowledge would broadly inform. Instead, the above ideologies are determined by the West, perhaps because of their economic influence.

4 Conclusion

Often, when the subject of knowledge is discussed, researchers request tangible evidence. This could be due to the fact that scientific methods of research, which are evidence-based, are broadly adopted to establish proof. Despite art being in existence since time immemorial, the scientific methods of research have been reluctant to accommodate artistic knowledge since both methods of evaluation and application (utilisation) dynamics are not the same.

Traditional African societies, despite their artistic output, have always considered their works more functional and spiritual than artistic. This practice is what has made African art go through various transitions from being initially classified as not being artistic to being classified as primitive art, and it is now being identified as African art.

As can be referenced from the above literature, Africans have always been in possession of a wealth of valuable knowledge. This study has revealed that many indigenous communities believe that their ancestors left them clues that would lead to discoveries for the benefit of society. There have been challenges that have led to the slow discovery of this knowledge, among them being the secret nature of African cultural beliefs and practices. The level of secrecy was enhanced during the colonial periods when the colonisers enforced the abandonment of traditional culture entirely while some permitted the exploitation of African traditions through looting for personal gain.

Now that African IK is gradually making its way into Scholarly works, this study hopes to make a beneficial contribution to the significance of indigenous knowledge as an art form

since it has highlighted how that knowledge can be replicated in modern-day societies to benefit African indigenous communities just as it was intended in the past.

5 Recommendations

Based on the above findings, this study proposes the following recommendations that would assist in the application of indigenous knowledge in the world as we see it today.

- African mindsets can be changed by educating and constantly reminding Africans of the significance of their culture and the role it plays in contributing towards knowledge in today's world. They would be encouraged to take pride in their origin and express themselves in that regard. This can be done by introducing indigenous knowledge education in the formal education system from the earliest possible level so that by the time they are done with schooling, it is thoroughly indoctrinated. The newly adopted Kenyan education system, for example, already adopts practice-based learning systems at the lower level. Most of the learning involves a lot of cognitive thinking and active participation, which is intended to promote self-expression and build confidence in children at that level, just as it was practised traditionally, seeing as most of the learning at that level is mainly done outside so that they can fully engage their senses. Redefined design is about creating experiences that make people feel like they are part of nature. Design thinking in the African context has changed how people innovate as they now apply cognitive resonance, which in turn makes the art forms relatable.
- It would be good if African scholars went a step further in coming up with policies and pedagogical systems that can verify African knowledge. This can be done by looking into how their ancestors went about making their discoveries as well as recording their findings. This information would provide insight as to how indigenous knowledge can be proven effective. The process may take a long time to be widely accepted because of the experimental and verification process. However, the long-term advantage is that it would provide Africa with an opportunity to slowly create a library of knowledge in various disciplines and with the current technological advancements, the knowledge can not only be easily accessible but also can be coordinated from any part of the world.
- African scholars should take the lead in controlling the narrative on Indigenous Knowledge at a scholarly level. The valuation of African art and art forms has been a preserve of the West in the past. However, if African scholars took the lead in spearheading indigenous knowledge, the value of indigenous knowledge would eventually also be determined by the creators of the art forms. One cannot put a price on knowledge because knowledge surpasses humanity. However, suppose African institutions take over the responsibility of valuing African art and art forms. In that case, it will give the creators (indigenous communities) a better chance of benefitting from its economic gains.

References

- Abiodun, R. (2001). African Aesthetics [Review of *African Aesthetics*]. *The Journal of Aesthetic Education*, 35(4), 15–23. <https://doi.org/10.2307/3333783>.
- Adams, M. (1989). African Visual Arts from an Art Historical Perspective. *African Studies Review*, 32(2), 55. <https://doi.org/10.2307/523970>

- Art and Epistemology | Internet Encyclopedia of Philosophy. (n.d.). <https://iep.utm.edu/art-and-epistemology/#:~:text=It%20is%20widely%20accepted%20that>
- Ben-Amos, P. (1989). African Visual Arts from a Social Perspective. *African Studies Review*, 32(2), 1. <https://doi.org/10.2307/523969>.
- Bucuvalas, T. (2011). *The Florida Folk Life Reader*. Univ. Press of Mississippi.
- Butt, W. (1929). *West African Secret Societies*.
- Carey, M. (1986). *Beads and Beadwork of East and South Africa*. Bloomsbury Shire Publications.
- Clayton, E. (n.d.). The Evolution of the Alphabet [Review of *The Evolution of the Alphabet*]. *British Library*. Retrieved June 29, 2023, from <https://www.bl.uk/history-of-writing/articles/the-evolution-of-the-alphabet#:~:text=The%20first%20alphabet%20created%20from,%20year%20old%20stone%20seal>
- Cornish, C., & Hutchinson, H. (2013). *The Library of Natural History: The living races of mankind: v.4. Oceania-Asia-Africa. v.5. Africa-Europe-America* (p. 344) [Review of *The Library of Natural History: The living races of mankind: v.4. Oceania-Asia-Africa. v.5. Africa-Europe-America*]. University Society Incorporated. (Original work published 1906).
- Cubism-Routledge Encyclopedia of Modernism. (n.d.). [Www.rem.routledge.com](http://www.rem.routledge.com). <https://www.rem.routledge.com/articles/overview/cubism#:~:text=Cubism%20is%20an%20influential%20modernist>
- Curnow, K. (n.d.). Chapter 2.1 Elements of Design. [Pressbooks.ulib.csuohio.edu](https://pressbooks.ulib.csuohio.edu). <https://pressbooks.ulib.csuohio.edu/bright-continent/chapter/chapter-2-1-elements-of-style-and-design/>
- Daderot. (2013). Mbangu mask - Central Pende, Southern Bandundu, DRC - Royal Museum for Central Africa - DSC06657.JPG [Image *Mbangu mask - Central Pende, Southern Bandundu, DRC - Royal Museum for Central Africa - DSC06657.JPG*]. In *Royal Museum for Central Africa, Tervuren, Belgium*. https://en.m.wikipedia.org/wiki/File:Mbangu_mask_-_Central_Pende,_Southern_Bandundu,_DRC_-_Royal_Museum_for_Central_Africa_-_DSC06657.JPG
- East African Living Encyclopedia. (2019). [Upenn.edu](http://www.africa.upenn.edu). <https://www.africa.upenn.edu/NEH/kfolklore.htm>.
- East African Living Encyclopedia. (n.d.). [Www.africa.upenn.edu](http://www.africa.upenn.edu). Retrieved June 26, 2023, from <https://www.africa.upenn.edu/NEH/kmatculture.htm#:~:text=The%20Maasai%20produce%20colorful%20beaded>
- Fisher, A. (1984). *Africa Adorned*. ABRAMS.
- Gope, L., Kumar Behera, S., & Roy, R. (2017). Identification of Indigenous Knowledge Components for Sustainable Development among the Santhal Community. *American Journal of Educational Research*, 5(8), 887–893. <https://doi.org/10.12691/education-5-8-8>. Date retrieved 26th June 2023
- Hadithi Africa. (2019, February 11). [Hadithi.africa](http://hadithi.africa). <https://hadithi.africa/the-history-of-scarification-in-africa/>
- Israel Museum, Jerusalem. (n.d.). Wandering Dreams: Headrests from Africa.
- Iteyo, C. (2009). Belief in the Spirits of the Dead in Africa: A Philosophical Interpretation. *Thought and Practice: A Journal of the Philosophical Association of Kenya*, 1(1). <https://doi.org/10.4314/tp.v1i1.46312>.
- Jessen, T. D., Ban, N. C., Claxton, N. X., & Darimont, C. T. (2021). Contributions of Indigenous Knowledge to ecological and evolutionary understanding. *Frontiers in Ecology and the Environment*, 20(2). <https://doi.org/10.1002/fee.2435>.
- Kamer, H. (n.d.). *THE AUTHENTICITY OF AFRICAN SCULPTURES*. Retrieved June 29, 2023, from https://www.randafricanart.com/files/Henri_Kamer.pdf.
- Knowles, H. (2011). *Welcome to Kenya*. Milliken Publishing Company.

- Ladislav, S. (1976). *Masks of Black Africa*. Dover Publications.
- Leakey, M. (1983). *Africa's vanishing art: the rock paintings of Tanzania*. Hamish Hamilton.
- McQuail, L. (2002). *The Masai of Africa*. Lerner Publications.
- Metropolitan Museum of Art. Art of Oceania, Africa, and the Americas from the Museum of Primitive Art. New York: The Metropolitan Museum of Art, 1969, no. 317. Retrieved February 9, 2024 from <https://www.metmuseum.org/art/collection/search/310746>
- Modiano, L. (2022, April 30). *How Much Does Picasso Owe to African Art?* The Collector. <https://www.thecollector.com/picasso-and-african-art/>
- Mosweunyane, D. (2013). The African Educational Evolution: From Traditional Training to Formal Education. *Higher Education Studies*, 3(4). <https://doi.org/10.5539/hes.v3n4p50>.
- Museum of Primitive Art. Masterpieces in the Museum of Primitive Art: Africa, Oceania, North America, Mexico, Central to South America, Peru. Handbook series. New York, NY: Museum of Primitive Art, 1965, no. 8. Retrieved February 9, 2024 from <https://www.metmuseum.org/art/collection/search/310746>.
- Ngulube, P. (2002). Managing and Preserving Indigenous Knowledge in the Knowledge Management Era: challenges and opportunities for information professionals. *Information Development*, 18(2), 95–102. <https://doi.org/10.1177/026666602400842486>.
- Olupona, J. J. (2014). 5. Sacred arts and ritual performances. *African Religions*, 72–88. <https://doi.org/10.1093/actrade/9780199790586.003.0005>
- Owusu-Ansah, F. E., & Mji, G. (2013). African indigenous knowledge and research. *African Journal of Disability*, 2(1). <https://doi.org/10.4102/ajod.v2i1.30>.
- Primitive Art | MoMA. (n.d.) The Museum of Modern Art. <https://www.moma.org/collection/terms/primitive-art#:~:text=A%20term%20that%20has%20been>
- Sobania, N. W. (2003). *Culture and customs of Kenya*. Greenwood Press.
- Von, J. (1975). *Art in East Africa*. Holmes & Meier Pub.
- Wambugu, R. R., & Maina, S. (2006). *Transformation of Maasai Art and Architecture*. Arts Press.
- Wogalter, M. S., Dejoy, D. M., & Laughery, K. R. (1999). *Warnings and risk communication*. Taylor & Francis.

54. Making Up Maasai Culture: The Turle Fakes

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Abstract

The purpose here is to describe and call to attention the creation of a product line of pseudo-Maasai artefacts designed to promote some of the mythologies about African culture while making money for its inventors. The three perpetrators concocted a story about mysterious objects used by the Laibons (medico-religious practitioners). They hired craftspeople to make the objects from contraband animal parts and promoted stories of their great age and importance. They recruited various foreigners and Maasai to help promote and convince a number of museum professionals, art dealers and collectors to accept them. In 1992 they published a book (Turle, 1992) which was damned in a review (Pido, 1994). In 1997, following joint raids and arrests by the Kenya Wildlife Service and the American Fish and Wildlife Service, it was assumed that the perpetrators had been shut down. However, production and trade have continued since 1997, and many Maasai have taken them up as a lucrative art form. This has contributed to the near extinction of the Maasai giraffe and several other species. The author recounts the history of these fakes and comments on their position in the art world and the economy. The methodology used was extensive archival and field study of Maasai art over several decades supplemented by participant observation; the methodology generated information that invites questions and debates on fakery and fakes in the world of art and culture.

Keywords: *African art, Maasai art, fakery, entrepreneurship, cultural disrespect, misrepresentation*

1 Introduction

The peoples of the East African interior made little or no use of writing until the colonial invasion of the 1800s. Because there was no written record of their history and cultures, they were vulnerable to foreigners' whims and fantasies about Africa in general and themselves in particular. The colonial powers, along with their religious and business communities, were able to create tentacles of falsehoods and spread them far and wide for their own political, economic and territorial benefits. The Europeans already had a long history of disdain for pastoral, transhumant and nomadic peoples going back at least as far as Herodotus in the 500s BCE (Herodotus, 1992). They also had at least two centuries of conjecture by well-off 'armchair' social scientists who could afford to sit in their studies and libraries and conjure up theories about 'the other' that always placed Africans in a deficit position (Tylor, 1904). Because East Africans were still mostly pre-literate up until the 1950s or so, they were defenceless in large part because they did not even know that they were being constructed and described by the acolytes of acquisitive governments who wanted their land and resources. Perhaps the most bizarre of these were the British, who were willing to sacrifice everybody from Mombasa to Kampala in their effort to protect their political interests in the Nile watershed (Pido, 1994; Were & Wilson, 1968). They wanted a stretch of more than a thousand miles of marginal land to make money for them to pay for the railroad they built along a route that passed through Maasailand. Starting with Joseph Thompson's swaggering account of his transit through Maasai territory in the 1880s and going on to the present, we have uncountable examples of foreigners 'making it up' in order to promote their own

images, further their aggressive agendas, and justify the misappropriation of land. As of 2006, we also have indigenous Kenyans publishing rubbish about their Maasai brothers and sisters (Rukwaro & Maina, 2006).

We are now slogging through the 21st century, in which some scholars and social scientists are trying to neutralise and correct the falsehoods that came before us (Jacobs, 1965; Galaty, 1977; Pido, 1987, 1994). This is a struggle because the 19th-century image of East Africans, especially the Maasai, has thoroughly permeated global thought and understanding of this much-maligned people. Journalistic, touristic and cinematic images of the Maasai people are still mostly gross distortions of reality, yet even the younger generation of Kenyans accept them as truth.

My findings are that a small group of entrepreneurs assumed that Maasai people would not find out about the fakes. In the end, Maasai craftspeople appropriated the fakes and their false story and started producing them themselves. In general, however, contrived Indigenous Knowledge can have widespread effects on several sectors, including business, tourism, wildlife and Kenya's international "image". For at least 140 years, foreigners and locals alike have been creating mythologies about the Maasai people of Kenya and Tanzania. They have also taken advantage, in the extreme, of truths about Maasai people and their culture in order to gain advantage for themselves both in East Africa and their home countries. While most of these 'made up' narratives have been fairly benign and often casual, we can examine at least one that was deliberately and purposefully contrived. In so doing, we can take a close-up look at a process of deliberate falsification and promotion over three decades. Because most of the people involved are still alive, they will be identified only by their initials throughout this article.

2 The Narrative

The narrative began in the late 1980s when a Maasai curio hawker, DS, brought some unusual-looking objects to one of his regular customers, GT. He took them home and showed them to his colleagues, PB and PR, as examples of ridiculous things that Africans can make. My source on this event came directly from NB, the wife of PB, who served the three men drinks and hors d'oeuvre in the evening. PB and GT were laughing at the array of ivory, horn and bone objects that had been crudely patinated with a mix of smoke, cow dung and urine. PB was already known for collecting animal parts, which he had displayed on several tables in the tents he called home on his sprawling plot. He was a well-known jet setter, photographer and 'bad boy.' GT, the son of an influential upper-class British family, owned an antique shop on Kaunda Street in Nairobi. PR, the grandson of a famous German/American movie star, was visiting Kenya from New York, where he was a successful literary agent. He interrupted the merriment, and, according to NB, the three men became very serious and conversed among themselves in hushed tones for at least half an hour. They then announced that they were going to buy and promote these types of objects as tools of the Maasai laibon (medico-magico-religious practitioners) at least a century before.

They declared the objects to be antiques and dated them to an unclear time before the CITES agreement protected the body parts of elephants, rhinos and other high-end wildlife. They defined them as the hidden paraphernalia of very secretive people who would never have shown them to ordinary folk. They then set about promoting the objects to museums, art dealers, and collectors, knowing that the illiterate Maasai would never find out and that East

African art is not prominently featured in art history curricula or publications. By leaving 'sample' collections with various dealers and curators for possible future purchases, they could truthfully tell prospective buyers that the objects were 'in' several museums and galleries with high name recognition.

They could build credibility and a sales record through their extensive social and professional connections. Many of their pieces ended up in the private collections of European and Asiatic royal families. Some were also sold to a wildlife-obsessed son of a distinguished European family of art dealers several generations deep. They could also recruit so-called experts on Maasai culture to verify authenticity out of embarrassment at having never seen or heard of anything like these objects in their many years in Maasailand. They recruited the daughter of a long-term curio-dealing family to write something which they then 'enhanced', causing her to back far away immediately. They approached Father Frans Mol and asked him a set of questions, which he answered truthfully and which they used to claim that Father Mol had already known about the objects and had endorsed them, a blatant lie. Father Mol later explained to me that if you show a person something easily recognisable as a smoking pipe and they have smoking pipes in their culture, they are going to give you the word for 'smoking pipe' in their language. GT's insinuation that the Maasai had special names for these objects was nonsense.

Knowing that they would have to concoct production of the objects in a remote or peripheral part of Maasai culture, they recruited RB, one of two anthropologists who had studied the Okiek people. The Okiek are a hunter-gatherer group of the Mau Forest in Kenya who have traditionally made objects for the Maasai because the Maasai religion forbids males from forming anything. (Jacobs, 1965). To his credit, RB did some field research among the Okiek, and they verified that the objects had not come from them. Later, however, RB wrote a response to the book review in *African Arts* purporting to discredit their damnation (Blackburn, 1994).

Sometime in about 1990 or 1991, GT approached me on Wabera Street and asked me to come to his office down the block to look at some strange objects he had. I went with him, and he showed me several smoked fragments of warthog skulls that had been extracted from the area around the foramen magnum and included the occipital condyles. I could recognise the foramen and condyles but would never have guessed the animal they came from. Ironically, PB was known for his relationship with warthogs, and dozens of them were wandering around his compound. GT also showed me several smoking pipes and explained that the laibons used them to create smoke for treating patients. He emphasised that he had collected some names of the objects and given the list to Father Mol. The other notable objects he showed me were some grinding bowls and pipes that included platforms and also doubled as headrests.

The objects had already come to my attention a year or so earlier while attending a conference on African Art in New York. The then curator for Africa at the Metropolitan Museum of Art, Kate Ezra, asked me to look at a small collection that GT had left with her for possible purchase by the Museum. He had also left a similar small collection with the curator for Africa at the American Museum of Natural History, which I have never seen. Kate had immediately seen that the objects were fake but had reserved final judgment pending advice from an East African 'specialist.' One of the objects GT had left with her was a giraffe tibia that had been patinated with charcoal, an impossibility in Maasai culture. We both realised that the faker had created very East African-looking objects but had known nothing about how objects of

any kind become patinated. In fact, the forms, though novel, were convincing, but the patinas were damning.

I wrote a short paper for GT explaining that they were quintessentially East African in form but that the patinas were fake. He used this to claim that I had at first verified the pieces and then changed my mind. At some point, GT admonished me to keep his collection separate from PBs. There were differences, but observers, including myself, did not realise that PB was commissioning the carvers in Kiserian and Kisamis using a different set of images than GT was using. PB material resembles Picasso's sculptures of Marie Therese Walter, and GT's were more like sculptures of Brancusi and Giacometti. Both used the resemblances between their product and the work of famous Euro artists to illustrate a deep psychic connection between "primitive" artists and the leading 20th-century Euro artists. GT even wrote a paper somewhere posing the question, "Are the Maasai capable of high art?" for which I do not have a citation. So there were two separate stylistic streams, GTs and PBs, but a third also became obvious. The vertebral column of a giraffe includes several that, when standing with trochanters up, resemble the famous porcelain angels made by the Hummel company of Austria. These were visually engaging to anyone who had ever seen a Hummel angel.

In 1995, almost exactly one year after the book review was published, Bill Kurtis, a very reputable documentary film-maker from the US, came out with a forty-five-minute video featuring GT as a 'new explorer,' thus reinforcing the Euro-American fantasy of a white man discovering the secrets of the dark continent trope.

The exact chronology eludes me, but I must add that the tour guide who escorted Kurtis while making the documentary later told me that some of the Maasai whom GT used to verify that the objects were theirs thought that they were acting in a story film, not a documentation of any truth. The tour operator's wife, a journalist, agreed to write an article for GT verifying the authenticity of the objects, as both the curio family's daughter and I had done. After a twenty-minute conversation with me, the journalist decided to write a book exposing the whole scam. That book is complete but has not attracted a publisher, I have yet to see the book.

At some point in all of this, I decided to approach the head of the Kenya Wildlife Service, Richard Leakey, with the suggestion that KWS take control of the budding industry and control the carvers' access to only road kill or other animals who had died naturally. The meeting is still vivid in my memory for two reasons. First, RL had to keep one hand clamped over his mouth to disguise his laughter at me. The second is that looking at RL, I wondered how awful it must be for his poor feet to be confined in those horrible combat boots that were part of his uniform. That was ten days before he lost both feet in a plane crash.

Also, in the mid-1990s, a respected curatorial assistant in the National Museums of Kenya innocently displayed a collection of objects in the Narok Museum, which focuses on the Maasai. This enraged the Maasai elders, who angrily demanded that those items be removed because they had nothing to do with the Maasai people or their culture.

The US Fish and Wildlife Service was alerted to the scam by me in 1994 in my effort to get some of the materials dated. They opened an investigation but closed it in 1995 because of internal squabbles. While the case was still open, a special agent drafted a case anatomy document, which was part of the standard procedure which is on record. In about mid-1995, I got my first internet connection. For no good reason, I tested it by googling GT's name. What came up was a thinly veiled sales site complete with catalogue-like images of the artefacts but without prices. The site also told of a museum being built at Kona Baridi

between Ngong and Kiserian and a cultural centre to serve the Loita community. The Loita area is at least 75 miles from that location. Several names of American professors in Arizona were listed, so I contacted one of them and told him that his name was being used in a scam. One of the Arizona people refused to believe that it was a scam, continued her support for GT and was ultimately arrested by the US authorities.

Later that year, MK, the journalist wife of PJ, the tour operator, also contacted FWS, and they reopened the case with a more intense commitment to dealing with the fraud. In 1997, they conducted a joint raid on PB's compound and GT's shop with the Kenya Wildlife Service and obtained some objects.

After the 1997 raid and stories of GT making regular visits to the Kibera Law Courts to sort it all out, both MK and I assumed that GT et al. had been shut down permanently. Imagine my surprise when the father of a Maasai friend explained to me that he knew it was wrong to kill giraffes, but he needed the money he was receiving from his friend GT.

By 2004, I assumed that the whole thing was over until people started talking about Maasai visiting GT at his home in Lamu and bringing objects to him. As MK was also living there and I did not want to interfere with her book, I left it all alone. Then, three years ago, I met a woman who had been the curator of the Narok Museum for several years. She told me that many people are now making artefacts in various parts of Maasailand. I consulted a colleague in the National Museum, and he identified a whole family in Loita that makes the objects. Having been distant from the Maasai community since 2010, I have not pursued the matter but have only alerted Museum staff in Nairobi. Sometime in the 20 tens, a Maasai friend visited the Smithsonian Museum of African Art in Washington, DC. He reported that some of the fakes are on exhibit there, but he was unable to provide me with pictures, so I cannot be certain.

