

**ANALYZING INFORMATION LITERACY NEEDS OF POST- GRADUATE
STUDENTS AT STRATHMORE UNIVERSITY, KENYA**

BY

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**A Thesis Submitted in Partial Fulfilment of the Requirements for the Award of the
Degree of Master of Science in Library and Information Studies, Department of
Library, Records Management and Information Studies, School of Information
Sciences**

MOI UNIVERSITY

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2017

DECLARATION

DECLARATION BY THE CANDIDATE

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DEDICATION

This thesis is dedicated to my wonderful parents. I also dedicate it to my supportive husband in recognition of all of his encouragement, love, and support. I also dedicate it to my children Sharleen, Letitia, and Janelle for believing that their mummy could accomplish the goal of completing the dissertation and my house manager Jane Kaveri for taking good care of my children.

ABSTRACT

Information seeking and use has become a complex process for higher education students due to the increase of information technologies and resources in all types of formats. The skills needed to retrieve this information and to determine which resources are authoritative and useful to the question at hand, are important in order to fulfill their academic requirements. In Strathmore University, Postgraduate students have been taught Information literacy skills since 2011. However, they still lack essential skills such as locating, retrieval, evaluation, and management of information resources. The aim of this study was to analyze the information literacy needs of postgraduate students at Strathmore University. The objectives of the study were to: determine the information literacy needs of post-graduate students; determine post graduate students' IL skills; find out the level of effectiveness of information literacy programmes attended by Strathmore University postgraduate students; identify the information literacy challenges faced by postgraduate students; suggest possible ways in which the information literacy needs for post-graduates students can be met. The study employed a mixed research method. Quantitative data was collected through an online survey that was sent to all postgraduate students. Similarly, qualitative data was collected through a focus group discussion with Information Literacy trainers. The study was informed by the Standing Committee for National and University Libraries (SCONUL) Model, and the Association of College and Research Libraries (ACRL) Information Literacy Standards for Higher Education. The SCONUL model and ACRL standards consider an information literate person to be a person who must be able to recognize when information is needed and be able to locate, evaluate and use this information effectively. This study focused on the total population of 2015/2016 postgraduate students of Strathmore University, which is 811. The study surveyed 573 postgraduate students who filled online questionnaires that moreover included closed and open-ended questions and focus-group discussion that was subjected to 9 IL trainers of SU. The study used probability and non-probability sampling methods in which stratified and purposive sampling techniques were employed to get a representative sample size of 573 respondents. Online questionnaires and Focus Group Discussions were used to collect data. Data analysis was done using the Statistical Package for Social Sciences (SPSS). The study established that there is a need to re-evaluate the structure and content of the information literacy program in order to provide high impact information literacy skills. The study concludes that post-graduate students need Information Literacy guidelines on how to use library information resources in their subject areas. These skills will help them in their use of library resources and access to online databases when conducting research exercises. The study recommended that information literacy skills programmes should be made mandatory for students. Additionally, Library staff in collaboration with teachers should continue to participate in teaching IL programmes. The findings of this study will be used to improve the current IL programme of SU.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACRL	- Association of College and Research Libraries
ALA	- American Library Association
CUE	- Commission of University Education
ICT	- Information and communication technology
IL	- Information Literacy
ISP	- Information Search Process
MAPE	- Master in Applied Philosophy and Ethics
MCOM	- Master of Commerce,
MEM	- Master in Education Management
MEPA	- Master in Educational Practice for Academics
MSc.B	- Master of Science in Biomathematics,
MSc.CIS	- Master of Science in Computer-Based Information Systems
MSc.IT	- MSc in Information Technology
MSc.M	- Master of Science in Mathematical
MSc.SS	- Master of Science in Statistical Sciences,
NCLIS	- National Commission on Libraries and Information Science
SCONUL	- Standing Committee for National and University Libraries
SRGS	- School of Research and Graduate Studies
SU	- Strathmore University
UL	- University Librarian
ILS	- Information Literacy skills
WWW	- World Wide Web

ACKNOWLEDGEMENTS

I wish to thank my Lord and Savior, Jesus Christ, for the grace and strength to persevere through this process. I also wish to thank my Supervisors, Dr. Andrew Chege and Dr. Damaris Odero. It was due to their encouragement and thoroughness that I was able to complete this thesis.

CHAPTER ONE: INTRODUCTION

1.1 Introduction

Information literacy (IL) is an essential skill to have in today's world. The American Library