As of 2023, there is a bottom line to this story that has dragged itself out for about 35 years. As one who is passionately concerned with the correct and accurate presentation of people's culture, especially the Maasai, I am appalled, first and foremost, at the brazen falsification of somebody else's culture. However, as an anthropologist and a human living in stressed times, I recognise that necessity and opportunism very often come together in providing sustenance for people who have no alternatives. The fact that wild animal species are endangered by human activity and the giraffe is now on an endangered species list is very upsetting to me. However, Kenya's giraffes and other wildlife belong to Kenyans, not me. Robert Mugabe, the late president of Zimbabwe, once countered criticism from wildlife protection advocates by stating that 'they are our elephants', meaning that Zimbabweans can do what they want with their wildlife. The fact that four white guys made millions of dollars by exploiting Kenyan wildlife and Kenyan people should be no concern of mine – even though it is.

Still, there remains a plethora of concerns about the misrepresentation of people other than oneself. Assuming that an ethnic community is totally illiterate and will never find out what you are saying about them is unethical, in my opinion. We all should be aware of the colonial falsification of descriptions of East Africans in order to gain acceptance by the British public of the atrocities their government was committing here. Then there are the Nazis in Germany who made up all manner of stories about the Jews, Gypsies and Hungarians. They even published books with diagrams of the physical features of those groups that were intended to place them outside the mainstream of humanity. This is paralleled by the phoney stories that if a Maasai man plants his spear out the door of a woman's house, he gains entitlement to sleep with her. Another ridiculous falsehood that many people accept as truth is the story that a Maasai has to kill a lion

in order to become a man. These falsehoods have gained acceptance in many parts of the world, including their use by communities in East Africa that want to make the Maasai look bad.

The fake Maasai artefacts were very clumsy and amateurish in the beginning. As time went on and the makers received critique from scholars and Maasai themselves, the fakers ‘cleaned up’ their act and produced better, but still fake, patinas. By the late 1990s, they had contacted the late president of Kenya and asked him to endorse the fakes as genuine artefacts of his community, the Kamasya. He declined, knowing that they had no connections to his people. Now, in 2023, according to several Maasai friends and colleagues, the production of ‘Turtle Fakes’ has become something of a cottage industry and is making money for several Maasai families. They have become an independent art form, and stories of authenticity accompany them.

4 Conclusion

Based on the foregoing narrative and the many insights gained, several points have become clear. First, some people, including a few Maasai themselves, do not care about the correct presentation of their culture. Second is that foreign ‘collectors’ value the appearance of age and primitivity in African art. Along with this is the recognition that ‘exotic’ objects can be used to disguise the use of various drugs. Practically speaking, there is money to be made in appealing cultural falsification. Scholars and Maasai people need to keep track of culture and expose falsification. Finally, people whose economy is marginal and who need cash to survive can disregard what they know and take up the production of objects that will enrich them regardless of any truth.

References

- Blackburn, R. (1994). *Response*. In African Arts Magazine, Fall 1994.
- Galaty, J. (1977). *The Symbolic Dynamics of Maasai Identity*. PhD Thesis, University of Chicago
- Herodotus. (1992). *The Histories* (Walter Blanco and Jennifer T Roberts Trans.), Norton and Company, New York
- Jacobs, A. (1965). *The Traditional Political System of the Pastoral Maasai*. PhD Thesis, Nuffield College, Oxford
- Pido, D. (1994). *The Art of the Maasai*. In African Arts, April (Spring) 1994
- Rukwaro, R., & Maina, S. (2006). *The Transformation of Maasai Art and Architecture*, ARTS Press, Nairobi
- Thompson, J. (1885). *Through Maasailand*, Sampson Low London
- Turle, G. (1992). *The Art of the Maasai*, Alfred A Knopf, New York
- Tylor, E. B. (1904). *Anthropology*, MacMillan and Company, London
- Were, G., & Wilson, P. M. (1968). *East Africa Through 1000 Years*, Evans Brothers London

55. The Role of Cultural Festivals in Enhancing Indigenous Knowledge for Sustainable Development in Kenya

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Abstract

Culture plays a pivotal role in socioeconomic development, as captured in Kenya's 2010 Constitution and Vision 2030. This paper employed a qualitative ethnographic approach to investigate the role of cultural festivals in enhancing indigenous knowledge for sustainable development (SDGs 4, 8, 11 and 12). The study objectives were to determine the extent to which festivals promote indigenous knowledge for sustainable development, establish factors that impede community cultural festivals, and make recommendations on the enhancement of indigenous knowledge for development. Data was collected through document analysis, participant observation, and interviews with 32 key informants who were randomly sampled from a population of 5,000. They comprised community elders and representatives from the National and County Government of Homa Bay during the Rusinga Cultural Festival. Results indicate that cultural festivals are effective in showcasing indigenous culture, creating awareness, education and lifelong learning, entertainment and heritage promotion, tourism and westernisation. They build community resources, their success is judged on profit and loss, and they provide a forum for community cohesion and celebration, as well as enhancing cultural knowledge. This paper bridges the knowledge gap by explaining how cultural festivals help generate social-economic benefits to host communities (SDG 8), inculcate the use of the Abasuba language into early childhood development (SDG 4), provide platforms for sharing indigenous knowledge and allow heritage promotion for positive returns and renewal (SDG 11).

Keywords: *Cultural identity, culture, Rusinga cultural festival, traditional knowledge*

1 Introduction

Culture defines who we are as it carries universal values and the many faces of shared humanity (UNESCO, 2017). It is about what people think in terms of attitudes, beliefs, ideas and values, including what they do as their ways of life, broken down as artworks, artefacts and cultural products. Culture is about identity, social cohesion and development for a knowledge-based economy (UNESCO, 2001). It creates and reinforces a community's identity and makes it distinct from the rest, including their sense of belonging to a particular locality. Thus, it plays a pivotal role in development and is a critical enabler of socioeconomic, political and cultural development as captured in Kenya's 2010 Constitution and Vision 2030.

Festivals are events held by and for the public (Kahuno, 2017). They are tourist attractions that bring people together in a specific location away from their normal day-to-day lives for a period to enjoy a coherent set of entertainment activities (Wilks, 2009). They are times of cultural celebrations accompanied by a series of performances, artefacts for visitors, and

other activities that form a vital part of cultural practices accepted in most communities. Festivals harness and exhibit knowledge and skills that are beneficial to consumers, allowing them to appreciate diversity and encourage tolerance (Kahuno, 2017). Many types of festivals exist globally. They include Arts festivals, film festivals, music festivals, and religious or carnival festivals such as Christmas, Hanukkah, Diwali, Holi, Passover, Easter and Eid ul-Adha, among others. Seasonal festivals are food-based, and they traditionally take place at harvest time, when farmers reap their crops and there is plenty of food to share. Festivals may be inseparable from the commercial interest of tourism, regional and local economy and place promotion (Waterman, 1998). Although most festivals have a religious background and character, there are also social and cultural festivals such as New Year's Day, sword-dance festivals in Scotland, and the Olympic festivals. In Kenya, National festivals include celebrations such as May Day, Madaraka Day, Hero's Day and Jamhuri Day. Celebrations of culture globally centre on the arts. Additionally, they emerged as instruments for tourism development (Okech, 2011).

Development is understood as positive and progressive change that considers and meets the interests and needs of future members of society, including environmental infrastructure.

There is a dearth of literature focussing on how cultural festivals help generate socioeconomic benefits for host communities (SDG 8). This study, therefore, helps address the role cultural festivals play in inculcating the use of the Abasuba language into early childhood development (SDG 4), providing platforms for sharing indigenous knowledge, and promoting heritage for positive returns and renewal (SDG 11).

2 Literature review

Cultural festivals have been held for centuries across the world, and also a big business. According to Whitford and Ruhanen (2013), festivals have the potential to deliver socio-cultural benefits to host communities and destinations. The indigenous communities look at cultural festivals as vehicles that facilitate capacity building, self-determination, and reconciliation. Kahuno (2017) avers that cultural festivals have become platforms where policymakers and cultural producers come together to support identity and re-instil traditions that are deemed to be in danger in the local community. Additionally, they have become prominent topics of research because of their depth and diversity, particularly in their socioeconomic value, since residents and festival organisers regard them as a boon to the local economy, for they strive to attract as many visitors as possible. Crespiñ Vallbona and Richards (2007) affirm that cultural festivals have become arenas of discourse, enabling people to express their views on broader cultural, social and political issues, including a means of generating local pride, identity and income.

Festivals contribute significantly to the cultural and economic development of a nation, as well as promote cultural tourism to the host communities. The core values of a festival entail maintaining and disseminating the traditional elements of identity, language, territory, history, common culture and religion, identity construction and authenticity (Kahuno, 2017). Through festivals, indigenous knowledge is revived, and opportunities for learning are offered to the youth to develop their skills and talents. Although festival organisers use historical and cultural themes to develop the annual events to attract visitors through the cultural images of the community settings, they are basically promoters of cultural tourism and a mechanism for promoting regional peace. De Bres and Davis (2001) assert that the broadening role of traditional and popular cultural events seems to devalue the cultural content of festivals with

a fear that local “traditional” culture is being replaced by globalised, “popular” culture and loss of cultural events as sources of group identity and place identity and meaning due to processes of commoditisation. In the case of a small community, it could enhance its cultural identity (Kahuno, 2017, p.5).

Limited research has been conducted on the socio-cultural impact of festivals on local communities (Kahuno, 2017). Most studies focussed on the economic contribution of community festivals to host communities (Small, 2007) and not the role of cultural festivals in enhancing indigenous knowledge, including factors that impede cultural festivals as tourism attractions and generally influence event tourism development.

2.1 Cultural festivals in Kenya

Kenya recognises community cultural festivals as treasures for cultural exchange and promotes local tourism for economic development, peacebuilding, and social cohesion. In northern Kenya, where conflicts are rampant, the Lake Turkana Cultural Festival (formerly Loiyangalani Annual Cultural Festival) was initiated as a cultural event by the Kenya German Embassy in 2008 to promote peacebuilding, social cohesion and socioeconomic development along the Lake Turkana region of Marsabit County (Orinde, 2017). In the past, the communities living within Marsabit County faced many insecurity challenges coupled with ethnic conflicts, cattle rustling, banditry and marginalisation. A number of community cultural festivals have been initiated by private individuals, as well as the National Museums of Kenya, in collaboration with local communities to express their cultural values and promote and preserve Kenya’s cultural heritage. They include the Nairobi International Cultural Festival, Lamu Cultural Festival, Malindi Cultural Festival, Ura Gate Tharaka Cultural Festival, Wajir Festival, Maulidi Festival and Lake Turkana Cultural Festival, Abawanga Cultural Festival, Kakapel Annual Cultural Festivals and Rusinga Cultural Festival among others. After the dispensation of Kenya’s Constitution 2010, it is the role of the county government to create awareness of cultural events because they are specific to this area. Culture plays a pivotal role in peacebuilding, eradication of poverty and sustainable development (Omara, 2017). This study selected Rusinga Cultural Festival to investigate the role of cultural festivals in a country’s sustainable economic development.

2.2 The Rusinga Cultural Festival

This festival has been celebrated annually since 2011. In 2019, the festival celebrated its 8th edition at Kamasengre grounds under the theme “The Island Remembers”. Although festival themes differ every year, the 8th edition theme was designed to give the Abasuba people a reason to reminisce, re-imagine and connect Rusinga Island to the world through art, culture, literature and heritage (Yobby, 2020). The festival was supported by a number of stakeholders, including the County Government of Homa Bay, the Maritime Authority, Kenya Airports Authority, Equity Bank, Kenya Revenue Authority, Pwani Oil Refineries, Kenya Wildlife Service and the media. The community, together with the National and County Governments, used the festival to commemorate fifty years since the Late Hon. Tom Mboya, the greatest son from Rusinga Island, passed on through assassination in 1969. The community used the event to launch the Abasuba anthem composed by Ages Kenya and to validate the Abasuba dance dubbed ‘owukire’, pronunciation and costume by the Bomas of Kenya and the council of elders together with a few community members. Owukire means victory and celebrates Suba culture and migration from Uganda.

Literature indicates that little research has been undertaken on indigenous knowledge preservation and history. Limited research has been conducted on the socio-cultural impact of festivals on local communities (Kahuno, 2017), creating a knowledge gap. Most of the studies focussed on the economic contribution of community festivals to host communities (Small, 2007). There is a dearth of literature on cultural festivals; few or none explain how they enhance development. This study, therefore, bridges the knowledge gap on how cultural festivals enhance indigenous knowledge for sustainable development in Kenya, as evidenced by the population of visitors to cultural festivals, as shown in Figure 1.



Figure 1: Traditional dance troupe chanting praise songs for boat racers at Luore Beach

4 Methodology

This study was conducted in Rusinga Island, Homa Bay County, during the annual Rusinga Cultural Festival held at Kamasengre grounds on 19th and 20th December 2019. Rusinga Island is along a northeastern portion of Lake Victoria, with an estimated population of 22,000 inhabitants, who form part of between 3,000 to 5,000 festival attendance. This particular festival was purposively selected for this study because it is one of the oldest, founded in 2011 by the Chula Cultural Foundation with a focus on culture, and the fact that it was organised around the Abasuba community, whose language is on the verge of extinction due to assimilation and intermarriage with the Luo. The study employed a qualitative ethnographic approach to investigate the role of cultural festivals in a country's sustainable socioeconomic development. Data was collected from 32 randomly selected respondents through participant observation to provide insights on behaviour and key informant interviews for information about people during the cultural festival, as well as document analysis for background information. Data was thematically interpreted, with some presented in excerpts.

5 Findings and discussions

The study investigated the role of cultural festivals in a country's sustainable economic development. The study established that the Rusinga Cultural Festival is an annual event, usually attended by between 3,000-5,000 people comprising community elders, representatives from the National and County governments, including dignitaries from foreign embassies, members of parliament, Bomas of Kenya dance groups and Kenge Kenge dancers from Kisumu, school children, foreign and local tourists, local community members (men, women and children), partners, sponsors and other stakeholders, people from neighbouring communities and tourism enthusiasts from around the world.

The festival has seen tremendous growth, opening up the Lake Region to cultural tourism and related economic activities, giving a platform to cultural artefacts and performance artists to earn some income, empowering women and the local community through small businesses during the festival, promoting literacy and life skills through island reading series and cultural reflections, promotion of the arts and culture industry; and above all the resuscitation of the endangered Suba culture and heritage. This finding agrees with the findings of Owano et al. (2019) that activities are presented in the Suba language with a standby translator into English.

The cultural practices entertain visitors the most, as they are the reason visitors annually plan to attend the festival. The two-day festival reminds the Suba community of the need to preserve their rich culture, history and language. An excerpt from one of the respondents shows that:

“Several aspects of culture such as music, dance, games, attire, crafts and cuisine, among other cultural expressions, can be exploited to develop the lives of the people of Rusinga and the nation as a whole, leading to the preservation and promotion of Kenya’s cultural heritage” [Respondent No.1]

The findings from the Rusinga Cultural Festival demonstrate the importance of cultural festivals to the Kenyan economy and its development, clearly showing that cultural festivals have a central role to play in the growth of an economy at both the county and national levels. The growth occurs through the support of cultural tourism, which offers opportunities for improved incomes from transport, hotels, and other small businesses, including tapping talent. This indicates that festivals are effective vehicles for showcasing indigenous culture, creating awareness, education, lifelong learning, entertainment, and promoting heritage tourism.

Additionally, Festivals promote culture, which in itself provides identity and essential conditions for propelling economic growth and sustainable development. They provide a critical meeting point for community members and cultural enthusiasts. It was observed that because the festival takes place around Christmas time, most Island dwellers return home with their invited friends and visitors to celebrate their culture together as one community.

The findings indicate that participants engaged in various activities, which included a boat racing competition held at Luore Beach, which attracted fourteen competing boats: five with female competitors and nine with male competitors, wrestling, tug of war competition separately for men and women, music and dance performances, story-telling and book reviews as part of Boma Night activities around a bonfire, ‘ajua’ and enjoyment of traditional cuisine. During the excursion, visits were made to several heritage sites, including Ruma National Park, Tom Mboya Mausoleum, Abasuba Peace Museum, Rock Art caves in Mfangano Island, and other important cultural and prehistoric sites.

The study also found that several benefits are derived from Cultural Festivals. According to Whitford and Ruhanen (2013), festivals have the potential to deliver socio-cultural benefits to host communities and destinations. The indigenous communities look at cultural festivals as vehicles that facilitate capacity building, self-determination, and reconciliation. Kahuno (2017) avers that cultural festivals have become platforms where policymakers and cultural producers come together to support identity and re-instil traditions that are deemed to be in danger in the local community. Additionally, they have become prominent topics of research because of their depth and diversity, particularly in their socioeconomic value, since residents and festival organisers regard them as a boon to the local economy, for they strive to attract as many visitors as possible.

Most of the respondents indicated that the Rusinga Cultural Festival has made significant contributions to the community, the county, and the country as a whole. Some respondents who happened to be motorcycle operators held that:

“the festival was very important to the local peoples, especially those individuals who offered transport, accommodation and food to the participants” [Respondent No.9]

“The boda boda operators benefited more than matatu operators since they take a much shorter time to be filled by passengers (matatus take much time to be filled by passengers)” [Respondent No.11]

“We are happy during the festival season to provide transport services to the visitors and make good money” [Respondent No.18]

“I feel, however, that more benefits must be going largely to the leaders, hotels and small business operators” [Respondent No.21]

Another aspect that was stressed by a majority of the respondents, including the Chairman of the Rusinga Cultural Festival, was that:

“the festival has led to the revival of the Abasuba Cultural Heritage” [Respondent No.2]

“the festival not only ‘brought people together’, but also contributes to ‘the renewal of the Suba cultural ideals” [Respondent No.5]

“we attend the festival to promote Suba culture being a threatened identity in Kenya” [Respondent No.6]

“we look forward to reviving the language through music, dance, food and mode of dress” [Respondent No.17]

The researchers observed that more young and older members of the Suba community from Rusinga, Mfangano, and Gwasssi mainly attend the festival to hear long-lost words and for entertainment in the form of poetry, folklore, music and dance, and games such as ajua, wrestling, and tug-of-war, among others. Kariuki et al. (2018) averred that indigenous knowledge is passed on during cultural activities and ceremonies because participants benefit from shared learning and that ceremonies serve as a forum for bonding and knowledge transmission.

When the respondents were asked whether the cultural festival contributes to the local and national economy, most of them attested that the Rusinga Cultural Festival attracts many people who bring foreign exchange. They said that:

“Foreigners come here with money which they spend in hotels, buying food and gifts” [Respondent No.12]

“it provides a platform for advertising products such as goods and services which are sold at lower prices during the festival” [Respondent No.22]

“it promotes talent and employment to the youth engaged in live performances since most people come to see dances and are not serious about adopting the Suba language. They sell DVDs and CDs, and this year’s sales would go up from the 200 DVDS sold last year to more than 300”. [Respondent No.29]

Other respondents engaged in beauty and design work using textiles said that festivals:

“are ideal platforms for promoting cultures and marketing cultural products”

“are a booster to the tourist industry, encouraging friendships and intercultural exchanges” [Respondent No.28]

Responses from food enthusiasts held that:

“cultural festivals are central points for showcasing traditional cuisines” [Respondent No.13]

“we have come here to provide nutritious foods such as ‘alia’ traditionally preserved meat, porridge, fresh fish, ‘obambla’ traditionally preserved fish, ‘kuonanang’a, traditionally prepared ugali with milk, sweet potatoes and vegetables at cheaper rates to the festival attendees. We have done this since the festival was started eight years ago. We know that through the festival we can educate people on the importance of good food that will help them to be strong and healthy” [Respondent No.14]

“This festival gives us not only joy but also allows us to encourage people to eat good foods” [Respondent No.10]

Regarding economic development, findings indicate that cultural festivals promote cultural tourism by allowing the world to appreciate the islands and the wonderful beaches along Lake Victoria, including the people who live on them. The respondents affirmed that:

“People who visit the festival bring revenue to the hotels through accommodation; buying of food from food vendors and cultural gifts from handicraft makers” [Respondent No.8]

Additionally, one of the respondents said that:

“Through beauty pageants, the community beauty contestants have risen to the national and international levels, thus promoting Rusinga globally” [Respondent No.7]

It was established that many talented children who were spotted during the cultural festival often found sponsorships to pursue various careers of their choice. In terms of imparting skills and talent development, the respondents said that:

“the festival gives members of the Abasuba community the opportunity to showcase their rich talents in boat racing, wrestling, rope pulling and dancing, giving us good rewards in the end if one wins” [Respondent No.16]

This finding concurs with Kahuno (2017), who states that festivals harness and exhibit knowledge and skills that are beneficial to consumers, allowing them to appreciate diversity and encourage tolerance.

Rusinga Cultural Festival gives the local contestants and those serving food some financial gains and is seen, not the least, as something good, but an avenue for joy and friendship. One of the respondents said that:

“Higa ka higa, jok mabiro e piem mar riembo yiedhi ok dog dala nono; imiyogi pesa moro magi dhi konyorego. Kata mana wan ma wamiyo ji chiemo kawasetieko to ibiro miyowa shilling aluf achiel ng’ato ka ng’ato” (Every year, the boat racers enjoy significant pride for winning, but even those who do not win are usually given some money by the organisers, and this includes the food providers) [Respondent No.17]

“Even we who are serving traditional food to the cultural festival participants will each be given a thousand shillings” [Respondent No.15]

By offering markets for community products such as food, hospitality, and cultural assets, among others, festivals enhance local economies and can help to spur regional, national, and global growth.

By bringing people together through games such as ajua, boat racing, and traditional dances, festivals create friendships that can enhance community harmony and provide vital conditions for productivity in the community. Curious visitors with high vision could spot opportunities in the locality and advise the people to seize them to boost their economic gains.

The study identified the following impediments to cultural festivals, as cited by the informants:

Non-use of Suba language

Many of the festival activities are communicated in Dho-Luo, English, and Swahili while neglecting the Suba language, which is considered difficult for the youth and on the verge of extinction. As a remedy to this impediment, the informants proposed enforcing the use of the Suba language by engaging translators and bringing more cultural aspects of the Abasuba into active usage.

Lack of financial support

While the festivals largely depend on partnerships for their support, which is inadequate due to stiff competition for scarce resources, many people who would love to attend the cultural festival lack the means to do so. One of the organisers of the festival lamented that:

“our greatest challenge is finances. The first editions of the festival were organised from our own savings, while the later ones we would get funding from different organisations and my family topping up the rest, making us not to achieve all the goals we had set out” [Respondent No.3]

As a remedy for this, the County Government should give priority to the cultural festivals and promote them worldwide to attract bigger and richer audiences. Additionally, the government should provide greater financial support to cultural festivals and create opportunities for cultural troupes to participate during the national celebrations (Labour Day on 1st May, Madaraka Day on 1st June, Heroes Day on 20th October and Jamhuri Day on 12th December).

Lack of themes

The governments should be specific on why festivals are held by coming up with specific themes each year and discouraging ethnicity (tribalism) by including cultural components from other communities through extensive advertisements and improvement of logistical arrangements. They should establish exhibitions of the year programme in which products from the various cultural festivals are showcased at the national level, and awards are given to those who excel.

Time

Most cultural festivals, including the Rusinga Cultural Festival, are held in December. As the celebrations are close to Christmas, many people feel that it is an inconvenience. Cultural festival calendars should be clear and spread out throughout the year.

SDGs

The study found that None of the 17 SDGs focuses exclusively on culture, except SDGs 4, 8, 11 and 12), which give explicit references to cultural aspects. Target 4.7 aims to ensure that all learners acquire the knowledge and skills needed to promote sustainable development, among

others, through education for global citizenship and the appreciation of cultural diversity and culture's contribution to sustainable development. Target 8.3 addresses the promotion of development-oriented policies that support productive activities as well as creativity and innovation. Targets 8.9 and 12. b refer to the need to devise and implement policies to promote sustainable tourism, including through local culture and products, and to the need to develop suitable monitoring tools in this area. Target 11.4 highlights the need to strengthen efforts to protect and safeguard the world's cultural and natural heritage (UCLG, n.d.).

6 Conclusion

Cultural festivals have been held across the world for centuries as they add spice to human existence. The Rusinga Cultural Festival demonstrates this importance to the Kenyan economy and development. With the dispensation of Kenya's 2010 constitution, 47 counties were created across the country. Thus, cultural festivals have become a critical rallying point and platform for promoting political, cultural and economic programmes and dreams. Communities in counties now see culture as a tool that brings them together and attracts tourism. They have a central role to play in the growth of the county and national economy as they support cultural tourism, which offers opportunities for improved incomes from transport, hotels, small businesses and talent tapping. Festivals are recognised as a means of channelling resources, harnessing change, and creating wealth in the community. Economic gains realised during community cultural festivals are used for their immediate welfare needs. Many observers are convinced that festivals contribute to development by promoting culture, which provides identity and essential conditions for propelling economic growth. Rusinga cultural festival has made the island better known and contributed to the revival of the Suba culture and language, which was threatened with extinction. Many aspects of Abasuba indigenous knowledge are now actively revived through the utilisation of traditional foods, re-creative activities such as tag of war, boat racing, board, music and dance, folklore, and indigenous crafts such as pottery making, weaving and boat-making.

Critical factors impeding cultural festivals include inadequate publicity of cultural festivals as promoters of local tourism, enablers of socioeconomic and cultural development for continuity of indigenous knowledge, inadequate support, monotony and poor coordination, including the problem of accessibility, especially poor road networks and insensitivity of the youth to traditional practices and politicisation which appear to promote the political elites more than their intended purpose of showcasing and reviving indigenous heritage. Despite these challenges, the growing enthusiasm for culture and festivals seems to have a bright future in the country if the community leaders address them.

7 Recommendations

Based on the findings, this study recommends that for community and national development:

- Politicians attending cultural festivals should focus on the publicity of indigenous knowledge as part of cultural heritage for sustainable development
- The National and County governments need to heighten the preservation of indigenous knowledge and practices by allowing their sharing during festivities. Much Abasuba indigenous knowledge has been revived through traditional foods, recreational activities, music and dance, folklore and indigenous crafts.

- The continued documentation and use of this knowledge ensures their recreation and preservation for current and future generations.
- There is a need for government funding/support towards cultural festivals, particularly youth support to participate during cultural festivals and create opportunities for dance troupes to attend national celebrations for sharing, exchange, continuity and preservation of indigenous knowledge.
- Festival organisers should have improved strategies on the coordination of festival events, given the existence of the pandemics such as HIV and Covid, among others, including insensitivity of the youth to traditional practices.
- There is a need to establish new partnerships with other countries and heritage enthusiasts to raise the necessary resources to ensure its continuity.
- Development should also focus on rural accessibility, specifically improved road networks, to enhance accessibility to cultural festivals and promote socioeconomic development.
- Kenya's government should be at the forefront of drafting a stand-alone goal on Culture with the relevant target that addresses indigenous knowledge and other basic aspects of life.

References

- Crespi-Vallbona, M., & Richards, G. (2007). The meaning of cultural festivals: stakeholders' perspectives in Catalunya. *International Journal of Cultural Policy*, 13(1), 103-122.
- De Bres, K., & Davis, J. (2001). Celebrating group and place identity: A case study of a new regional festival. *Tourism Geographies*, 3, 326–337.
- Government of Kenya (2010). Constitution of Kenya. <http://kenyalaw.org/lex/actview>
- Kahunu, M. N. (2017). Constructing identity through festivals: the case of Lamu cultural festival in Kenya. MA Thesis, University of Pretoria.
- Kariuki, P. M., Onyango, C., Lukhoba, C. W. & Njoka, J. T. (2018). The role of indigenous knowledge on use and conservation of wild medicinal food plants in Loita Sub-county, Narok County, Kenya. *Asian Journal of Agricultural Extension, Economics and Sociology*, 28(2), 1-9.
- Kenya National Bureau of Statistics (2019). Kenya population and housing census, 1.
- Okech, R. (2011). Promoting sustainable festival events tourism: a case study of Lamu Kenya. *Worldwide Hospitality and Tourism Themes*, 3(3), 193–202.
- Omare, J. (2017, January-March). Let's embrace our diverse cultures. *Jarida la KNATCOM: a publication of the Kenya National Commission for UNESCO*, (001), 14–15.
- Orinde, S. (2017). The role of culture on peacebuilding in Kenya: the case of Marsabit Lake-Turkana cultural festival, Marsabit. MSc Thesis, Kenyatta University.
- Owano, A., Adeka, R., & Lusweti, G. B. (2019). Use of Information Communication Technologies in The Revitalisation of Disappearing Indigenous Languages: Case of Suba. In T. Kwanya, J. Kiplang'at, J. Wamukoya & D. Njiraini (Eds), *Digital Technologies for Information and Knowledge Management* (Pp. 422-428).
- Seville, S. (2018). Festivals are bigger business than ever before – but that doesn't mean they've lost their carefree spirit. <http://theconversation.com/festivals-are-bigger-business-than-ever-before-but-that-doesnt-mean-theyve-lost-their-care-free-spirit-98777>

- Small, K. E. (2007). Understanding the social impacts of festivals on communities. PhD Thesis, Western Sydney University. <https://researchdirect.westernsydney.edu.au/islandora/object/uws:6308>
- UCLG, (n.d.). Culture. https://www.uclg.org/sites/default/files/culture_in_the_sdgs.pdf
- UNESCO (2017). UNESCO's response to protect culture in crises UNITE4HERITAGE. <https://unesdoc.unesco.org/ark:/48223/pf0000244984>
- UNESCO (2001). Universal declaration on cultural diversity. <https://www.refworld.org/legal/resolution/unesco/2001/en/35901>
- Waterman, S. (1998). Carnivals for elites: the cultural politics of arts festivals. *Progress in Human Geography*, 22(1), 54–74.
- Wilks, L. J. (2009). Initiation, interactions, cognoscenti: social and cultural capital in the music festival experience. PhD Thesis, Open University. DOI: <https://doi.org/10.21954/ou.ro.000063e2>
- Whitford, M., & Ruhanen, L. (2013). Indigenous Festivals and Community Development: A Socio-cultural Analysis of an Australian Indigenous Festival. *Event Management*, 17(1), 49–61. DOI: <https://doi.org/10.3727/152599513X13623342048149>
- Yobby, M. (8th January, 2020). Pomp and colour at 8th Rusinga Cultural Festival. https://www.nation.co.ke/lifestyle/showbiz/pomp_and_colour_at_8th_Rusinga_Cultural_Festival/1950810-5410542-10yuce4/index.html

SECTION ELEVEN:
INDIGENOUS
KNOWLEDGE AND
ETHICS

56. Alternative dispute resolution through indigenous governance systems among the Ameru through the Njuri Ncheke in Kenya

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Abstract

Alternative dispute resolution through indigenous governance is a dynamic process that harnesses indigenous communities' traditional structures, practices, and values to address disputes effectively. Diverse in their approaches, indigenous governance systems prioritize cultural relevance and community empowerment. In Kenya, despite the presence of ADR methods, integrating them into indigenous governance for culturally appropriate dispute resolution remains underexplored. Meanwhile, the formal justice system, often inaccessible in rural areas, faces overwhelming challenges. This study focuses on the Njuri Ncheke, an esteemed indigenous governance system in Kenya's Meru community, renowned for resolving disputes through traditional structures. However, concerns have emerged regarding its efficacy in the face of Western legal system influences and diminishing traditional values. This study delves into alternative dispute resolution through qualitative research employing interviews with Njuri Ncheke members and Meru community representatives. Thematic analysis unveils a multifaceted approach encompassing negotiation, mediation, arbitration, and conciliation. Disputes are expeditiously adjudicated in public without imposing formal charges, ensuring affordability. The findings contribute significantly to comprehending the Njuri Ncheke's pivotal role and effectiveness in resolving disputes through indigenous governance. By shedding light on this intricate process, the study aids in bridging gaps in understanding and advocates for the preservation and integration of indigenous dispute resolution mechanisms in contemporary contexts.

Keywords: *Conflict resolution, cultural relevance, indigenous knowledge, indigenous people, traditional governance*

1 Introduction

Alternative Dispute Resolution (ADR) is a set of ways to settle legal issues with the assistance of a neutral third party outside of the court system. ADR approaches have gained significant popularity in recent years since society has become more litigious, increasing caseloads that courts cannot handle. ADR is especially pertinent to indigenous people since the majority of them have their own distinct traditional dispute-resolution processes that depend on consensus-building, negotiation, and mediation rather than confrontational litigation (Bhardwaj & Kapoor, 2022; Bhatti & Rizwan, 2023).

Indigenous communities, commonly referred to as natives or first people, are people with distinct cultures, dialects, and customs passed down from generation to generation. Kenya has over 40 distinct indigenous communities with unique cultures, languages, and traditions.

According to Kovach (2021), indigenous communities have a particular affinity with the natural environment, and their cultural and spiritual traditions are inextricably linked to their territories' such as land, water, and other natural resources. However, this paper will focus on the Ameru community. The Ameru, also known as the Meru people, are a Bantu ethnic group native to Kenya's eastern and northeastern areas. They are noted for their rich culture and customs, which can be seen in their music, dancing, attire, and food, as well as their strong regard for their elders and their indigenous governing system known as Njuri Ncheke (Karicha et al., 2022).

Ndizera et al. (2022) assert that indigenous governance systems are the means and procedures indigenous communities use to govern themselves and make collective choices based on cultural and traditional practices, emphasising consensus-building and community participation. Values such as respect for the environment, ancestors, and cultural traditions underpin these systems. The United Nations also acknowledges indigenous governance systems as vital to recognising and protecting indigenous peoples' rights. This is exemplified through the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which recognises their right to self-determination and the maintenance and reinforcement of their governance institutions.

Njuri Ncheke is a traditional system of governance among Kenya's Meru people. The Njuri Ncheke Council is made up of elders who are chosen for their moral standing, knowledge, and leadership abilities. The Council is responsible for settling conflicts, upholding cultural norms and practices, and making land use, resource management, and community development decisions. Moreover, Mburugu and Macharia (2016) reckon the Council participates in selecting and inaugurating traditional leaders such as chiefs and sub-chiefs, acting as a check on their power and ensuring that they work in the community's best interests. Mutuku et al. (2022) opine that the Kenyan government recognises the Njuri Ncheke as a legitimate form of traditional governance with legally enforceable judgments. The Council has been instrumental in settling issues within and across communities, encouraging peace, and conserving cultural traditions.

This paper assesses the alternative dispute resolution (ADR) approaches employed by the Njuri Ncheke. The effectiveness of these ADR methods is thoroughly investigated alongside a comprehensive analysis of the governance structure of the Njuri Ncheke. Furthermore, the study explores how the Njuri Ncheke governance is accepted within the community.

2 Literature review

ADR is primarily focused on the interests of disputing parties rather than their legal rights. According to Mutuku et al. (2022), ADR is an alternative means of justice that can be accessed by the marginalised and poor in society, predominantly due to the costs and technicalities associated with the formal judicial system. ADR mechanisms recognised in Kenya through the Constitution include conciliation, arbitration, negotiation, mediation, reconciliation and Traditional Dispute Resolution (TDR). The Constitution of Kenya recognises TDR as the primal form of ADR, with its origins traced back to the pre-colonial epoch. TDR consists of indigenous dispute resolution mechanisms maintained by councils of elders, peace communities, clan elders and other indigenous sources of authority and governance. Negotiations and conciliation are recognised as the most used TDR mechanisms (Mutuku et al., 2022).

Indigenous dispute resolution mechanisms are dependent on indigenous knowledge, which is embedded among the indigenous peoples represented. According to the World Bank (2023), indigenous peoples are unique communities with a strong cultural and social identity that is deeply rooted in the lands and natural resources they inhabit, occupy, or have been displaced from and which they have inherited from their ancestors. Indigenous people are not found in a particular geographic setting but are widely distributed across all continents on the globe. They have maintained their social identities despite colonisation and assimilation efforts. The United Nations has recognised indigenous people since 2007, when their rights were adopted in accordance with the Universal Declaration of Human Rights and the International Law for Human Rights (United Nations, 2007). The UNDRIP of 2007, encompassing 46 articles that articulate the rights of over 460 million indigenous people in more than 90 nations of representation (The World Bank, 2023), is complemented by communal harmony among indigenous peoples and the efficiency of their knowledge systems and practices. In Kenya, one of the most notable indigenous governance structures is the Njuri Ncheke.

The Njuri Ncheke is a symbol of unity among the Ameru community, having upheld principles of justice, listened to, settled disputes, and passed on indigenous knowledge and rites across generations. Studies opine that there is a higher affinity for Njuri Ncheke compared to modern judicial systems within the community (Igweta, 2022; Kamwaria et al., 2015). This is because they are affordable and fast and encourage party participation in resolving conflict. In addition, studies assert that the laws of the state are viewed as alien and foreign and therefore, the people cannot connect with them (Menkel-Meadow, 2015; Ridley-Duff & Bennett, 2011). This implies that for good indigenous governance, there is a need to work towards integrating the laws of the land to reflect the norms and values of the indigenous people they represent.

Every governance structure is susceptible to impediments that affect its administration, and the Njuri Ncheke is no exception. Mburugu and Macharia's (2016) research highlights significant challenges faced by the Njuri Ncheke in fulfilling its mandate, including financial difficulties, disregard from the youth and elite, political interference, and a lack of legal authority. Unfortunately, these obstacles hinder the Council's ability to promote peace and resolve conflicts effectively. In another study, Orina (2022) delved into the role of elder councils using the social functionalism theory, with a specific focus on the Njuri Ncheke. The findings demonstrated an evolution in the mandates of the Njuri Ncheke as it transitioned from a purely social institution to a religious entity, encompassing contemporary implications. While social functionalism theory confirms the importance of the Njuri Ncheke in maintaining and sustaining the social system, further exploration of the utilisation of ADR facilitated by the Council is essential. Therefore, conducting an in-depth study on this aspect is crucial.

3 Methodology

This study adopted a qualitative research design. Data was collected purposively from the Njuri Ncheke and selected members of the Meru community through face-to-face interviews. The saturation level determined the sample size, indicating adequate data collection. The saturation level was when fresh information no longer emerged from the interviews (Hennink & Kaiser, 2022). The thematic analysis explored the role of alternative dispute resolution in the Njuri Ncheke system for enhancing access to justice. The study presented comprehensive findings and implications, distinguishing between community members and Njuri Ncheke's perspectives.

4 Findings

The study gathered data through interviews with Njuri Ncheke elders and selected Meru community members from the sampled *nyomba* (house) of South Imenti in Meru County. Three Njuri Ncheke council elders were interviewed, including the National Deputy Secretary-General of the Njuri Ncheke, Mr Mugambi Mutunga, known for overseeing Njuri Ncheke mandates and alternative dispute resolution. Eleven diverse Meru community members were purposefully chosen, reflecting various demographics but united by their Ameru heritage. The subsequent section presents findings aligned with the study's predefined objectives.

4.1 Alternative dispute resolution approaches used by the Njuri Ncheke

The first objective of this study assessed the ADR approaches used by the Njuri Ncheke, revealing a range of mechanisms, including negotiation, mediation, arbitration, and Council of Elders hearings. Disputes are instigated upon reporting, followed by the dispatch of emissaries. Subsequently, both parties and their witnesses are summoned to open-air hearings within seven days within the confines of the Njuri Ncheke's *nyomba* (houses). Previously, a goat or sheep served as a fee, replaced now by a nominal sum, with no bearing on the case's outcome. After taking oaths and ensuring impartiality, the Council of Elders privately discusses the case, following which the presiding chairman announces the verdict in front of the gathered audience.

Some of the responses are presented hereunder verbatim:

“Despite the approach used, the procedure for conducting hearings and delivering judgments remains consistent. Most cases we have handled involve land disputes, cattle-related conflicts, boundary disputes, violations of rights about children or women, and property disputes.” Elder-1

“As much as article 159 of the constitution recognises cultural councils, the system of Kenya does not budget for the traditional systems (councils) despite them being universal across two counties where we find the Ameru.” Elder-2

The Meru community members were asked whether they had been involved in a dispute resolved using the ADR approaches of the Njuri Ncheke. Two verbatim responses are presented hereunder:

“I am now 57 years old and have never been to court my entire life. I have experienced positive outcomes in resolving the limited number of disputes I have encountered through the Njuri Ncheke dispute resolution process.” Member-1

“I have not had any dispute that required me to seek Njuri's assistance. However, I have attended the hearings, and they are done transparently and promptly.” Member-2

Moreover, when asked to describe the significance of Njuri Ncheke in employing ADR in dispute resolution, most respondents affirmed its pivotal role within the community. Several issues were raised to back up this statement, including the democratic nature of the process, its unifying impact, accessibility by all community members (rich or poor), and the fact that it could be trusted since it has always been there. However, some respondents claimed there was still room for improvement. Some of the conflicting responses are presented hereunder verbatim.

“The significance of Njuri Ncheke is that it is good at resolving disputes, which is impeccable. The recent impeachment case involving the incumbent Meru governor vividly demonstrated the influence of Njuri Ncheke.” Member-9

“Njuri serves as a useful supplement to the judiciary (court systems) in resolving conflicts. However, we cannot fully depend on them since I do not need to find where you will find wazee in urban centres. I give it a 4/10; there is room for improvement. Member-5

These findings reveal that the Njuri Ncheke employed an array of ADR mechanisms to resolve disputes within the Ameru community, with the Council of Elders’ approach being the most popular. This is supported by a statement by Menkel-Meadow (2015) that as much as ADR encompasses several processes that combine an array of approaches, the selection of ADR to be employed is dependent on the environment and desired outcome. The responsibilities of the Njuri Ncheke encompass resolving conflicts and exercising authority and influence, as highlighted by Kamwaria et al. (2015). According to their perspective, the Njuri Ncheke fosters harmony, unity, and a sense of belonging among the indigenous Ameru community. It is within the jurisdiction of Njuri Ncheke to fulfil this mandate.

4.2 Effectiveness of the alternative dispute resolution approaches used by the Njuri Ncheke

The second objective investigated the effectiveness of ADR approaches used by the Njuri Ncheke. The elders revealed that the ADR approaches employed are very effective. This is because they are timely, affordable, and customarily accepted by the Ameru. Furthermore, there is transparency and fair judgement while the community maintains harmony.

“In situations where there is doubt regarding the cases, both parties undergo traditional oaths, which can be the gwita kithirine or kuringa mburi ritual. Nevertheless, this is done in special instances and rarely.” Elder-3

“We have instances whereby disputants have asked courts to allow cases to be heard by the Njuri. The vice versa has also happened, and the court has ended up upholding the Njuri Ncheke’s verdict.” Elder-2

The Meru community members were asked to share their thoughts on the effectiveness of Njuri Ncheke’s dispute resolution approaches, and they exhibited acceptance and preference for this method. Member-2 noted:

“I had a boundary case a few years ago. It cost me KES 10,000 only for the whole process. It could have taken more time and expenses in court.”

Member-1 added:

“The court system involves police officers, individuals in uniforms, and procedures that can invoke fear, including lawyers who often use complex technical jargon, hindering people’s ability to express themselves freely. In contrast, Njuri Ncheke’s audience primarily consists of commoners and familiar community members, creating a more relaxed setting as the proceedings occur outdoors.”

While a significant number of the respondents demonstrated remarkable concurrence regarding the effectiveness of Njuri Ncheke’s ADR approaches, there were, nonetheless, a few individuals who expressed discontentment.

“They try to adopt the court system through summons, which is not an ADR approach. In addition, the Njuri Ncheke instilled fear with their rituals and oaths. Many fear being cast away from the community and becoming outcasts.” Member-8

Member-6 added:

“It is old school. They should embrace modern technology and incorporate new ideas.”

The findings reveal a prevailing consensus among most respondents, attesting to the

effectiveness of the alternative dispute resolution (ADR) methodologies employed in managing conflicts. Furthermore, these approaches have been widely accepted by the Ameru community. These findings are supported by Mutuku et al. (2022), who affirm that the perks of ADR extend beyond merely reducing bottlenecks within the formal court system. ADR methods offer flexibility and informal processes, encouraging open communication between disputing parties. The Njuri Ncheke's revered status is upheld through procedural rituals, enhancing respect and adherence. This finding is substantiated by the assertion made by Mburugu and Macharia (2016), who suggest that the profound African religious predisposition fosters transparency and integrity among the disputing parties and the Council of Elders presiding over the proceedings.

4.3 The Njuri Ncheke governance structure

The third objective sought to analyse the Njuri Ncheke governance structure. According to the Council of Elders, the governance structure begins with elders at the *village's nyomba* (house) level. It then extends to *nyomba* at the sub-location, location, and division levels. At the sub-county level, dedicated *nyomba* (houses) exist; ultimately, the National Executive Council represents the supreme level of governance. This hierarchical arrangement effectively represents the dispersed Ameru communities across the two counties. The geographical boundaries of this representation are delineated by the presence of River Thuci, which serves as the border with Embu County, and Ntunyiri/ Gachuru to the North, marking the boundary with Murang'a County.

Furthermore, the elders emphasised that the indigenous Ameru people are the Imenti, Tigania, and Igembe communities in Meru County. In contrast, on the slopes of Mt. Kenya, towards Tharaka-Nithi County, the Mwimbi, Igoji, Muthambi, Chuka, and Tharaka communities are recognised as indigenous Ameru groups. Based on the insights derived from the interviewed participants, the depicted governance structure of Njuri Ncheke within the two counties can be observed in Figure 1.

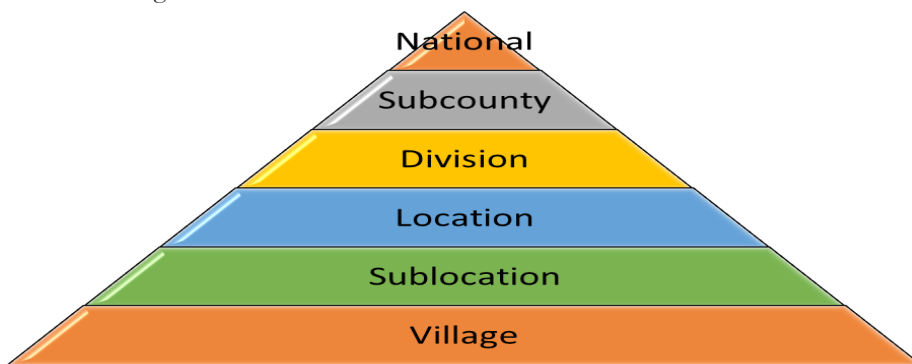


Figure 2: Njuri Ncheke Structure

Source: Researchers (2024)

When disputants are uncomfortable with the verdict or results of any dispute-hearing, they can appeal at the next immediate level of governance of the Njuri Ncheke. Those at the village level will appeal to the sublocation houses council of elders. Nonetheless, the National Executive Council level is the supreme level. At the National Executive Council level, we have the chairman, vice chairman, treasurer, deputy treasurer, organising secretary and committee

members. These positions are distributed equitably within the two counties (Meru and Tharaka-Nithi).

The elders were also probed on how they ensure representation and inclusivity. Elder-2 noted:

“Members are accommodated according to the interest and vastness of the region/ area. Thus, all communities and indigenous people that make up the Ameru are equally and well represented. People living with disabilities can also become elders of the Njuri Ncheke.”

Elder-1 added:

“You must be a man of revered character to be an elder, married and over 35 years of age. You cannot be a Njuri elder if you are bankrupt. There is no recruitment. The appointment is only disclosed to the person. The appointment is ritual.” Elder-2

The Meru community members were asked whether the Njuri Ncheke governance structure represented the needs and interests of the Meru community. Member-2 noted:

“The members of Njuri Ncheke are of Meru decent and understand our culture; therefore, we feel adequately represented.”

Member-3 added:

“The members of Njuri Ncheke ensure representation from all communities, thereby encompassing the diverse population within its structure.”

These findings delineate the significance of Njuri Ncheke’s structure within the Tharaka-Nithi and Meru County regions, representing the indigenous people of the Ameru. Consequently, there is a pressing need to support the Njuri Ncheke governance, as Mburugu and Macharia (2016) advocated. Their assertion emphasises that this support can be achieved through various means, including constitutional recognition and government funding, ensuring the separation of politics from the affairs of the Njuri Ncheke and establishing networks with other institutions. These will further enhance its visibility and acknowledgement by the UNDRIP as a governance structure of indigenous people.

4.4 Extent of acceptance of Njuri Ncheke governance

The fourth objective investigated the extent of acceptance of the Njuri Ncheke governance. The interview done among the elders revealed the factors that contributed to the acceptance of Njuri Ncheke included: deep reverence of Njuri (elders are people of integrity and noble character); matters are heard and handled in the open air; the audience of *Njuri* listens to hearings and there is no intimidation; the bureaucracy factor in Njuri Ncheke is non-existence; social factor (reserves harmony and unity within the Ameru); it is affordable; time factor; and there is support from the national and county governments for Njuri Ncheke and its activities. Moreover, the interview also revealed that among the factors that did not contribute to its acceptance include fear of the Njuri Ncheke among some of the Ameru, political interference and that those who do not own their truth prefer not to undergo the rituals and oath presented by *Njuri* opting instead for the legal recourse provided by the court system.

The Ameru were also probed on the level of acceptance and support for Njuri Ncheke governance. Member-9 noted:

“It is accepted in my area. The local administration chief also recommends taking issues to the Njuri Ncheke. All local administration chiefs should enter into a treaty with Njuri to ensure most of the petty conflicts matters are taken to Njuri Ncheke, leaving the court to deal with weightier matters.”

Member-6 added:

“Due to the generation gap, individuals aged 35 years and older hold a significant appreciation for the Njuri Ncheke, whereas millennials, who fall below that age bracket, have little to no knowledge about the identity and purpose of the Njuri Ncheke.”

In addition, the Meru community members were asked to suggest measures and changes that would further enhance the acceptance and support of Njuri Ncheke, leading to the following suggestions: developing and disseminating a constitution (katiba) to ensure clarity and understanding of Njuri Ncheke’s principles and practices; conducting sensitisation programs to educate the public about the roles and significance of Njuri Ncheke; raising awareness, particularly among Christians who have been influenced to view Njuri Ncheke as witchcraft, in order to dispel misconceptions and promote understanding; teaching about the culture of Ameru and Njuri Ncheke in schools across the two counties; urging Njuri Ncheke to expedite the establishment of a cultural centre and shrine at *Nchiru*, where people can visit and deepen their knowledge of Njuri Ncheke; building a website and integrating social media tools; curating the knowledge in books and information resource centres.

The findings reveal significant factors contributing to the acceptance of Njuri Ncheke’s governance over time. These factors include transparency, integrity, influence and authority of the institution. Njuri Ncheke is not only an administrative institution but also a social-cultural and religious institution. This is substantiated by a claim made by Orina (2022) that no other religious institution, whether modern or traditional, commands the same level of reverence and respect from the Ameru community as the Njuri Ncheke. Being recognised as a man of *Njuri* is every man’s pride. It is crucial to emphasise the factors that impede the acceptance of the Njuri Ncheke and devise strategies to mitigate or combat these obstacles to bolster the authority of the Njuri Ncheke. In line with this, Kamwaria et al. (2015) posit that reinforcing indigenous governance systems such as the Njuri Ncheke will significantly contribute to the successful implementation of devolution within the represented counties. This further emphasises the benefits associated with accepting Njuri Ncheke’s governance.

5 Conclusion

This study concludes that alternative dispute resolution practices remain relevant and beneficial to indigenous communities in Kenya. Among the Ameru community in Kenya, disputes are resolved through a traditional system administered by the Council of Elders known as Njuri Ncheke. The elders resolve conflicts using negotiation, mediation, arbitration, and conciliation. The disputes are handled publicly to ensure transparency and acceptance of the verdicts. Given that the Njuri Ncheke only receives tokens in appreciation of their intervention in disputes, the approach is cheaper than the legal system. Similarly, it is timely since matters are concluded within days. Therefore, it is most preferred by members of the community. Nonetheless, some young people in the community lack knowledge about it. Thus, the system faces the risk of being forgotten or discontinued.

6 Recommendations

The study recommends the following measures to enhance the recognition, appreciation and use of alternative dispute resolution practices executed by the Njuri Ncheke among the Ameru of Kenya:

- The Njuri Ncheke needs to extend its footprint to urban centres where community members reside. Currently, its operations are limited to the Ameru homeland only.

- The procedures, such as using summons, are a part of the legal court system. This is not traditional. Although there is a need to adapt the procedures to the current realities, they must remain traditional to avoid introducing elements of the legal court system, which would minimise the benefits of embracing alternative dispute resolution.
- There is a need to demystify the rituals that accompany alternative dispute resolution practices, as they can be traumatic and instil fear among people.
- The younger generation of the Ameru are gradually moving away from the alternative dispute resolution regime by the Njuri Ncheke. There is a need to create awareness of the system's benefits to them.
- The knowledge of alternative dispute resolution practices by the Njuri Ncheke continues to be lost as the older community members die. There is a need to document the practices using current digital technologies for preservation and perpetuation.

References

- Bhardwaj, A., & Kapoor, I. (2022). A diegesis of alternative dispute resolution in contemporary India. *International Journal of Law Management and Humanities*, 5(1), 675. <https://doi.org/10.10000/IJLMH.112536>
- Bhatti, M. U., & Rizwan, M. S. (2023). Alternative dispute resolution in criminal justice system: A case study of the Punjab ADR Act 2019. *Pakistan Journal of Social Research*, 5(1), 181–195. <https://doi.org/10.52567/pjsr.v5i01.1037>
- Hennink, M., & Kaiser, B. N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine*, 292, 114523. <https://doi.org/10.1016/j.socscimed.2021.114523>
- Igweta, P. (2022). Indigenous governance. *African Journal of Emerging Issues (AJOEI)*, 9(4), 85–96. <https://ajoeijournals.org/sys/index.php/ajoei/article/download/330/392>
- Kamwaria, A.N., Mugwe, R.W., Kamau, J.M., Githaiga, A.J., Guantai, P.M., Makin, K.R., & Choti, C. (2015). Recognising and Strengthening the Role of the Njuri Ncheke in Devolved Governance in Meru County, Kenya. *Journal of Educational Policy and Entrepreneurial Research*, pp. 2, 42–47.
- Karicha, J. M., Akaranga, S. I., & Musili, T. K. (2022). The Roman Catholic Church, Education and Health Care Provision in Meru County- Kenya. *East African Journal of Traditions, Culture and Religion*, 5(1), 61-68. <https://doi.org/10.37284/eajtr.5.1.764>
- Kovach, M. (2021). *Indigenous methodologies: Characteristics, conversations, and contexts* (2nd ed.). University of Toronto Press.
- Mburugu, K. N., & Macharia, D. (2016). Resolving conflicts using indigenous institutions: a case study of Njuri-Ncheke of Ameru, Kenya. *International Journal of Science Arts and Commerce*, 1(4), 18–33. <http://repository.embuni.ac.ke/handle/123456789/1461>
- Menkel-Meadow, C. (2015). Mediation, Arbitration, and Alternative Dispute Resolution (ADR). In *International Encyclopedia of the Social and Behavioral Sciences* (2nd ed., pp. 70–74). <https://doi.org/10.1016/B978-0-08-097086-8.86083-3>
- Mutuku, B., Krumeich, A., Alaii, J., & Westerndorp, I. (2022). Formal Justice and Alternative Dispute Resolution on Land Based Conflicts in Kenya. *International Journal of Gender Studies*, 7(1), 1–19. <https://iprb.org/journals/index.php/IJGS/article/download/1498/1595>

- Ndizera, V., Nkaka, R., & Kambanda, S. (2022). *Public Participation in African Indigenous Governance Systems: Evidence from Pre-colonial Rwanda*. In H. Muzee, T. E. Sunjo, & A. O. Enaifoghe (Eds.), *Democracy and Africanness* (pp. 21-32). In A. M. Makhoul, F. Baffour, & A. K. Atta-Quayson (Series Eds.), *Advances in African Economic, Social and Political Development*. Springer.
- Orina, H. K. (2022). Sources of authority and influence of councils of elders in Kenya with particular reference to Njuri Ncheke of Meru County, Kenya. *Journal of Environmental Sustainability Advancement Research*, 8(19), 47–56. <http://repository.chuka.ac.ke/handle/chuka/15393>
- Ridley-Duff, R., & Bennett, A. (2011). Towards mediation: developing a theoretical framework to understand alternative dispute resolution. *Industrial Relations Journal*, 42(2), 106–123. <https://doi.org/10.1111/j.1468-2338.2011.00614.x>
- The World Bank. (2023). Indigenous Peoples Overview. <https://www.worldbank.org/en/topic/indigenouspeoples>
- United Nations. (2007). United Nations Declaration on the Rights of Indigenous Peoples United Nations. https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

57. Oppression as a Paradigmatic Component of East African Indigenous Knowledge

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Abstract

This article aims to bring general attention to the universal human phenomenon of oppression expressed in East African indigenous cultures and knowledge. We cannot take on the enormity of oppression as a problem; neither can we encompass, recount or analyse the enormous literature about it. We can, however, take our biology into account and examine our own experiences. We recount some history and some enlightening stories from our own lives while offering analyses and some suggestions. Our stories focus on the design of systems, activities and products. As a subject, oppression has received scholarly attention and has done so for a long time throughout the world. In India, the term 'dalit' means 'oppressed', 'broken' or 'crushed' to the extent of losing original identity; the caste system and sexuality seem to explain the level of oppression. Political Science scholars say that communism is the main reason for leadership oppression in Russia and in countries with similar ideologies. Meanwhile, racism is often cited as the main reason why there is oppression in Australia, America and Europe. Different types and levels of poverty may explain oppression within Africa, in general, and East Africa, in particular. With the general picture from readings and using participant observation, we get data we analyse and discuss here. By way of generalisation, oppression in Africa has negative and positive sides built into the cultures of the people. It is not enough to dwell on the negative parts; we would do more if we found the social-cultural roles oppression may play in making life tick.

Keywords: *Culture, oppression, power anomalies, inequality, user hostility*

1 Introduction and statement of the problem

Social hierarchies embodying unequal relations and often punitive anomalies of power have been pervasive among humans since the beginning of our species. While many cultures have tried to mitigate or eliminate the effects of such hierarchies, they have pervaded East African life during at least the last two centuries. Understanding that in most dyadic relationships, one member has more power, closer examination reveals that a punitive component appears particularly recurrent and pronounced in East Africa. Historical research reveals that punishment and infliction of difficulty, discomfort and harm are at least two centuries old and continuous in East African cultures and societies. At this point, we can merely mention slavery, marriage, intergenerational control and intergender control (Davidson, 1988; Davidson, 1995; Jacobs, 1965; Pido, 1984; Pido, 2000; Were & Wilson, 1966). Efforts to neutralise oppressive models have not yet succeeded (Pido, 2000). We bring together literature and popular culture plus long-term participant observation and experience in describing and analysing the roles of oppression and infliction of pain and hardship in East Africa. As we bring together literature, we focus on slavery and its role in bullying and the esthetic preference for hardship in judging what is good, true, right and beautiful (Levine & Levine, 1966).

For this article, we define oppression as ‘causing or inflicting undue harm, discomfort or punishment on another person or people, thus forcing others to do that which is repugnant to them and the perceived general good’. Considering that meanings overlap between and among languages, we must turn to the other East African lingua franca. We find Swahili’s *udbalimu*, which means humiliation, oppression, injustice, and fraud (among many other meanings); it is a direct loan word from Arabic. We also find Acholi’s *opii-opii* (slave-like), a term of Acholi origin that other Nilotic speakers share. While living in the Kisii cultural district, we learned that Abagusii were slaves of the Luo in Uyoma; sometime in the 18th Century, Omogusii and his children escaped and took refuge in today’s Bogusii. Several other Bantu languages use the word gusii or guthii for ‘slave.’

2 Brief history of oppression in East Africa

Treating oppression as universal, we must consider the unique geographical and historical factors that make it [oppression] particularly pronounced in East Africa for the last several centuries. Our own insights that do not appear in the literature as we articulate them here suggest as follows: Until the late 19th Century, a marginal climate, paucity of natural resources and barriers to human movement cut off the relatively small population of the interior from intercourse with outside communities. Most notable among the barriers were the forests on the West, the Nyika on the East and South, the Ethiopian escarpment on the North and the omnipresence of slavers coming from the North and East (Davidson, 1988). Until the mid-20th Century, it was very risky for anyone in the interior to try to travel outside without being captured, transported and sold. This contributed to a lack of technological development, which disadvantaged the local people who encountered aggressive outsiders with more efficient weapons. The replacement of this geo-technological disadvantage came in the form of oppressive colonisation by foreigners who were ignorant and arrogant (Were & Wilson, 1966). Besides weapons, they had the technological means to reify and disseminate the understanding that East Africans were lesser humans. The relief from the *de jure* oppression of the colonial period did not necessarily relieve the *de-facto* kinds of oppression, which continued unabated throughout the 20th Century.

Despite the fact that slavery was already abolished, there were slaves in Nairobi who came with their masters from Somalia in the early 1990s. In codified law, husbands and wives are almost equal, but not in customary law and Sharia law. Without ‘slavery’, we now have workplace oppression. We are telling about moments, events and scenes that we have witnessed or have affected us directly. Because all three authors have lived outside of Kenya, we have experienced contrasts and variations in culture from within other cultures and outside Kenyan culture. We have also been able to observe what governments and churches tell us and what people actually do. Throughout East Africa, there is an ongoing adjustment of custom to what the majority of people want as opposed to what we are told. We see this in the form of ‘groundswell,’ the process by which change comes through individuals defying convention (Pido, 2022).

3 Objective and review of related literature

The research and objective were shedding light on a phenomenon that we have observed since the 1960s but which seems to have largely escaped the attention of scholars. Our overall objective is to stimulate introspection, discussion, and debate among local Kenyans, as well as the diaspora and non-Kenyan observers. We have accessed several bodies of literature,

including primatological and archaeological studies, ancient and recent histories, ethnographies and political scientific analyses. (Jolly, 1985; Morris, 1967; Pido, 2022; Pido et al., 2019).

The literature on oppression is both extensive and chimeric. It is far too extensive to refer to here and without losing sight of our main topic. As for oppression, specifically in Kenya, the literature on the colonial period and the slave trade encompasses a few aspects of the phenomenon and mostly in generality. We omit reference to this body of literature to keep the reader's mind free of the bias that might arise from breaking oppression into typologies.

4 Discussion of findings

In contrast to practice in other cultures, oppression, punishment, obstruction, and infliction of hardship appear to be prevalent in East Africa (Pido et al., 2019). In this regard, we need barely mention the long history of internal slavery (Davidson, 1988), or the nature of marriage, and gender relations. African traditional marriage contracts between patriarchal corporate lineages and clans are appalling to the Americans among us, while others take it as a given. We recall the mid-1990s when Somali women refugees divorced their husbands after discovering that they had the right to divorce their husbands in Scandinavia. Social hierarchy is in our DNA as humans; this is one reason why we rank and oppress other humans (Jolly, 1985). We can look at the large scale of entire societies, but we must also consider the small scale of interpersonal relationships. As designers, we notice the indirect use of oppression through user-hostile design.

Anomalies of power present choices to the more powerful, such as being kind, constructive, collaborative, or harsh, destructive, or disruptive. In particular, Muslims are admonished in the Qur'an and Hadith that if they cannot free their slaves, they should at least treat them well. No matter what religious, social or political restrictions we place on oppression, we still do it and this may explain why we define the oppressed as culpable, defective, dirty or less than human. In recent history, we can cite Hitler in Europe from 1933 to 1945 (Hitler, 1933). We can also go back to the Old Testament and cite both the Babylonian and Egyptian captivities as oppression of the nomadic Hebrews. Sedentary peoples tend to negatively define and assess pastoralist communities as an excuse to oppress them; we need only look around us in our own lifetimes to have seen this happening. We can look back to the 6th Century BCE and read Herodotus (Herodotus, 1992; Hartog, 1988). In explicit language, he tells us how the Greeks damned the Scythian nomads because they could not pin them down for tight control.

While sharing commonalities with all other humans, we have observed that East African postures of power have some unique and troubling characteristics. We are using our participant observations from the last half Century or so in the hope of stimulating academic introspection among colleagues and policymakers. Research that takes oppression into account with an aim to neutralise it can make important contributions to national development, especially Vision 2030. Perhaps the most insidious of all forms of oppression is slavery. We note that when a tribe of enslaved people was emancipated in about 1200 BCE, God gave them a set of rules that did not include a prohibition on enslaving and oppressing others as they had been enslaved and oppressed. When they wrote down their rules in Leviticus, they were clear that it was okay to enslave other peoples but not their own (Leviticus, 538–332 BC).

There is a long history of internal slavery throughout Africa and an equally long history of the exportation of humans as slaves from Eastern Africa (Davidson, 1988). The transatlantic slave trade from the 1500s to the early 1800s was numerically intense. The capture and

exportation of slaves from the East African coast and interior was drawn out from a time before history was recorded until the 20th Century. There are pictures of this in Egyptian art going back at least 4000 years. We know from records in India that the Siddi community's sale and enslavement in Southern India goes back to at least the seventh Century. In the early 20th Century, EE Evans Pritchard, writing about the Nuer people of the Sudan, pointed out that the Dinka and Nuer people were constantly at war, taking captives and enslaving them. So, many Nuer were Dinkas and many Dinkas were actually Nuer (Pritchard, 1940). The British claim that they ended the slave trade in the Indian Ocean Basin was propaganda aimed at justifying the colonial oppression of Africans.

From the early 1700s, there was a persistent anti-slavery movement in Europe and the Americas, resulting in the abolition of slavery in the British Empire by 1807 and the United States in 1863. However, abolition did not end slavery in all countries; some abolished it very recently. One of us knew a slave in the household of a Mauritanian diplomatic family in New York in the 1970s. The social and economic oppression of the descendants of slave populations is everywhere, especially in the US. Every day, the news media show us oppressors harming oppressed people caught on smartphones.

We can also examine how we treat our workers, fellow countries, and families. The heightened interest in American scholarship on the slavery period in that country has brought to our attention a piece of literature about enslavement and control over women. Booker T Washington's speech to The Atlanta Exposition of 1895 is included in his book "Up from Slavery" (Washington, 1907). He describes how oppressive dominant whites feminised the enslaved and post-emancipation black males. Anna Pochmara has written extensively on its connection to the Feminization of Black African American males (Pochmara, 2011). If enslavement and its aftermath can be paralleled with feminisation, then what can we say about women and marriage? In other places, marriage is a man-woman contract. In East Africa, customary marriage, historically and in present law, is *de jure*, a contract between two corporate lineages for the transfer of rights in a female from one to the other. Even in Christian, Muslim, Hindu and law, marriages are often actually based on agreements between the male lineages that have arranged the union. Among the rights transferred are labour, consortium, product and reproductive futures. There are two antitheses to this kind of arrangement in East Africa today. These are elopement or 'come we stay' unions and women's refusal to contract marriage at all.

One of the spinoffs of this kind of *de jure* type of arrangement is that the female person, now a wife, is under the physical, social, economic and spiritual control of her husband and his relatives. Another right, corollary to physical control, is the right to 'corporal punishment'. We use this term because it was the subject of an eye-opening early experience in April of 1968. During a conference at Karen College, participants were informed that the all-male Parliament had declined to outlaw wife-beating. Several years later, a member of Parliament stated, 'it is sweet to oppress' in response to a concern that had been raised about the oppression of women. None of us recorded it at the time, but we still recall it vividly. Kenyans often ask, "In America, does the man marry the woman, or does the woman marry the man?" The answer "We marry each other" often creates confusion. In several East African languages, the concept of marrying presupposes an entitlement to oppress or abuse a wife.

In the late '70s or early '80s, the daughter of a well-known politician from Western Province decided to marry the man she had been living happily with and had two children. On their

wedding night, he beat her so severely that she nearly died. No one could figure out why he did that except that his community gave him the right to beat a woman only if she was an official wife. That community and several others explain this to their boys during the circumcision process. It is noteworthy that the only area in the world where men's life expectancy is higher than women's is the Western Province.

We have heard many explanations for Kenyan men's understanding that they are both entitled and obligated to beat a wife but not a girlfriend or any other female person. Some will argue that the woman likes it and that it proves he loves her. If this is true, then we are looking at the infliction of pain and harm on a loved one. In fact, we have often heard that some men will abuse their wives because of peer pressure and fear of being feminised. We know that male children are admonished to distance themselves from females, especially their mothers. In most communities, circumcision marks the moment when the young male must go and live in a separate house. The young male must disdain and refuse to touch or participate in anything or any activity that is deemed feminine. Part of the disdain for the feminine is aggressive action against females; wife-beating is a part of stating one's masculinity and perceived right to oppress the wife.

However, negating femaleness has a much broader range of manifestations. Making work harder for the female is one of these. In Lemek in the 1980s, the men refused to pay for the repair of a communal water tap. In the early 1990s, Nandi men boasted to a research team that their women knew exactly how to climb the rocky and slimy path up the hill carrying water. Out of earshot, the women told the team of broken kneecaps and other injuries incurred when they slipped on the path.

In some cases, men purport to be proud of their women for getting the work done under difficult conditions; little do they know they are oppressive. In others, men have stated to these authors that they want their women to be too exhausted at the end of the day to seek alternative male companionship. Some will even state that having paid the bride price, they want to get their money's worth by making the women work harder than necessary.

The anti-slavery movement was a massive effort to stop or mitigate oppression. There are at least two others that still impact us without completely solving the oppression problem. One is the organisation of labour, and the other is the women's liberation and empowerment movement. To simplify a very complex story, 19th-century governments began requiring improvements to mass housing, water supplies and sanitation, and worker access to amenities and open spaces. Karl Marx wrote both *Das Kapital* and the *Communist Manifesto*, two documents that exposed the plight of the workers and called for change. At the same time, several leaders began organising labour unions, which led to collective bargaining in the workplace. Immediately, the bourgeoisie demonised Marx, and a political divide sprang up between Capitalism and Communism. Both systems did little for the oppressed. Communists merely were ranting about the oppression of the workers, and the advocates of capitalism were accepting or denying their oppression by the ruling classes as normal.

Throughout all of this, people of colour, the poor and women continued to suffer oppression by moneyed males in power who controlled education and professional status. Then came the Women's Liberation Movement. Many people still believe that Women's Lib began in the late 1960s, but its roots were far deeper than the 1960s. There had already been many small struggles to relieve the patriarchal oppression of women. A notable milestone was the publication of 'A Vindication of the Rights of Women' by the British Mary Wollstonecraft

in 1792. Throughout the 1800s, women in the workplace struggled to balance family and paid employment, often failing to do so. The two global wars of the 20th Century placed many women at a disadvantage because of the loss of male relatives and expulsion from the workplace by returning soldiers.

The long, hard struggles of the suffragettes notwithstanding, Kenya's Co-op societies and Tanzania's Ujamaa villages deliberately excluded wives from membership and inheritance. However, women did most of the work for which men were paid. In Tanzania, if a husband died, his wife was expelled physically from the Ujamaa Village (Turshen, 1993). Again, in Western Kenya and probably other parts of the country, wives of coop members do the agricultural work while their husbands collect the money earned. We have heard from students that when women try to produce surplus crops, their husbands force them to hand the produce over to themselves. They then sell the produce to pay for new wives, thus dividing the first wife's land access. Students tell us that this process is often oppressive, if not violent and brutal.

We can consider the built-in notion of oppression in product and systems design. Every day, we grapple with Kenyan user-unfriendly design, several degrees of user-hostile design, and buys made in Kenya. Many of our design students believe that they have to make viewers struggle to understand their work. One of our favourites designed a roadside billboard with the text displayed sideways so that viewers would have to struggle to understand the message; such a design is inappropriate for the average passing driver or passenger. Even pedestrians may experience great difficulties in getting messages from such billboards.

At the 'kazi' level, we recall the university administrator who, within ten days of being appointed a dean, called an entire faculty together and ranted for over an hour about how she thought she should probably abolish some departments because the faculty were not working hard enough. Several years ago, salaries were delayed for more than two weeks after the end of the month for several months. A chair of the department sought to know why the delay was without notification; the authority responded with a dressing down for the chair. Non-Kenyan companies and institutions have different attitudes toward labour relations. Here, we are calling it 'management posture.' We witnessed a caretaker insisting that the worker should be able to get the job done from a standing position without regard to efficiency or comfort. Looking beyond Kenya, there is a video documentary illustrating the vastly different management postures of George Westinghouse and Thomas Edison (Bussler, 2013). Edison was oppressive to workers, while Westinghouse was humane. Samuel Gomperz, a labour leader, remarked that if all employers had been like Westinghouse, there would be no need for labour unions.

5 Conclusion

In the global picture, oppression has many manifestations; intergender is obnoxious but not the only one. We have observed over many years that the concept of oppression seems to permeate East African culture in ways that it does not elsewhere. With all the details, history and culture aside, we are talking about tiny, fine points and moments of oppression that, to us, indicated that oppression is ingrained in East African culture. We hope that this small will inform and stimulate discussion and debate

6 Recommendations

We propose a sui-epistemicidal approach to awareness and change of the dysfunctional aspects of the phenomena described. Kenyans may need to come to terms with other cultures that do not use oppression as a paradigmatic component in their daily lives. It may be painful, but we ought to realise that we are hurting ourselves by uncritically accepting user hostility in our culture. We should correct actions, knowledge, attitudes, and practices that need critical attention and adjustment.

References

- Bussler, M. (2013). Westinghouse-112-minute film Inacom Entertainment https://www.youtube.com/watch?v=8BUpF__h-IYDav accessed August 20 2023
- Davidson, B. (1988). *Black Mother: The African Slave Trade*, Little Brown and Company, New York.
- Davidson, B. (1995). *Africa in History*, Simon and Schuster, New York.
- Pritchard, E. (1940). *The Nuer*. Pantianos Classics.
- Hartog, F. (1988). *The Mirror of Herodotus*, University of California Press, Los Angeles.
- Herodotus (1992). *The Histories* Edited by Walter Blanco and Jennifer T Roberts, NY, Norton and Company.
- Hitler, A. (1933). *Mein Kampf*. English version, Hurst and Blackett. London.
- Hadith. (2012, November 26). *Daily Hadith Online* <https://www.abuaminaelias.com/dailyhadith-online/2012/11/26/treat-slaves-well-free-them/>
- Holy Qur'an' Sura 59, (al-Ahzab), verses 58 -59.
- Jacobs, A. (1965). *The Traditional Political System of the Pastoral Maasai*, PhD Thesis, Nuffield College, Oxford.
- Jacobs, A. (1967). *A Chronology of the Pastoral Maasai*, Hadith, Vol 1. Nairobi.
- Jolly, A. (1985). *The Evolution of Primate Behavior*, Macmillan Publishing Company, New York.
- Levine, R., & Levine, B. (1966). Nyansongo: A Gusii Community in Kenya. In J & B Whiting (Ed.), *Harvard Six Cultures Series*, John Wiley, New York.
- Leviticus. Holy bible National Publishing Company. USA, 1978 Oduor, Reginald.
- Morris, D. (1967). *The Naked Ape*, Dell/Random House, New York.
- Pido, D. (1984) Sagacity. in Kajiado District Sociocultural Profile. Nairobi: Ministry of Finance and Economic Planning.
- Pido, D. (1987). *Maasai Art and Society*. PhD Thesis, Columbia University, Department of Anthropology.
- Pido, D. (2000). *Initiation Sponsors' Education Project*. In DFID Report, HAPAC Project, DFID, Nairobi.
- Pido, D. (2022). *Democracy as Falsehood*. In Oduor Reginald (Ed.), *Beyond Liberal Democracy in Africa Beyond Liberal Democracy in Africa*, Rowman and Littlefield, New York.
- Pido, D. (2023). *The Collective Sage: Maasai Philosophy and Resilience*. In Kresse Kai and Oriare, N. (Ed.). *African Sage Philosophy Revisited*, Lexington Press, Washington DC.
- Pido, O. (2022). *Groundswell, an Unavoidable Democracy*. In Oduor Reginald (Ed.), *Beyond Liberal Democracy in Africa*, Rowman and Littlefield, New York.
- Pido, D., Khamala, M., & Pido, O. (2019). *Decolonizing 'Technology' in Kenyan Higher Education and Implications for Development*. In Maurice, N. Amutabi (Ed.), *Sustainable Development in Africa*, Center for Democracy, Research and Development Nairobi.

- Pido, D., Khamala, M., & Pido, O. (2019). *The Past, Present, and Future of Social Design in Kenyan Higher Education*. In Maurice, N. Amutabi (Ed.), *Sustainable Development in Africa*, Center for Democracy, Research and Development, Nairobi.
- Pochmara, A. (2011). *Making of the New Negro*, Amsterdam University Press, Amsterdam.
- Siddi. Wikipedia <https://en.wikipedia.org/wiki/Siddi> accessed August 20, 2023.
- Turshen, M. (1993). *Women's Lives and Public Policy: The International Experience*, Greenwood Press, Westport.
- Washington, B. T. (1907). *The Atlanta Exposition Speech*. In *Up from Slavery*, Doubleday Page and Company, New York.
- Were, G., & Wilson, P. M. (1966). *East Africa Through 1000 Years*, Evans Brothers, London
- Wollstonecraft, M. (1792). *A Vindication of the Rights of Women*, London.

58. Risky Lessons: Vigodoro as the Space for Enactment of Indigenous Knowledge

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Abstract

In the rich cultural landscape of Coastal Tanzania, the Zaramo tribe has long embraced social-cultural events as crucial arenas for the transmission and creation of indigenous knowledge. Central to this cultural tapestry is Vigodoro, a vibrant and dynamic street event characterised by music, dance, and communal celebration. Despite its significant role in indigenous education, creative expression, and cultural preservation, Vigodoro has faced criticism and opposition from various quarters, including scholars, religious groups, and governmental authorities. This paper aims to explore the pivotal role of Vigodoro in the enactment and transmission of indigenous knowledge within the Zaramo community. Through an in-depth examination of Vigodoro's cultural significance, this study seeks to shed light on its positive contributions and advocate for its preservation as a valuable cultural heritage. Drawing on literature review and field experience, the paper examines the context, practices, and perceptions surrounding Vigodoro, offering insights into its role as a space for indigenous education, creative expression, and community cohesion. The findings reveal that Vigodoro serves as a vital platform for the transmission of indigenous knowledge, mainly through its unique blend of music, dance, and oral traditions. Despite criticism and opposition, Vigodoro plays a crucial role in preserving cultural identity, fostering social cohesion, and promoting sustainable development in Tanzanian society. By highlighting the positive aspects of Vigodoro and its potential to foster sustainable development, this research contributes to a deeper understanding of the importance of cultural practices in preserving indigenous knowledge and promoting cultural diversity.

Keywords: *Vigodoro, Indigenous knowledge, Zaramo tribe, Cultural preservation, Community cohesion, Sustainable development*

1 Introduction

Indigenous knowledge, a product of cultural experiences, encompasses traditions, beliefs, and values developed over time. It is a means of dealing with daily challenges in a culturally appropriate way, passed down through various mediums such as oral tradition, art forms, and cultural practices. Transferring this knowledge is crucial to ensure the preservation of the community's morals, values, beliefs, and culture for future generations.

In the Tanzanian coastal towns' unplanned settlements, known as *uswahilini*, street events known as Vigodoro are organised majorly by women to accompany social occasions such as weddings, kitchen parties, and baby showers. Vigodoro involves overnight dancing to music played by invited DJs, with the term "Vigodoro" referring to the fact that the people spend the night away from their small mattresses, making the dance their makeshift bed for the night. The music played at these events includes *mchiriku*, *segere*, and *taarab*, with Vigodoro drawing some of its characteristics from its predecessor events such as *Ngoma*, *Rusha roho*, *baikoko*, and *kumcheza mwali* (Van der Stockt, 2019).

During Vigodoro, the music played or performed carries a message that is contextual to the occasion in which the event is conducted. For example, at a kitchen party, the music and dance performances may include lessons on how a woman should handle her husband and lessons derived from indigenous knowledge, making Vigodoro a space for the transfer of this knowledge through music, dance, costumes, and other art forms. However, the environment is not considered morally safe, especially for young youths and children, due to sexually explicit acts.

Despite Vigodoro's positive contribution to the creation of a new popular music genre known as Singeli, the event and its predecessors have faced resistance from both colonial and post-colonial governments, leading to their banning. The government views Vigodoro as dangerous, citing immorality, irresponsibility, and the influence of crime (Al Jazeera, 2015).

However, while studies have been done on Vigodoro, the majority focus on its adverse social, cultural, and economic effects. Significantly, few pieces of literature shed light on Vigodoro's positive contributions, particularly in the creation and transfer of indigenous knowledge. Therefore, this paper aims to explore the role of Vigodoro as a space for the enactment of indigenous knowledge. By studying Vigodoro, readers can appreciate such spaces and leverage them to create, transfer, and gain indigenous knowledge beyond the stereotypical criticisms of immorality and irresponsibility associated with Vigodoro.

We may agree that existing literature on Vigodoro mainly focuses on its adverse social, cultural, and economic effects, such as immorality, irresponsibility, and crime. However, little attention has been given to the positive contributions of vigodoro, such as its role in creating the popular music genre known as Singeli and its potential as a space for the transfer of indigenous knowledge. Therefore, it is necessary to explore the positive aspects of vigodoro and its potential for the creation and transfer of indigenous knowledge to promote its appreciation and utilisation in Tanzanian society. It is also important to look at its potential to enhance sustainable development.

2 Vigodoro in context

Vigodoro is a vibrant and dynamic cultural practice that embodies a fusion of traditional practices such as 'rushu roho', kucheza, mdundiko, and more. This unique cultural phenomenon is characterised by singing, chanting, and dancing, typically to traditional tunes and rhythms with improvised lyrics that relate to a specific occasion.

In the days leading up to a wedding, kitchen party, or any other celebration, the women of *uswahilini* (coastal areas of Tanzania) hire a sound system, DJ, and MCs (rapping artists) to perform at the vigodoro event. The festivities typically kick off in the early evening hours at an open space, with *taarab*, *mchiriku*, *severe*, and *mara* music playing. As the music plays, people start to gather and become aware of the upcoming Vigodoro event. As the night progresses, the crowd begins to dance to the rhythm of the music, with both men and women engaging in suggestive movements that emphasise erotic waist movement.

During the event, women MCs often take the microphone and chant or speak over the music, contextualising the lyrics to the particular scenario they are in. The atmosphere becomes more intense as the night deepens and people start to indulge in alcoholic drinks. At this point, the DJ loops a section of instrumental music from the playing music, pitches it up, and accelerates the speed, creating a frenzied dance floor, and the MC chants or sings over this looped music. This particular section of the vigodoro event is what gave birth to today's *singeli* music, a Tanzanian genre that has been gaining popularity in recent years.

The freestyle lyrics chanted or sung by the MCs are specific to the occasion and often carry social lessons and commentary. These lyrics speak directly to and about society, highlighting the issues and challenges that people face (Mukandabvute & Gores, 2022). The MCs take turns on the mic, dictating the dance styles and calls and responses. The dance styles become more erotic as the night goes on, making the Vigodoro event a unique and culturally significant experience for all involved.

Towards morning, the music is turned off, and people are free to go home to continue with their daily activities.

3 Literature review

This section unravels Vigodoro and its negative portrayal by scholars, religious groups, and the Tanzanian government.

As with many cultural practices, the perception of vigodoro is a matter of debate among scholars. Some see it as a disorderly spectacle and condemn it as a source of irresponsibility, immorality, and social disruption. Karumuna (2019), in her study on Factors Affecting Pregnancy Control Programs Among Adolescent Girls in Manzese Ward in Kinondoni District, points to social events like 'Kuchezwa,' an initiation rite for young Zaramo, and Vigodoro as contributing factors to adolescent pregnancies. She argues that these events introduce young women to sexuality at a young age, leading to unintended pregnancies.

Mapigano (2018) researched The Effects of the Home Learning Environment on Academic Achievement Among Primary School Children in Mbeya City, Tanzania, similarly reveals how traditional ceremonies like Mdundiko, Kioda, and Vigodoro interfere with pupils' routines, leading to poor academic performance. Additionally, Msumali (2016) speaks of Vigodoro as a factor contributing to destructive adolescent behaviours alongside active attendance at nightclubs and excessive access to social media. Further, Shoshiwa (2019) quotes a key informant saying that most of the youth in Changarawe village spend their time drinking local beer and attending Vigodoro events rather than involving themselves in agriculture. Such findings condemn Vigodoro as a problematic scene.

Religious groups, too, view vigodoro as a form of sin, with the practice going against the moral standards of their respective faiths. The Tanzanian government has also banned Vigodoro on multiple occasions, citing concerns of immorality, disorder, and disturbance in society. Al Jazeera (2015) reported the Tanzanian government's ban on Vigodoro, citing its potential for immorality, irresponsibility, and criminal influence.

However, it is crucial to recognise that understanding vigodoro requires examining it within its cultural context. By analysing where and how vigodoro is conducted, we can begin to comprehend its role in the transfer and enactment of indigenous knowledge and the promotion of sustainable development. Thus, we should recognise the adverse claims associated with vigodoro and also look beyond them to fully appreciate its significance in both the transfer and enactment of indigenous knowledge and the promotion of sustainable development.

4 Rationale and methodology of the study

Existing literature on Vigodoro mainly focuses on its adverse social, cultural, and economic effects, such as immorality, irresponsibility, and crime. However, little attention has been given to the positive contributions of vigodoro, such as its role in creating the popular music genre

known as Singeli and its potential as a space for the transfer of indigenous knowledge. Therefore, it is necessary to explore the positive aspects of vigodoro and its potential for the creation and transfer of indigenous knowledge to promote its appreciation and utilisation in Tanzanian society. It is also important to look at its potential to enhance sustainable development.

A mixed-method approach was employed to explore the role of Vigodoro in the enactment and transmission of indigenous knowledge. This involved conducting a comprehensive literature review to understand existing perspectives on Vigodoro and its cultural significance. Additionally, field research was conducted to gather firsthand insights into the context, practices, and perceptions surrounding Vigodoro. This included participant observation at Vigodoro events, interviews with community members, and analysis of relevant cultural artefacts.

5 Findings

The findings presented in this section shed light on the significant role of Vigodoro in the transfer of indigenous knowledge and its positive contributions to sustainable development within the Zaramo community in Tanzania. By examining the cultural practices, traditions, and music associated with Vigodoro, this section highlights its importance as a platform for preserving cultural identity, fostering social cohesion, and promoting economic opportunities. Through the lens of social, human, and economic aspects of sustainable development, this section explores the multifaceted impact of Vigodoro on Tanzanian society.

5.1 The role of Vigodoro in the transfer and enactment of indigenous knowledge among the Zaramo tribe in Tanzania

Vigodoro provides a space for the enactment of traditional cultural practices, traditions, music, and dance, which serve as a means of passing on indigenous knowledge from one generation to the next. An argument by Karumuna (2019) is that cultural events, including 'Kuchezwa' and Vigodoro, introduce young ladies to sexuality at a young age, resulting in adolescent pregnancies. This argument, first of all, accepts that there is the transfer of knowledge in Vigodoro, which in this case is sexual education. The researcher argues that this knowledge results in adolescent pregnancies; however, in the African context, where parents do not have a habit of talking to children about sex education, these spaces become important in transferring sexual-related education, including menstrual education and preparing ladies to be good wives to their future husbands which is crucial in the Zaramo context.

To fully appreciate the role that vigodoro plays in the transfer and enactment of indigenous knowledge, it is crucial to consider the context and community where it takes place. Vigodoro is a cultural event that occurs in a context where traditional family setups have been disrupted, and the older generation's knowledge and oral traditions are less fluent than before. As such, it provides an essential space for the younger generation to learn about their cultural heritage and acquire indigenous knowledge that would otherwise be lost. Through vigodoro, the youth can learn about the traditional ways of life, beliefs, and values that are essential in preserving their cultural identity and creating a sense of belonging.

Furthermore, vigodoro serves as a means of bridging the gap between parents and children, who are increasingly becoming distant due to urbanisation and modernisation. The event provides a platform for parents to pass on knowledge to their children and instils cultural values and beliefs that are important in shaping their identity. This helps to strengthen family

ties, which is a critical aspect of sustainable development, as strong family units are the building blocks of society.

Singeli, a musical genre that emerged from the cultural scene of Vigodoro, has rapidly gained acceptance among Tanzanians and beyond. Its increasing popularity has provided a platform for the transmission of indigenous knowledge, making it an essential aspect of cultural sustainability. The message conveyed through singeli music plays a significant role in transferring and preserving indigenous knowledge, which is essential for the continuity of cultural heritage. One striking example of this is the song 'Asili Yetu' by Sholo Mwamba and Wanne Star, which urges listeners to return to their traditional way of life and beliefs. The song not only promotes the importance of preserving cultural heritage but also emphasises the need for sustainable development by returning to traditional practices that are in harmony with nature.

Through Singeli music, indigenous knowledge is passed down to younger generations, preserving the traditional way of life while adapting to modern changes. Singeli provides an alternative form of education that reaches a broad audience, creating awareness of cultural heritage and social issues and promoting unity among Tanzanians. The genre has also created employment opportunities for many, including DJs, artists, and producers, which has contributed to the economic growth of the music industry and helped to achieve sustainable development goals.

5.2 The positive contributions of Vigodoro to the promotion of sustainable development

To fully understand the role that Vigodoro plays in Tanzanian society, it is essential to view it through the lens of sustainable development. Sustainable development emphasises the importance of balancing economic, social, and environmental factors to achieve long-term growth and prosperity. In this context, vigodoro is an example of how traditional practices can be harnessed to achieve sustainable development by preserving indigenous knowledge and promoting cultural diversity.

5.2.1 Social

As a vital contributor to the social aspect of sustainable development, Vigodoro has played a significant role in enriching Tanzania's cultural heritage. The emergence of the singeli music genre has provided a unique platform for marginalised communities to express themselves and find a sense of belonging in society. By creating a distinctive Tanzanian sound, singeli has contributed to the promotion of diversity, fostering a sense of pride and identity among the people. This, in turn, has a positive impact on the social fabric of Tanzania, promoting social cohesion and building community resilience. Therefore, the recognition of Vigodoro as a valuable cultural practice is crucial to achieving sustainable development in Tanzania.

5.2.2 Human

Beyond being a source of indigenous knowledge, Vigodoro also contributes to the human aspect of sustainable development. In this space, people find solace and comfort through therapy. It acts as a medium of recreation, a platform for people to express themselves and break away from the stress of daily life. Through vigodoro, people find a sense of belonging and identity. It provides a cultural outlet for people to connect with their roots, their traditions, and their community. This connection contributes to the overall well-being of individuals

and promotes a healthy community. The positive impact of Vigodoro on the human aspect of sustainable development may result in the improved mental and emotional health of participants, which in turn translates to improved social and economic productivity.

5.2.3 Economic

Beyond its social benefits, vigodoro has also had a significant economic impact. The practice provides employment opportunities to people involved in Vigodoro's music, sound engineering, and event planning aspects. Moreover, street food vendors who operate at the Vigodoro events earn income that can help pay for their children's education and contribute to the local economy. In this way, vigodoro has served as an essential source of livelihood for many people in the Zaramo community and beyond.

A musical genre, Singeli, has also created significant employment opportunities in Tanzania. DJs, artists, and producers involved in Singeli music have become stars in their own right, performing all over the country and beyond. This has helped to create a thriving entertainment industry in Tanzania, which generates revenue for the country and creates jobs for many people. In this way, vigodoro and Singeli music have played an essential role in contributing to the sustainable development of Tanzania.

6 Discussion

This paper contributes significantly to the existing literature by providing a thorough exploration of Vigodoro as a platform for the enactment and transmission of indigenous knowledge within the Zaramo community. While past studies have predominantly emphasised the negative social, cultural, and economic aspects of Vigodoro, this research offers a more nuanced understanding of its cultural significance and positive contributions.

The findings of this study are in line with existing research that recognises Vigodoro as a vital cultural practice deeply ingrained in Tanzanian society. For instance, Karumuna's (2019) work highlights how cultural events like 'Kuchezwa' and Vigodoro introduce young women to sexual education. Despite concerns about unintended pregnancies, it is essential to acknowledge these events as spaces for the transfer of crucial knowledge regarding sexual education within the Zaramo community, which is also essential in reducing unintended pregnancies. This aligns with our objective of exploring Vigodoro's role in indigenous education.

By delving into the context, practices, and perceptions surrounding Vigodoro, this paper sheds light on its significance as a platform for indigenous education, creative expression, and community cohesion. Mukandabvute and Gores (2022) emphasise the role of the freestyle lyrics chanted or sung during Vigodoro events, which often convey social lessons and commentary specific to the occasion. This underscores how Vigodoro serves as a space for the free expression of ideas and the transmission of indigenous knowledge, aligning with our objectives.

Moreover, this research addresses the gap in the literature by highlighting the positive aspects of Vigodoro and its potential to foster sustainable development. For example, the emergence of the Singeli music genre from the cultural scene of Vigodoro has created economic opportunities for many, including DJs, artists, and producers. This finding underscores the importance of freedom of expression and creative entrepreneurship in Tanzanian society, contributing to sustainable development.

Furthermore, this study contributes to discussions on the importance of cultural practices in preserving indigenous knowledge and promoting cultural diversity. While concerns may

exist about the content of Vigodoro events, it is crucial to recognise their role in preserving cultural heritage and transmitting indigenous knowledge to younger generations, thereby fostering a deeper appreciation of cultural diversity.

Overall, this paper enriches the existing literature on Vigodoro by offering a balanced and nuanced perspective that acknowledges its cultural significance while also emphasising the importance of freedom of expression and a free voice. By engaging in critical discussions and advocating for the preservation and appreciation of Vigodoro as a valuable cultural heritage, this research contributes to ongoing efforts to promote sustainable development and cultural diversity in Tanzanian society.

7 Conclusion

As we draw the curtains on this discourse, let us reflect on the beauty that lies beneath the controversial cultural practice of vigodoro. It is a practice that has long been shrouded in negativity, painted with a brush of cultural inferiority, and shamed by the moral guardians of our society. However, we must recognise the splendours that lie within this practice. For beyond the gyrations of the dancers lies a wealth of knowledge, transferred from one generation to the next. This is the beauty of Vigodoro, a practice that serves as a vehicle for the preservation of cultural identity and values, promoting sustainable development.

Singeli music, emerging from the cultural scene of Vigodoro, is a testament to the power of this practice in promoting cultural sustainability. It provides a platform for the transmission of indigenous knowledge, thus fostering a deeper appreciation of our cultural heritage. Therefore, let us embrace the positive aspects of Vigodoro and recognise its significance in promoting cultural sustainability and the transfer of indigenous knowledge as we strive towards a brighter future for Tanzania.

8 Recommendations

Advocacy for policies that acknowledge the cultural significance of practices like Vigodoro while addressing concerns related to public safety and morality is essential. Instead of imposing outright bans, regulatory measures should be considered to balance preservation with responsible conduct.

It is imperative to encourage the government to allocate resources towards initiatives supporting the preservation and promotion of indigenous knowledge and cultural heritage. This could encompass funding for cultural education programs, support for cultural events, and endeavours aimed at documenting and transmitting traditional knowledge.

Facilitating community dialogues involving scholars, religious leaders, government officials, and community members to discuss concerns and perspectives regarding Vigodoro is vital. Collaboration and understanding should be fostered to develop inclusive approaches that respect cultural diversity.

Educational campaigns and awareness-raising initiatives should be organised to challenge negative stereotypes and misconceptions surrounding Vigodoro. Highlighting its positive contributions to cultural sustainability and community cohesion is crucial to fostering appreciation and support.

It is recommended that indigenous knowledge and cultural practices, including those associated with Vigodoro, be integrated into school curricula. Educational materials

promoting understanding and appreciation of Tanzanian heritage among students should also be developed.

The establishment of cultural centres or museums dedicated to preserving and celebrating Tanzanian heritage is advisable. These institutions can serve as platforms for educating the public and showcasing the richness of indigenous knowledge and cultural traditions.

Implementation of these recommendations can enable Tanzania to embrace and value its cultural diversity, promoting sustainable development and preserving indigenous knowledge for future generations. Emphasising the importance of cultural heritage such as Vigodoro can contribute to positive social change and foster a stronger sense of identity and community among Tanzanians.

References

- Al Jazeera. (2015, February 24). *Tanzania bans 'dangerous' dance. TV Shows | Al Jazeera*. Retrieved February 14, 2023, from <https://www.aljazeera.com/program/the-stream/2015/2/24/tanzania-bans-dangerous-dance>
- Karumuna, D. (2019). *Factors Affecting Pregnancy Control Programs Among Adolescent Girls in Manzese Ward in Knondoni District* [MA dissertation]. The Open University of Tanzania.
- Mapigano, R. (2018). *The Effects of Home Learning Environment on Academic Achievement Among Primary School Children in Mbeya City, Tanzania* [MA dissertation]. The Open University of Tanzania.
- Msumali, N. (2016). *Coping with Adolescence Stress: Exploring Teachers Engagement in Secondary School Adolescents Behaviour Adjustment in Morogoro Municipal Council* [MA dissertation]. Mzumbe University.
- Mukandabvute, A., & Gores, M. (2022). Athari za Kimaadili Zitokanazo na Nyimbo za Muziki wa Singeli nchini Tanzania. *Mulika Journal*, 40(2), 95–108.
- Shoshiwa, F. (2019). *The Role of Institutions in Enhancing Youth Involvement in Agriculture: A Case of Mzumbe Ward in Mvomero District, Tanzania* [MA dissertation]. The Sokoine University of Agriculture.
- Van der Stockt, A. (2019). *The struggle for 'real' Tanzanian music: an anthropological analysis of the construction of national identity in Singeli* [MA dissertation]. Ghent University.

59. The Hongo Phenomenon: Exploring East African Indigenous Views on the Ethical and Un-Ethical

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Abstract

The authors explore indigenous East African views on the concept of “ethics” in the context of the phenomenon called Hongo. Our research problematizes the definition of ethics generated from within Euro-culture, and we argue that it does not consider non-Western and non-European cultures, views, or beliefs. The primary methodology is participant observation and examining the recorded history of Hongo. We elucidate the concept and practice of Hongo. We find that Hongo partially overlaps with the non-African concepts of bribery but also includes socially excellent gift-giving in the appropriate circumstances. Thus, understanding Hongo as bribery connected to corruption tells only a fraction of what it actually is. We explain a more nuanced understanding of ethics in East Africa and the role of Hongo in facilitating courteous social relations and survival strategies. This is also a contribution to the ongoing discourse on corruption and ethics through an alternative perspective on the authors’ unique historical, cultural, and lived contexts. The findings can inform the development of policies and practices that promote cultural sensitivity and respect for indigenous knowledge.

Keywords: *Gift giving, bribery, ethics, gratuity*

1 Introduction

We begin by considering what is or is not ethical. Ethics means the moral principles that govern a person’s behaviour or the conduct of an activity. It is also the term for a branch of philosophy in which the best ways of doing right are discussed, described, and analyzed by various thinkers (Oxford Languages, 2020). This definition is generated from Euro culture. It does not take anything non-western, non-European into account. In this paper, we are discerning and elucidating East African definitions and meanings of ‘ethics’, focusing on the phenomenon called *Hongo*. We discuss the complexities of *Hongo*, often translated as ‘bribery,’ as a design solution to courteous sociability and genuine challenges. *Hongo* has enhanced local peoples’ survival while keeping aggressive foreigners at bay. We examine both the recorded history and our own experience of *Hongo* through participant observation.

We all experience negative *Hongo*. It can be an annoyance, an obstacle, or a prohibitive intervention to getting things done. It was with this frustrating experience in mind that we studied *Hongo*. We soon realized that *Hongo* is a human universal, that it can be good and positive but also prohibitive, negative and ‘bad.’ Context has considerable influence on the evaluation of *Hongo* action and experience from many points of view. It can also be one-time and interpersonal, or customary or institutionalized. In considering *Hongo*, we are mindful that cultures vary in terms of understanding definitions and various categories of thought and action.

All human societies exchange goods and services in ways that they accept as normal, in grey or marginal areas or in ways that are irregular, abnormal, incorrect, or criminal. There is a wiggly

line between these gradations of exchange that varies by culture, context, time and person. When people of different cultures or regions interact, they may discover the differences in the wiggles of their respective lines. This is to say we all have different definitions of what kinds of exchange fall into which categories of social acceptability. Using words from someone else's language complicates our understanding unless we probe the topographies of meaning in each language.

As researchers, we are tangled up in definitions and understanding of many kinds of small and large transfers of money or goods. A brief incident fifty years ago illustrates this. D Pido went to the Mona Lisa in Kisumu, ordered, was served and ate lunch. She left a coin on the table before leaving the restaurant. This is called a tip in America and is obligatory as a recognition of good service. Several meters from the restaurant, the waiter came running to return the money she had left. Tipping, a kind of *Hongo*, was not part of his culture. Years later, when the Norfolk Hotel Veranda became a tipping battleground, Pido explained to African colleagues that the reason African waiters were serving Whites first was that White tip but Africans don't. These two insignificant events show that *Hongo* straddles several categories of acceptable and unacceptable, of willingness and force, and of right and wrong.

To date, we have found only a few African scholarly works that deal with either ethics or *Hongo* set apart from the overwhelmingly European 'Western' literature. Authors such as Mungiu-Pippidi (2006, pp. 86-99.), a Romanian, have argued for technology as a tool for mitigating corruption in Africa. This raises questions about the role of technology in studying *Hongo* and the potential for technology to facilitate more objective and accurate data collection and analysis. We draw on the works of various authors who have discussed the cultural significance of *Hongo*, including Ayittey (2000), who argues that corruption is a Western notion that is not applicable to African cultures and discusses *Hongo* as a social institution that regulates relationships between individuals and institutions in East Africa. While participant observation and examining recorded history provide valuable insights, we also draw on other African authors regarding technology in mitigating corruption in African societies. Clearly, these efforts are aimed at the 'wrongdoing' or exploitative aspects of *Hongo* rather than the positive, constructive aspects.

In Eastern Africa, several factors set various kinds of exchange apart from those in other regions. The most important of these, for purposes of this article, are based on geography. The gross geography of the East African region makes the sustained production and accumulation of surplus impossible. Sparse and irregular rainfall, poor soils and extensive grassland contribute to the marginality of human existence. Over thousands of years, most East African communities have designed their social systems for survival and to deal with environmental marginality, fluctuations, and challenges. For the last three thousand years, outsiders, including merchants, refugees, adventurers, and slave traders, have placed East Africans on constant alert, triggering xenophobic strategies that are still with us today. Threats have come with opportunities. One is the exploitation of interlopers who have to depend on local goodwill to survive. We will return to this after describing our look into the lexicographic literature.

Each of us [authors] comes from a different culture. While we all have Christian backgrounds, we recognize and acknowledge many differences. The classic work of German Sociologist Max Weber describes how large populations profess adherence to Christian principles while competing like wild animals in business and politics (Weber & Kalberg, 2013). We are sure that whatever insiders or outsiders say about any idea or practice is not necessarily what they

do. We wanted to gain some clarity as to what the word *Hongo* means in Swahili and how its meanings, synonyms and corollaries have evolved with congruencies and overlaps in meaning and usage. We wanted to know more about meaning, values and right and wrong in our own cultures and how we hear the words used in Kenyan life. The dictionaries give definitional evidence of the meanings of various words that cluster between right and wrong. We started with good *Hongo*, having had experiences of both good, voluntary, well-deserved *Hongo* and the negative other kind that is imposed with antagonism and often the intention to defraud.

At the outset, our primary resource was the Swahili English, English Swahili dictionary (EALC, 1939-1969), the primary source of definitions in both languages even today. It was first published in 1939, over 80 years ago. It was based on an earlier dictionary compiled by a Scotsman in the late 1800s (Madan, 1903), and we cannot discern any additions to its content in subsequent editions up to 1969. We were looking back over a century for meanings. We stumbled on Precolonial meanings of *Hongo* and other terms, especially *Penyeza*, and *Rusha*. A more recent dictionary, *Kamusi Teule ya Kiswahili*, second edition (EAEP, 2019), builds on the earlier ones while adding new words and loans from 20 or so foreign languages.

Even though the vocabulary in Swahili and English has doubled or tripled since 1969, we can refer to the early meanings while understanding that the committee were mostly white colonials. The Arabic trilateral root '*ain, da, lam* and its derivatives '*adil* in Arabic and *Adili* in Swahili encompass the concepts of good, righteous conduct, justice, impartiality, uprightness, morality and honourable behaviour (Johnson, 1969, p. 3). A'DL carries a component of justice and impartiality in the concept of *Hongo*; favourable partiality is good to be paid for where impartiality cannot work. Our further inquiry into *Hongo* and its variations, corollaries, and permutations has revealed a surprising correlation between the geography, cultures, and history of this region, as well as its array of synonyms and meanings.

The Bantu verb *kuhonga* means to make a payment, to secure an end, hence, bribe, pay toll, pay one's way, and pay a footing, frequently in a bad sense. (Johnson, 1969) It gives rise to a number of noun variations. The most basic, *Hongo*, means a bribe, a tax or gratuity or presents to a native chief for passage through their country. (Johnson, 1969, p. 136) A bribe is illegal; a tax is legal but undesirable to the payer, and a gratuity is usually something paid voluntarily for good service. *Hongera*, *hongea* and *hongela* mean pay for, secure an end, advance a stage, get past a crisis, be acquitted, or get cleared of a charge, or seduce a woman through bribery. (Johnson, 1969, p. 136)

The synonyms listed under *honga* are *rushwa*, *mlulunga*, *chichiri*, *upenyezi*, *salimu*, *pukusa*, *pongeza*, *bakhsbishi*, *tongoza*. These offer us an insight into overlaps of meaning in indigenous cultures and their appropriation into English. *Rusha/rushwa* comes from the verb *kuruka*, meaning to jump, leap, hop or spring (Johnson, 1939, p. 402). They mean to cause you to jump or to push something over an obstacle. *Kurusba binadamu* means to help a person over the limit of an obstacle. *Rushwa* can mean to pay something for assistance. *Kupenya* means to penetrate, make a way into, get inside, enter, pass into like *ingia* but implying more effort or purpose, and difficulties on the way. *Penya mvituni*, make one's way through a forest. *Kupenyeza*, go into, force into insinuate, introduce (by stealth, force stratagem). Hence, money is slipped into the hands of others for undue influence. *Nilimpenyezea fedha, akanipatia baki*.

Learning of these definitions and meanings, we cannot avoid making two connections with languages and cultures that are somewhat familiar to us. First is the idea of advancing a stage or overcoming an obstacle, seen in the small context of experiences such as childbirth

and initiation. For a gravida, completing the obstacle of birth in order to get the baby she wanted is often described with the verb *kurushwa*. Congratulations that follow for having gotten through the arduous labour, include *bongera*. These may or may not be connected to the African American concept of ‘getting over’, which usually means succeeding in getting what one wants from the government or other agencies.

In the Kisii community, we also see the concept of advancing a stage or succeeding with a long safari. *Okwaroka* is the *Ekegusii* word for initiation. It is a direct cognate with *Kuruka*, and the process is composed of a series of jumps, as we have described elsewhere (Pido, 2000). Notably, it is a direct cognate of Xhosa, *Ukwaluka*, which also means initiation.

In order to understand the relationship between local East Africans and outsiders or ‘others’, we can look at the overriding importance of a single geographical feature of this region – the *nyika*. Passing through the *nyika* is tricky and dangerous for outsiders, although locals know how to do it. Nyika residents, up until the late 1900s (Steinhart, 2006), lived primarily by hunting wild animals for their body parts, which they sold to traders. Human movement through the *nyika* towards the coast is attenuated by the slave trade. People captured in the interior were walked to the coast, sold to seafaring merchants and transported.

Peoples of the interior protected and preserved themselves and their families through subterfuge and trickery against outsiders. People developed a business model built around getting the goods without paying the price or getting the payment without delivering the goods. You offer your goods and take an order from the outsider. Then you do not show up on the delivery day, and the outsider either has to leave or cannot find you. You demand a bribe to pass through your territory and then demand another bribe to get out of your territory; you work for a company or an organization, but you do not perform your duties as expected unless the clients pay you something directly. Having observed all these phenomena over more than 50 years, we looked into the historical literature but found very few travellers’ accounts.

A notable exception, in the late 1800s, was Joseph Thompson, a Scottish Geographer, who was sent to East Africa by the Royal Geographical Society in England. He became famous for his swaggering account of his safari through Maasailand as the ‘first white man’ to make it through. He started his journey with 60,000 strands of glass beads (Thompson, 1885). He got as far as the area around Bungoma when his beads ran out. He then had, literally, to run all the way to Mombasa under threats from local leaders who did not believe his supply was exhausted (Thompson, 1885). Based on travellers’ reports before Thomson, we have very little to say.

We now turn to accepting good *Hongo* and rejecting ‘bad’ *Hongo*. This means courtesy and good manners *Hongo* as opposed to exploitive, abusive, and punitive *Hongo*. Everybody wants to receive without having to give. East Africans are no exception; they do it a little bit differently than some others.

2 Indigenous practices and ethical behaviour

Acholis of northern Uganda says, ‘*otwong wile ki otwong*’ (a basket buys a basket), meaning, one good turn deserves another, scratch my back that I may also scratch yours. In the case of ‘*otwong wile ki otwong*’, a basket of millet is used to pay for a basket of millet, not money. As time went on, ‘*otwong wile ki otwong*’ referred to a barter trade where different objects were exchanged; for example, a bull exchanged a granary of sorghum because their values were

equal. '*Labongo ngene ki Lubindi*' (people of Labongo and people of India know each other) is the other Acholi expression relevant to *Hongo*; it means 'to buy from a rich merchant, a poor man needs a reduced price'. Its origin is in the economic burden that colonies placed on Great Britain's Uganda, a country with 'no fat' (it was of no economic value, poor in short).

Hongo features in East African everyday life. *Bedo avila* (living with buying favours constantly) is *Hongo* but the wrong type. One who buys favour has weak social support or none. Such a person is usually a single or double orphan. A person who lives outside his birth-determined clan will constantly be purchasing favour. One must be nice to be accepted and treated as a human; such a person cannot speak his/her mind to avoid verbal and sometimes physical attacks. Identifying the origin of the bed for a while is unclear and not documented. It may be due to the need to survive by buying favour. Rivalry over resources may lead to people attacking one another in numbers as warfare. A greater number of warriors is likely to secure success; alone, it is practically impossible to win a war. The Acholi *cato ber* (selling beauty) is the display of attractive personal qualities to trap and turn unsuspecting people into admirers you can use. This is common with East African politicians who entice the public to buy into ideas that are felt but never touched. Apart from politicking, 'selling beauty' thrives in other spheres; look at hidden persuaders in advertising; the objective is money, not consumers but money.

Sustained failure of rain and subsequent famine are common in East Africa. Confronted with famine and death, affected people sometimes turn to rainmakers. People give rainmakers great respect, as do wives and livestock. Famine makes people do things they would not do in normal situations. It can make families give away their children for food; the name Maathai is a testimony of such a practice when Maasai gave their kids to Kikuyu during a famine. One can say that giving away the child is similar to buying the child's survival; otherwise, the child would most likely starve.

In some cases, a famine could spark migration, I. Some parts of East Africa receive low rainfall, resulting in inadequate annual harvests. Millet is harvested in August, so June and July are often months of food shortages. July is a month known for breaking homes. Wives go to where they can find food for their children, sometimes paying for it with sexual favours. Such favours amount to *Hongo*.

There is the saying '*laco ilaro ki agulu*' (a cooking pot wins a competition for a husband), the same as 'the way to a man's heart is through his stomach'. The saying is founded in intense rivalry over the one husband. There are many ways of winning the competition, but one can see that using food to win a husband's love is *Hongo*. Men do something similar by buying presents, holidays, and outings. These are some of the things they give to catch the women they fancy.

We can go on for many pages with stories of good *Hongo*, such as whites tipping in restaurants and bringing a house gift when invited for dinner or a party, and baby showers. For many Africans, the equivalents are taking a live chicken or a goat to the home of someone who has helped you. There are too many negative stories about *Hongo*, including the bribery demanded for ordinary services, obstacles to employment, and many others. We would like to close with a story of good and bad *Hongo* that played itself between 1970 and 2010.

Donna Pido began a friendship with several Maasai families in 1970. Their association led to Pido doing her PhD research on Maasai ornamental beadwork from 1982 to 1987. Starting from its inception in the *Enkipaata Naibor* ceremony in 1983, Pido and several others paid

Hongo for permission to attend, observe and take pictures of the life cycle ceremonies of *Ilkepali*, the Right Hand of the cohort that would be named *Ilkishoro*. In the non-centralized Maasai system, several people could demand *Hongo* from us. They were the *Ol Piron* Elders, the host of the ceremonial manyatta, the local councillor, and the government chief. The young initiates into junior warriorhood had no say in anything. In each ceremony we attended, we dealt with entitlement to *Hongo* through negotiation. When the time came for *Ilkepali* and their left hand, *Ilmajeshi*, to graduate to junior elderhood, the senior spokesman invited us to attend the *Ol Ng'esher* ceremony, which would join them as *Ilkishoro*.

In preliminary discussions, we discovered that both the outsiders and the (traditional age-set leaders) had identified the ceremony as a moment when long-standing rules could be modified to accommodate grassroots change and to address the AIDS epidemic and the orphan crisis. Having been invited by the senior spokesman, Pido raised money from her then-contractor to conduct a series of training sessions and draft a new set of rules for elders. Pronouncing them in the ceremonial context would set them in stone and would require compliance by all the Maasai sections of the *Ilkishoro* set because they were to be handed over by the senior-most of the senior spokesmen. We drafted, the elders vetted, and we were given the go-ahead. Shortly afterwards, we were approached by the Elders of the alternating generational set who were about to open a new warrior cohort by holding *Enkipaata Naibor*. They approached our team and asked us to give them a set of rules for the incipient warriors to follow. We did that and, with *Ol Piron's* approval, printed several thousand flyers announcing and describing the changes and innovations.

The flyers were distributed at both *Ol Ng'esher* and *Enkipaata Naibor*. Elders who violated the new rules during the preparation for their *Ol ng'esher* were fined and paid up on the spot. At *Enkipaata Naibor*, all the boys were called together, and their supervisors explained the new rules to them. Clearly, we had a strong mutual agreement with the leaders of the Maasai community, whose leadership extended to all of the Maasai Sections. We assisted them in making changes that they wanted while they facilitated us on-site.

Several years later, when the new warriors were due to graduate to senior warriorhood, it was time, according to the new rules, for them to give a public demonstration of their ability to read; at least a few who could make their public reading a part of the *Eunoto* ceremony. We put together simple passages to be read in Maa, English, and Swahili for whoever wants to do what. We gathered our team and organized with the elders. We arrived at the ceremonial manyatta, bringing sugar and a *kehangas* for each of the mothers who were accompanying their sons in the ceremonial manyatta. That was good, correct, courteous, and proper *Hongo*, which we had been accustomed to providing for earlier ceremonies.

At the gate, the Senior elder who had collaborated with us and who had invited and was expecting us demanded two *kehangas* per mother. That was bad, *Hongo*. We had three choices—negotiate, go back to Nairobi to buy more *kehangas* or leave; we left. Of course, we discussed among ourselves, and we knew that in just a few short years, we would be able to work with *Ilkishoro* when they opened a new warrior cohort. That time came in 2010. More demands for *Hongo* were made, and that ended the team leader's relationship with the Maasai community.

3 Conclusion

Our bottom line is that *Hongo* may be considered as a sliding scale from proper to criminal. In between are many shades of grey, including bribing a government official, demanding bribes from a student, offering a bribe to get a permit, and demanding more than a victim has. Gift-

giving and sincere additional payment for good service or a favoured fall on the good end of the continuum. *Hongo* is everywhere and has been with us humans throughout history. It merits further study and investigation in the future. European-influenced outsiders, in general, and donor communities, in particular, seem to think that *Hongo* is only corruption bedevilling every African country. The outsiders often blame rampant corruption and underdevelopment in Africa, yet it may be an outcome of colonialism (Ellis, 2022). Outsiders lack an introspective examination of their societies. Different, simple, and complex technologies are in place to exploit African resources. However, there are too few African-generated scholarly works dealing with *Hongo* apart from the overwhelmingly European ‘Western’ literature. Some authors argue that technology helps mitigate corruption in Africa without saying how. This argument raises questions about the potential role of technology in studying *Hongo* and the potential for technology to facilitate more objective and accurate data collection and analysis.

References

- Ayittey, G. B. (2000). Combating corruption in Africa: analysis and context. In *Corruption and Development in Africa: Lessons from Country Case Studies* (pp. 104–118). London: Palgrave Macmillan UK.
- East African Educational Publishers. (2019). *Toleo ya pili Kamusi Teule ya Kiswahili*. Nairobi. Ellis, S. (2022). *The Roots of African Corruption*. In Tim Kelsall (Ed.),
- Johnson, F. (1969). *Standard Swahili-English Dictionary*, University Press,
- Madan, A. C. (1903). *Dictionary of Swahili English*, The University Press, Oxford
- Mungiu-Pippidi, A. (2006). Corruption: Diagnosis and treatment. *J. Democracy*, 17(3), 86-99.
- Pido, D., Khamala, M., & Pido, O. (2019). *Indigenous Knowledge and Identity*. In Kwanya T., J., Kiplang’at, and D., Njiraine (Eds.), *Digital Technologies for Information and Knowledge Management*, Technical University of Kenya, Nairobi
- Steinhart, I. E. (2006). *Black Poachers, White Hunters: A History of Hunting in Colonial Kenya*, James Currey/Athens: Ohio University Press, Oxford
- Thompson, J. (1885). *Through Maasailand*, London
- Weber, M., & Kalberg, S. (2013). *The Protestant ethic and the spirit of capitalism*. Routledge.

60. Infusing African Ubuntu Philosophy Virtues to Media Ethics in the Infodemic Era

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Abstract

Ethics and morality are critical components of human life. Communication through various channels requires high ethical standards for decision-making in conflicting situations. In the internet age, the scope and diversity of publishers – both professionals and amateurs – has exponentially grown. Globally, infodemic, that is, mal-information, disinformation, and misinformation, characterise news and information in both traditional and social media, which sometimes contradict existing ethical and moral standards. The basis of this paper is to evaluate the Ubuntu African philosophy and its potential contribution to the formulation of a theory of communication ethics that reflects African indigenous knowledge. African indigenous knowledge refers to that knowledge which is integral to the culture, natural or innate to the continent's foundations of life. The paper reflects on the Aristotelian ethical theory of virtue, which he glosses as the 'activity of soul exhibiting excellence, in a complete life'. This paper seeks to evaluate Ubuntu philosophy's attributes and how this can contribute to virtue-based communication and journalism ethics with the view of informing media practitioners to build an ethical character and promote ethical conduct in both their professional and personal lives. The following questions guide the paper: What are the virtues embedded in Ubuntu philosophy? What are the principles that guide virtue-based ethics? How can Ubuntu's philosophy contribute to virtue-based communication and journalistic ethics? The research uses a qualitative approach with textual analysis and interview methods. The theories of consequentialism, utilitarianism, and social responsibility are incorporated into this paper. Data were thematically organised, interpreted and analysed, conclusions drawn and recommendations made. The outcome of this paper is that virtues in African indigenous knowledge can inform journalists and media practitioners and mitigate the problem of disinformation, misinformation, and lies, as well as their potential and ultimate harms.

Keywords: *Ubuntu, virtue ethics, mal-information disinformation, misinformation, media practitioners*

1 Introduction and background

The complexity of today's communication environment, which is characterised by misinformation and disinformation and a saturated legacy media, calls for continuous review and examination of the applicability of existing ethical, legal and policy frameworks in the field of communication and media. UNESCO (2018) asserts that professional standards for ethical and accountable journalism are a necessary panacea for disinformation and misinformation. Disinformation is aimed at confusing or manipulating through dishonest or false information, while misinformation is giving misleading information devoid of manipulative or malicious intentions. UNESCO (2018) opines that the purveyors of disinformation and misinformation "prey on the vulnerability or partisan potential of recipients whom they hope to enlist as amplifiers and multipliers" (p 8). Their ultimate aim is to use the consumers of their untruthful information as further purveyors of the same information to reach as many people

as possible. Social media have been identified as the primary conduits for disinformation and misinformation, which has sometimes percolated into legacy media.

Journalistic and media norms and values have been developed over time to give journalism its distinctive mission, which requires practitioners to uphold the tenets of journalism credibility, which includes verification of news items and comments that are made to align them with the public interest. Ethics encourages journalists to examine their fundamental moral principles, their responsibilities and rights, their relationship with their employer and audience, their relationship with their sources of information, their role in society and their goals and purpose.

Gordon et al. (2012) define ethics as the study of what we ought to do. It concerns duty to self and duty to others. Ethics is private and personal, although it relates to the obligations and duties of others. Media ethics concerns right and wrong, good and evil, and better and worse actions taken by media practitioners. Journalists are expected to nurture a sense of right conduct in their service to society.

Chinwe (2020) asserts that *Ubuntu* philosophy is an aphorism of the Nguni (isiZulu), which states: “Umuntu Ngumuntu Ngabantu (A person is a person because of other people)”. Beight (2007) introduces *Ubuntu* as the essence of being a person, which implies that we are people because of other people; we cannot be fully human alone; in other words, when you have *Ubuntu*, you embrace others. *Ubuntu* emphasises being self through others. It is a form of humanism which can be explained in phrases: “I am because of who we are; I am because we are.” It emphasises consensus, tolerance and mutual respect. Its principles are community, respect, dignity, virtue, acceptance, sharing responsibility, humanness, social justice, fairness, personhood, morality, group solidarity, compassion, joy, love, fulfilment and conciliation. (Mayaka & Truell, 2021). The *Ubuntu* philosophy encourages people to live according to specific human and humane principles such as reciprocity, common good, and peaceful co-existence. It emphasises human dignity and the value of human life. *Ubuntu* embraces the capacity of African culture to express compassion, reciprocity, dignity, harmony and humanity in the interest of building and maintaining a community with justice and mutual caring (Lefa, 2015).

McQuail (2010) enumerates perceived functions of media to include binding society together, giving leadership to the public, helping to establish the ‘public sphere’, providing for the exchange of ideas between leaders and masses, satisfying needs for information, providing society with a mirror of itself and acting as the conscience of society. He identifies the social functions of the media as providing information about events, interpreting and commenting on the meaning of events and information, coordinating separate activities, building consensus, forging and maintaining common values, entertainment and mobilisation. This paper examines how *Ubuntu* can inform communication and journalism ethics. The following questions guide it: What are the virtues embedded in *Ubuntu*’s philosophy? What are the principles embedded in virtue-based ethics? How can *Ubuntu*-based virtues inform ethics for communication and journalism?

2 Statement of the problem

Ethics is regarded as internally-driven values. Making an ethical decision depends on one’s knowledge and application of societal values. Communication, which mainly involves sharing information, requires ethical standards in order not to harm others in the process. Some ethics inform for the common good, while others prescribe for universality and yet other strands stress on duty. This paper explores the potential impact of *Ubuntu* philosophy on

virtuous media practitioners and journalists in the era of disinformation and misinformation. Virtuous ethics embraces justice, prudence, fortitude and temperance.

Journalism ethics and communication ethics, in general, have been at the centre of both professional and intellectual discourse for a long time. Ethics concerns conduct; therefore, it concerns people as opposed to institutions. Ethics is innate in philosophical terms. Ethics is inbuilt. Journalism ethics is embedded in codes of conduct which act as guides to ethical decision-making. However, journalists are found to flout these codes of conduct. The violation is glaring in the internet age, where journalists and media practitioners create misleading and unfounded information for various reasons, including but not limited to intent to mislead, ignorance of the subject being discussed, or to gain favour for oneself.

This paper investigates *Ubuntu* African philosophy and its potential impact on journalism and communication virtue-based ethics in the era of mal-information, disinformation and misinformation. The core of *Ubuntu* philosophy, explained as “I am because we are”, has been examined if it can benefit communication and journalism for virtuous, ethical behaviour among practitioners. One of the key components is that journalists and other media practitioners are, at foremost, members of the communities that they serve. This paper sought to find out how *Ubuntu* can inform virtue-based ethics for journalists and media practitioners.

3 The Literature

The literature review revolves around *Ubuntu*'s philosophy, communication, journalism, virtue-based ethics, disinformation, and misinformation.

3.1 *Ubuntu*

Ubuntu as a philosophy is based on life values of justice, responsibility, equity, collectiveness, relatedness, reciprocity, love, respect, helpfulness, community, caring, dependability, sharing, trust, integrity, unselfishness and social change. It focuses on the inclusivity of everyone in the community and their responsibility to others (Mayaka & Truell, 2021). It means humanness, and it alludes to the maxim that a person is a person through other persons (Metz, 2007). It implies that apart from one's identity as a human being depending on others and society as a moulding factor, one has a moral obligation to support others in a certain way. One is conditioned to be hospitable, friendly, caring and compassionate. “An action is right just insofar as it respects a person's dignity; an act is wrong to the extent that it degrades humanity.” (Metz, 2007). The central focus here is respecting human life. Respect implies treating human life as the most important intrinsic value in the world.

In further extrapolating African morality, Metz (2007) lays claim that “An action is right just insofar as it promotes the well-being of others; an act is wrong to the extent that it fails to enhance the welfare of one's fellows.” Therefore, morality is a way of improving people's quality of life through the harmonisation of people's interests.

The third trajectory of African morality alluded to by Metz is “An action is right just insofar as it promotes the well-being of others without violating their rights; an act is wrong to the extent that it either violates rights or fails to enhance the welfare of one's fellows without violating rights.” He refers to this as moderate communitarianism.

The fourth prism says, “An action is right just insofar as it fosters self-realisation by positively relating to others; an act is wrong to the extent that it does not perfect one's valuable nature as a social being.” *Ubuntu* calls upon an agent to develop his or her personhood. For one to

be human, he should recognise the humanity in others and, therefore, establish a humane relationship with them. “One might morally value something about people as they are in themselves or as being part of, or at least capable of, certain relationships” (Metz, 2007).

The fifth trajectory is that *Ubuntu* is a brotherhood and collective unity for the survival of vulnerable groups in society. “An action is right just insofar as it is in solidarity with groups whose survival is threatened; an act is wrong to the extent that it fails to support a vulnerable community”.

The sixth and last trajectory of African morality, as recorded by Metz (2007), is: “An action is right just insofar as it produces harmony and reduces discord; an act is wrong to the extent that it fails to develop communion.” This view from *Ubuntu* requires that individuals’ decisions should be based on creating harmony and, by all means, reducing discord among members of society. In regard to the fourth and sixth trajectory, the actions that produce harmony, reduce discord and develop community are simultaneously the actions that perfect one’s valuable nature as a social being (Lutz, 2009).

Mbiti (1969) sums up *Ubuntu* as “I am because we are; and since we are, therefore I am”. Gathogo (2022) finds Mbiti’s *Ubuntu*-based theology as dialogical among generations, inclusive, community-driven, humane, just, and methodologically contextual and reconstructive in its motif. “Mbiti’s *Ubuntu* theology demonstrates the community-driven nature of the African worldview, a phenomenon where everyone is ideally welcomed to the dinner table” (Gathogo, 2022). It is collective, reciprocal, supportive, cumulative, purposeful and encapsulates the importance of dialogue.

Zimunya et al. (2015) argue that although *Ubuntu* ideals are in themselves a desirable way of regulating human behaviour, they were waning in societies claiming to uphold the philosophy. Waghid (2014) proposes that the African *Ubuntu* philosophy is the epitome of education that can contribute to imagination, deliberation, and responsibility, which encompasses human interdependence and humaneness – actions that can help enhance justice. *Ubuntu* is a form of moral consciousness in which communal Africans engage in caring, compassion, hospitality and forgiving humans to actualise interdependence and humanity between individuals and communities.

3.2 Virtue-based ethics

Ward (2011) identifies journalistic ethics as something that includes truth-seeking, objectivity, and minimising harm. Ethics for journalists and media practitioners concerns issues of what is good, right, and virtuous when communicating in the public interest. Virtue ethicists argue that the question of “What ought we to do?”, which is mainly embraced by Kantian philosophy, leaves out a lot in terms of realising ethical behaviour. Virtue ethics explains the characteristics of a virtuous person and suggests that individuals can develop moral character over time through habitual action and practice. This notion is built on the Aristotelian philosophy in his ten books known as *Nicomachean Ethics*. According to Aristotle, moral virtues, such as justice, prudence, fortitude, and temperance, can be acquired through practice and habitual action. Therefore, not all moral virtues are formed in humans by nature.

Aristotelian ethics of virtue are character-centred as opposed to act-centred or result-centred. This is what is recorded in his books referred to as *Nicomachean ethics*, which focuses on being a good person rather than doing a good thing in a particular situation. Aristotle’s argument is built around the premise that people should achieve an excellent character or what

he calls a virtuous character. As he presents his argument at the beginning of the *Nicomachean Ethics*, Aristotle argues that in order to benefit from his philosophy, one must already have been brought up in good habits. The virtues he identifies in such persons are being just, courageous, and generous, among other values.

Aristotle argues that virtue is realised through the development of habits that develop good character, which springs good actions. A reasonable person delights in doing things that are in harmony with their sound and the good of others. This paper examines journalistic virtue ethics as found in both Nicomachean ethics and how *Ubuntu* philosophy may help guide journalists and media practitioners in realising ethics within the profession. Banks (2012) explains that virtue ethics is a normative ethical theory which focuses on the character of the individual and moral training and emphasises being rather than doing – being good in order for your state to propel you to do good is what matters for achieving a good life. Virtue ethics theories are agent-focused and relationship-based ethical theories.

As Eleni (2018) explains, virtue ethics focuses on one's character and motivations in order to distinguish right from wrong. Virtue ethics stresses the view that morality goes beyond rules and duties. It, however, recognises principles, duties or consequences. Papouli (2019) distinguishes Aristotelian virtue ethics from others with the following six points: its focus is on the person and his/her character traits, not on a particular decision or principle; virtues are good habits and are learned by practising; appropriate virtues are discovered by witnessing and imitating behaviour; to become virtuous, one must see others practising good habits; virtues should be examined within a 'community' setting; aspirations are critical motivators in virtue ethics.

3.3 Practical wisdom

Kraut (2022) propounds that virtue ethics is fully developed only when it is combined with practical wisdom. One learns ethical values in the environment in which one is brought up, and this, combined with practical wisdom, makes one virtuous. Human beings “are born with the potential to become ethically virtuous and practically wise, but to achieve these goals they must go through two stages: during their childhood, they must develop the proper habits; and then, when their reason is fully developed, they must acquire practical wisdom (*phronêsis*).” However, this does not imply that one has to develop the proper habits before acquiring practical wisdom. Kraut (2022) further explains that ethical virtue is the “state”, “condition” or disposition induced by our habits to have appropriate feelings while defective states of character are tendencies to have inappropriate feelings. In Ostwald (1999), Aristotle gives two perspectives of virtue – intellectual virtue, whose origin is attributed chiefly to teaching and, for that reason, requires experience, and the second perspective is a moral virtue, which is formed by habit.

Aristotle argues that a person is a good judge in things that he is conversant with or is educated in. “And so, the man who has been educated in the subject is a good judge in that subject, and a man who has received all-round education is a good judge in general” (Ross, 2002). According to Aristotle, virtues are good habits of the heart and mind and are essential for developing and maintaining good ethical character and behaviour. Virtues are the most important habits for people looking to achieve eudaimonia (happiness, flourishing, well-being, or a good life). The concept of eudaimonia is synonymous with a well-lived life, both individual (personal) and social (or professional). Eudaimonia is the ultimate and objective goal for which all other goals are pursued; it is the primary purpose of human life. The notion of eudaimonia involves both the pursuit of personal and societal well-being. Virtuous persons ought to desire good things not only for themselves but also for others in society (Papouli, 2019).

3.4 Intellectual and moral virtue

Virtue is of two kinds under the Aristotelian classification, i.e. intellectual and moral. Intellectual virtue is taught and, therefore, requires time and experience. Moral virtue is born through habit; therefore, virtue is not by nature. “Neither by nature, then, nor contrary to nature do the virtues arise in us. Rather, we are adopted by nature to receive them and are made perfect by habit” (Ross, 2002, p.21). Aristotle argues that people develop virtuous character by practising it. “For the things we have to learn before we can do them, we learn by doing them, e.g. men become builders by building and lyre players by playing the lyre; so too we become just by doing just acts, temperate by doing temperate acts and brave by doing brave acts” (Ross, 2002, p. 22). Since it is through playing the lyre that excellent and bad lyre players are produced, the same applies to virtue, which is created or destroyed through the process of practising.

Table 1: Aristotle’s intellectual vs moral virtues

Intellectual Virtues	Moral Virtues
Scientific knowledge (episteme)	Courage
Artistic or technical knowledge (techne)	Temperance
Intuitive reason (nous)	Self-discipline
Practical wisdom (phronesis)	Modesty
Philosophic wisdom (Sophia).	Humility

Aristotle identifies three things found in a soul – passions, faculties and states of character. Passion comprises appetite, anger, fear, confidence, envy, joy, friendly feelings, hatred, longing, emulation, pity and, in general, the feelings that are accompanied by pleasure or pain. Faculties embrace becoming angry or being pained or feeling pity; by states of character, we refer to anger management – badly if we feel it violently or weakly and well if moderately. Moral virtue is realised in the middle of the two extremes, such as between excess and defect – the intermediate.

Ostwald (1999) presents the golden mean as one of the three kinds of disposition, with two others being either excess or deficiency. The golden point is the one with virtue. Book Four of the Nicomachean Ethics extrapolates various extremes in spheres of actions or feelings – generosity, extravagance, and stinginess; magnificence, vulgarity, and niggardliness; high-mindedness, pettiness, and vanity; ambition and lack of ambition as the extremes of a nameless virtue; gentleness, short temper, and apathy; friendliness, obsequiousness, and grouchiness; truthfulness, boastfulness, and self-depreciation; wittiness, buffoonery, and boorishness; shame and shamelessness, all of which are indications of virtuous character or lack of it.

Some of the spheres of feelings or actions espoused by Aristotle that are relevant to communication and journalism are listed in the table below.

Table 2: The golden mean in various spheres of feeling or action is relevant to journalists and media practitioners

Sphere of feeling or action	Deficiency (vice)	Mean (virtue)	Excess (vice)
Fear and confidence	Cowardice	Courage	Rashness
Pleasures and pains	Insensibility	Temperance	Self-indulgence
Indignation	Envy	Proper indignation	Spite
Honour and dishonour	Vanity	Proper pride	Pusillanimity

Sphere of feeling or action	Deficiency (vice)	Mean (virtue)	Excess (vice)
Self-expression	Mock modesty	Truthfulness	Boastfulness
Conversation	Boorishness	Wittiness	Buffoonery
Shame	Shamelessness	Modesty	Shyness

Source: *Adopted from Eleni (2018, p 8)*

Aristotle adopts the idea of “god-like” men – in reference to Spartan’s perception of good men, the contrast of which is savage men whose actions are not virtuous. The “god-like” man exercises continence with the practitioner, knowing that his appetites are evil, and refuses to follow them on account of his rational principle. His actions are considered to be included among things good and praiseworthy, and he is disposed to endurance. In contrast, the incontinent man, knowing that what he does is terrible, does it as a result of passion. To Aristotle, a man of practical wisdom is deemed to be continent.

Martin (2011) introduces components of virtue in Greek, *akrasia*, *enkrateia*, and *sophrosyne* as the original vocabulary used by Aristotle in his Nicomachean ethics to mean “self-indulgence,” “moral strength,” and “self-control”, respectively for modern society. He argues that the same would mean “profligacy,” “continence,” and “temperance” respectively.

Aristotle’s baseline argument on virtue or *arete* goes that action is not merely any action which somehow leads. However, action must be triggered by a deliberate desire to properly perform a function as a human being, to perform voluntarily and in full awareness of the fact that there are possible alternatives, which, however, one rejects in deciding to act the way he will. Aristotle proposes a forechoice in making a decision. It is a deliberate desire to arrive at a decision on the basis of deliberation and then let the deliberation guide one’s desire. Of the virtues shown in the table below, Aristotle identified four that he argued play a critical role in achieving eudaimonia: courage, justice, practical wisdom and temperance.

4 Theoretical framework

This paper uses the theories of Consequentialism, Utilitarianism and social responsibility. Communication as an act of interaction and interplay of emotions and information between individuals is an intrinsic and integral part of society. Whereas utilitarianism is based on the cherished ideology of general well-being and equality among individuals, virtue-based duties and rights tend to increase human happiness. Consequentialism, on the other hand, is a view in philosophy that the moral quality of action and character is determined by the effects of the action or character trait relative to the agent’s options. The philosophy behind consequentialism is that producing more good is better than producing less. Objective consequentialism avers that the right action produces the best actual results amongst the alternatives available to the agent. In contrast, subjective consequentialism holds that the right action is the one that produces the best-expected effects among the options made to the agent. “Consequentialism is of the view that the right action maximises the good” (Driver, 2011).

Carlson (1995) classifies consequentialism moral theories into two categories. Direct consequentialism is where the moral status of an action is determined directly by facts about (the intrinsic value of) its outcome. Indirect consequentialism “treats other facts, for example, facts about the rule or motive underlying a certain action or what would happen if others in similar circumstances acted the same way, as relevant to the action’s moral status” (p 4-5).

Utilitarianism holds the view that morally right action is the one that produces the best. The theory is much concerned with the outcome of an action – “consider the good of others

as well as one is good.” Driver (2009). Exponents of Utilitarianism, Jeremy Bentham and John Stuart Mill, identified the good with pleasure – maximising pleasure as opposed to pain or happiness against unhappiness. Mill’s argument poses that a utilitarian ought to strive to promote the general happiness of humankind (Hayry, 2013). Bentham’s view of the duration and intensity of pleasure is that pleasures that last longer are rated at a higher score for everyone experiencing them than intensive, short-lived ones.

Social Responsibility theory is an extension of the libertarian thought in which the media “recognise their responsibility to resolve conflict through discussion and to promote public opinion, consumer action, private rights, and important social interests. This theory has its major premise that freedom carries concomitant obligations” (Ravi, 2012). The media are obligated to be responsible to the public. In circumstances where they cannot live within that mandate of acting in regard to the public interest, they may be regulated. This theory occasioned the establishment of media councils, drawing up of Codes of Ethics and anti-monopoly laws in many countries to regulate the media.

The theory emphasises the media’s responsibility to use its powerful position to ensure appropriate delivery of information to audiences; furthermore, if the media fails to carry out this responsibility, it may be relevant to have a regulatory instance enforce it.” (Middleton, 2009). McQuail (2010) summarises the basic principles of social responsibility theory: Media should accept and fulfil certain obligations to society, obligations which can be met by setting high or professional standards of informativeness, truth, accuracy, objectivity and balance.

5 Methodology

The paper used a qualitative approach with textual analysis and interview methods. The qualitative research approach considers phenomena in their state of quality, different manifestations, the context in which they appear, or the perspectives from which they can be perceived. The researcher used this approach to focus on how participants perceive their environments. The primary texts reviewed were the Code of Conduct for the Practice of Journalism in Kenya, texts on *Ubuntu* and ethics.

The researcher used interviews in various forms – one-on-one conversations in which the interviewer directly asked participants questions to elicit their inner feelings about the phenomenon under study. Sometimes referred to as a personal interview, a one-on-one interview enables the researcher to have a discussion in one place and time to respond to the research questions. The researcher used this technique to stimulate the interviewees to provide a significant amount of accurate data because they typically have higher response rates than other interview options.

The researcher used both structured and unstructured interviews for data collection. An unstructured interview, also known as an informal interview, was used by the interviewer to restructure the question posed to earlier respondents depending on the environment of the interview itself. As argued by Ugwu and Eze (2023), in unstructured interviews, the interviewer poses different questions to every interviewee. The researcher used open-ended questions since they trigger a more in-depth response than a simple yes or no. This nature of questions helped the interviewer to ask follow-up questions and let interviewees elaborate on their responses.

Phone interviews were, in some instances, conducted on phone, a technique that helped to quickly gather data without using many resources. This technique does not require the interviewee and interviewer to be at the same place or time. The researcher further utilised

the Focus Group Discussions (FGDs) technique. Small groups of respondents were created to respond to questions in a controlled environment. The two FGDs used in this study were chosen based on predetermined demographic characteristics, and the questions were created in the form of an interview guide to extract qualitative data. As conceptualised by Ugwu and Eze (2023), FGDs are reasonably easy to organise, and the findings have good internal consistency. FGDs take much less time to conduct than surveys or experiments, and the results are available right away.

The respondents for interviews were purposively sampled from reporters, editors, staff of the Media Council of Kenya, members of the Editor's Guild, and bloggers. The researcher sampled 20 reporters, eight media managers, 20 bloggers, and 15 participants from the Media Council of Kenya and the Editor's Guild. The total number of sampled respondents for interviews was 64.

6 Findings and discussion

The data collected from both textual analysis techniques and interviews was thematically presented in response to the research questions. The data was thematically analysed to give conclusions and recommendations in response to the main objective. The response rate of respondents was 54 out of the sampled 65. This is equivalent to 83.1% as shown in Table 3.

Table 3: Participants' response rate

Category of respondents	Sample size	Response rate
Reporters	20	20
Media managers	10	8
Bloggers	20	16
Other stakeholders (Kenya Editor's Guild, Media Council of Kenya and Public Relations Society of Kenya)	15	10
Total	65	54

6.1 *Ubuntu*, Virtuous Ethics, Communication and Journalism

Data obtained from the document review show that the Aristotelian concept of virtue ethics is character-centred as opposed to act-centred or result-centred. Act-centred ethics is associated with Immanuel Kant, while result-centred ethics is attributed to John Stuart Mill and utilitarian scholars and philosophers. Most journalism codes of ethics tend to lean towards utilitarianism and are slightly act-centred. This paper attempts to establish how *Ubuntu* African philosophy can inform virtuous ethics. First, the researcher develops and clarifies virtue-based ethics for communication, journalists and media practitioners. Communication and journalistic ethics are applied ethics. Like other applied ethics, it has three areas of concern – the principles appropriate to journalism, their critical application to problems, and virtuous character to enable Journalists and media practitioners to adopt the principles.

Participants in FGD2 discussed virtue-centred ethics as presented in both the Aristotelian principle and the Code of Conduct for the Practice of Journalism in Kenya. Although many participants did not understand *Ubuntu's* philosophy, after being explained its principles, they responded to the questions in the schedule, thus helping in the collection of primary data for this study. Both participants in FGDs and respondents were unanimous in the need for virtuous ethics among media practitioners and journalists. This would enable communication and journalism to empower their communities with information useful for their development.

As earlier alluded to in this paper, *Ubuntu* is an African philosophy that emphasises being self through others. It is a form of humanism which is emphasised in the phrases “I am because of who we all are” or “I am because we are”. Respondents concurred that journalists and media practitioners are part and parcel of their communities. Media practitioners and journalists “are because of their societies”. Journalists work in collaboration with their colleagues, their sources of information and consumers of their products. It is imperative, therefore, for journalists and media practitioners to inculcate in themselves the need to serve societies or communities they work in with a deep sense of belonging to those communities. *Ubuntu* philosophy states that without society, journalists and media practitioners cannot exist as individuals or as media organisations without societies. A web of relationships exists among stakeholders that make the work of journalists and media practitioners successful and beneficial. Virtuous ethics, on the other hand, requires journalists to be truthful and honest in their profession. *Ubuntu* philosophy’s principle of commonality would suffice in this virtue-based ethics argument.

Fairness is a distinct principle of *Ubuntu* philosophy. That is considered a prime pillar of journalistic ethics, which is embedded in the Code of Conduct for the Practice of Journalism in Kenya and other codes of conduct globally. This fairness, according to the Aristotelian virtuous ethics, springs from within one’s character, which has been developed through learning and exercising it. *Ubuntu* presupposes that one’s good character is developed through societal norms based on a communitarian perspective. Data collected from respondents underscored the need to embrace this principle among media practitioners and journalists.

Respondents reported the need for tolerance among journalists, between journalists and their sources of information and between journalists and their audiences. Tolerance and mutual respect are virtues upheld in *Ubuntu*’s philosophy that can help improve communication ethics. These two principles can improve communication and journalism. A media practitioner or a journalist needs to be tolerant when dealing with their sources, some of whom may not understand how information is gathered, processed and disseminated. *Ubuntu* informs that mutual respect between and among individuals in society yields a well-lived life, which Aristotle calls eudaimonia.

The common good principle, as one of the significant pillars of *Ubuntu* philosophy, respondents averred, will help journalists and media practitioners to strive to achieve the principle of journalistic ethics of balance. When the rights of journalists and media practitioners are violated, the common good principle is violated; when the rights of sources of information or the rights of consumers are violated, then the whole community pains. The principle of common good enshrined in *Ubuntu* philosophy informs media practitioners and journalism ethics of the need to make decisions that will lead to no harm to all members of society. Our ultimate aim is to have a flourishing society in order to realise eudaimonia. This is supported by the perspective by Metz (2007) that virtuous conduct respects human life – that is, to treat human life as the most important intrinsic value in the world. This means the value of life in itself or for its own sake. The worth of life is based on the value it has in itself or for its own sake, that is, independently of extraneous factors. Therefore, decisions journalists and other media practitioners make ought to be based on the consideration that the outcome preserves human life as the most valuable of all things in the world.

The actions of journalists and media practitioners should aim at promoting the well-being of society, reported KII2. According to *Ubuntu* Philosophy, an act is right if it promotes the well-being of others, and it is wrong as long as it fails to enhance the well-being of others.

In this regard, virtuous character or morality is a way of improving people's quality of life through the harmonisation of people's interests. The role of the media is to bring harmony to competing interests in society. Such ethical codes covering ethnic, racial or international conflicts ought to be guided by this principle – the well-being of society or others. Journalists and media are guided to make decisions that are aimed at achieving this goal. Therefore, *Ubuntu* philosophy, as alluded to virtue-based ethics, informs that journalists and media practitioners strive to enhance the well-being of society and others.

In the quest to achieve the well-being of others, *Ubuntu's* philosophy suggests moderate communitarianism – it should be done without violating their rights since an act is considered wrong to the extent that it either violates rights or fails to enhance the welfare of one's fellows. Moderate communitarianism informs journalists and media practitioners that they should uphold people's human rights when making decisions on their broadcasts and publications.

Respondents exhorted journalists and media practitioners to develop their personhood in the profession. Journalists and media practitioners are expected to recognise the humanity in others and develop humane relationships with them. As Metz (2007) argues: "An action is right just insofar as it fosters self-realisation by positively relating to others; an act is wrong to the extent that it does not perfect one's valuable nature as a social being."

One of the tenets of journalistic ethics is to strive to give voice to the voiceless. *Ubuntu* subscribes to brotherhood and collective unity for the survival of vulnerable groups in society. As watchdogs of society, journalists and media play a role in improving the lives of underprivileged members of society. "An action is right just insofar as it is in solidarity with groups whose survival is threatened; an act is wrong to the extent that it fails to support a vulnerable community" (Metz, 2007). Media and journalists are informed that they should check out the downtrodden in society, investigating the underlying causes of their state and making recommendations to find a solution to their problems. They should further show the person responsible for the situation in which those affected are affected and the source of a possible solution.

Respondents in this study reported the importance of journalists and media practitioners, in general, being umpires where disputes exist. According to *Ubuntu's* philosophy, an action is right if and when it produces harmony and reduces discord among members of society. On the contrary, an act is wrong if it fails to develop communion. This view from *Ubuntu* requires that individuals' decisions should be based on creating harmony and, by all means, reducing discord among members of society. "Journalists and media practitioners should not publish or publicise for the sake of it; they should weigh the effects of their actions if they lead to either harmony or disharmony," reported KII6.

Journalists should bring about social justice by pointing out injustices in society. Conversely, journalists and media practitioners themselves should exercise and offer justice to all parties in their profession. *Ubuntu* underscores social justice and fairness as a component of the good life. Aristotelian ethics informs of two extremes of vices: excess and deficiency. He proposes that a virtuous action ought to find the middle point – the Golden Mean – which alludes to first that every virtue is a state that lies between two vices, one of excess and the other of deficiency. Media practitioners and journalists are informed that in their presentation of information and news, they need to strive to achieve the golden mean. Balance and objectivity will be attained through this virtue.

The Code of Conduct for the practice of journalism in Kenya provides an ethical framework comprising, but not limited to, fairness, exercise, accountability, avoidance of obscenity, payment

for news, and protection of children. Other ethical guidelines include the opportunity to reply, confidentiality, avoiding misrepresentation, and recording interviews and telephone conversations.

6.2 Towards *Ubuntu* virtue-centred ethics for communication and journalism

In order for journalists and media practitioners to benefit from virtue-centred ethics, they must already have been brought up in good habits. Participants in FGD1 concurred that continuous in-service training and learning would lead to virtuous media practitioners and journalists. Aristotle identifies the virtues as being just, courageous, and generous, among other values. As Kraut (2022) explains, human beings are born with the potential to become ethically virtuous and practically wise. Aristotle prescribes good habits and practical wisdom for a virtuous character. Proper habits are learned during childhood, and they acquire practical wisdom, but this does not mean that practical wisdom comes after proper habits; it may be acquired concurrently.

Respondents reported that journalists and media practitioners can be taught ethics in schools of journalism and communication studies. Aristotle alluded to two significant perspectives of virtue: intellectual virtue, whose origin is attributed chiefly to teaching and, for that reason, requires experience, and the second branch, moral virtue, which is formed by habit. These habits can be learned either as one grows up or in the workplace. The combination of the two implies that as one develops from childhood, he/she learns virtues and records or sharpens the mind and, at the same time, practices what he/she has learned (habit). Journalists and media practitioners, likewise, learn particular virtues in the same way that helps them make ethical decisions in their profession or trade. From this discussion, we discern that individuals who adopt bad habits may not be competent to make virtuous, ethical decisions, and those who develop good habits can make virtuous choices. This notion is supported by Aristotle's assertion that people develop virtuous character by practising it. Therefore, journalists and media practitioners have to exercise virtues through learning and apply them in their activities. Journalists become just by doing just acts, temperate by doing temperate acts and brave by doing brave acts. "They will be truthful, accurate, people of integrity and all requirements in their codes of conduct by practising them," Interviewee 12 said.

Virtue is obtained at the middle of the two extremes – virtue and vice. Journalists and media practitioners need to work to achieve the golden mean in their decision-making. Aristotle implores practitioners of virtuous character to aim at an act that is in some way or other intermediate between alternatives that he or she rejects. The golden point is the one with virtue. Excess and deficiency are opposed to each other, and in a sense, both are opposed to the golden mean. A virtuous journalistic action is obtained at the golden mean. Journalists find themselves in ethical dilemmas, whether to publish or not. Virtuous journalists ought to find the golden means to make a virtuous decision that may lead to the happiness of society.

Aristotle's contention that "god-like" men are virtuous men points to journalists and media practitioners to execute their mandates in a "god-like" manner. The question is whether we can have "god-like" journalists who exercise continence with the practitioner, knowing that his appetites are bad, refuse on account of his rational principle to follow them. The actions of such a journalist or media practitioner are considered excellent and praiseworthy, and he or she is disposed to endurance. In contrast, the actions of those journalists and media practitioners who are not virtuous or incontinent are considered bad and emanate from passion.

Journalists, according to the majority of respondents, are expected to embrace "self-indulgence," "moral strength," and "self-control", which mean in modern times "profligacy,"

“continenence,” and “temperance”, respectively. In his concept of eudaimonia, Aristotle crowns it as comprising and reinforced by courage, justice, practical wisdom and temperance. Virtue ethics are for journalists to embrace these components. As Papouli (2019) explains, eudaimonia is synonymous with a well-lived life, both individual (personal) and social (or professional). It is the ultimate and objective goal for which all other goals are pursued; it is the primary purpose of human life. Eudaimonia involves both the pursuit of personal and societal well-being. Virtuous persons ought to desire good things not only for themselves but also for others in society since “I am because we are”.

7 Conclusion

Ubuntu African philosophy informs journalists and media practitioners that society forms a critical part of their work, and they should responsibly handle their stories and reports for the well-being of society and, therefore, journalists and media practitioners themselves. *Ubuntu* embraces deliberation and responsibility, which are crucial to ethical communication and journalism. The theory of Social Responsibility alludes to the requirement that journalists and media practitioners take responsibility for what they communicate to the public. Ethics for journalists and media practitioners should spring out of their innate being, which is developed through their upbringing and education. Journalism and media ethics, therefore, can be acquired through learning and practising them. Virtues learned at early stages of life are reflected in one’s character; therefore, society shapes a journalist and a media practitioner at their early stages of life.

8 Recommendations

- *Ubuntu’s* philosophy embeds the pillars of journalism ethics: truth, fairness, balance, objectivity, and the public interest. Therefore, the philosophy informs media and journalism ethics. According to Aristotle, moral virtues, such as justice, prudence, fortitude, and temperance, can be acquired through practice and habitual action. Therefore, not all moral virtues are formed in humans by nature; journalists and media practitioners should learn these virtues even at their workplaces by practising them.
- *Ubuntu* philosophy requires that a member of society acts in the interest of vulnerable members of society, a trait that can inform journalism and media practice. According to *Ubuntu* philosophy, an act is right if it promotes the well-being (flourishing) of others, but it is wrong as long as it fails to enhance the well-being of others. Journalists and media practitioners should endeavour to ensure that what they produce promotes the well-being of not only individuals but also the whole society. A good person delights in doing things that are in harmony with their good and the good of others.
- A virtuous journalist is expected to embrace self-indulgence, moral strength and self-control. This requires them to avoid reckless extravagance or wastefulness and embrace self-restraint and the quality of moderation. Media practitioners and journalists need to embrace a deep sense of dedication and responsibility. Self-realisation is a principle that journalists and media practitioners may emulate from *Ubuntu’s* philosophy. This is also echoed in eudaimonia from Aristotelian virtue philosophy.
- Tolerance, fairness, and mutual respect are virtues that *Ubuntu’s* philosophy embraces, and they apply to journalistic and communication ethics. Journalists should tolerate others, be fair in their judgments and respect other people. Actions based on goodwill, one of the *Ubuntu* philosophy’s principles, inform media practitioners and journalists to act without malice in their profession or trade.

References

- Banks, S. (2012). *Ethics and values in social work* (4th ed.). Palgrave Macmillan
- Beight, J. L. (2007). *The Ubuntu philosophy and the anti-apartheid rhetoric of Desmond Tutu*. University of Michigan.
- Carlson, E. (1995). *Consequentialism reconsidered* (Vol. 20). Springer Science & Business Media.
- Chinwe, O. I. (2020). ‘Umuntu Ngumuntu Ngabantu (A person is a person because of other people): Reflections on Students Experiences of Social Isolation and the Impact of a Peer to Peer Mental Health Support Group During Covid 19 Lockdown in South Africa. RJ4All Publications, United Kingdom.
- Driver, J. (2009). *The history of utilitarianism*.
- Driver, J. (2011). *Consequentialism*. Routledge.
- Eleni, P. (2018). Aristotle’s virtue ethics as a conceptual framework for the study and practice of social work in modern times, *European Journal of Social Work*.
- Gathogo, J. (2022). John Mbiti’s Ubuntu Theology: Was it Rooted in his African heritage?. *Studia Historiae Ecclesiasticae*, 48(2), 1-22.
- Gordon, A. D., Kittross, J. M., Merrill, J. C., Babcock, W., & Dorsher, M. (2012). *Controversies in media ethics*. Routledge.
- Hayry, M. (2013). *Liberal utilitarianism and applied ethics*. Routledge.
- Kraut, R. (2022). “Aristotle’s Ethics”, *The Stanford Encyclopedia of Philosophy* (Fall 2022 Edition), Edward N. Zalta & Uri Nodelman (eds.), URL = <<https://plato.stanford.edu/archives/fall2022/entries/aristotle-ethics/>>.
- Lefa, B. (2015). *The African Philosophy of Ubuntu in South African Education*. Studies in Philosophy and Education.
- Lutz, D. W. (2009). African “Ubuntu” Philosophy and Global Management. *Journal of Business Ethics*, 2009, Vol. 84, Supplement 3: Global and Contextual Values for Business in a Changing World (2009), pp. 313-328. Springer.
- Martin, F. (2011). Human development and the pursuit of the common good: social psychology or Aristotelian virtue ethics?. *Journal of Business Ethics*, 100, 89-98.
- Mayaka, B., & Truell, R. (2021). *Ubuntu and its potential impact on the international social work profession*. Sage.
- Mbiti, J. S. (1969). *African Religions and Philosophy*. Nairobi: E.A.E.P.
- McQuail, D. (2010). *McQuail’s Mass Communication Theory*. London: Sage. Sixth edition. pp. 69–75.
- Metz, T. (2007). Toward an African moral theory. *Journal of Political Philosophy*, 15(3).
- Middleton, M. (2009). Social responsibility in the media. *Center for International Media Ethics CIME, Oxford University PCMLP*, pp. 2–3.
- Ostwald, M. (1999). *Nicomachean Ethics*. Prentice Hall, Inc., USA
- Papouli, E. (2019). Aristotle’s virtue ethics as a conceptual framework for the study and practice of social work in modern times. *European Journal of Social Work*, 22(6), 921-934.
- Ravi, B. K. (2012). Media and social responsibility: A critical perspective with special reference to television. *Academic Research International*, 2(01), 306–325.
- Ross, W. D. (2002). *The right and the good*. Oxford University Press.
- Ugwu, C. N., & Eze, V. H. U. (2023). *Qualitative Research*. Idosir Publications.
- UNESCO. (2018). *Handbook for Journalism Education and Training: UNESCO Series on Journalism Education*. United Nations Educational, Scientific and Cultural Organization, 7, place de Fontenoy, 75352 Paris 07 SP, France.

- Waghid, Y. (2014). African Philosophy of Education as a Response to Human Rights Violations: Cultivating *Ubuntu* as a Virtue in Religious Education. *Journal for the Study of Religion* 27(1), 267–282.
- Ward, S. J. A. (2011). *Ethics and the Media: An Introduction*. Cambridge University Press, New York.
- Zimunya, C. T., Gwara, J., & Mlambo, O. B. (2015). The feasibility of an *Ubuntu* ethic in a modernised world. *Journal of African Foreign Affairs*, 2(1_2), 5-25.

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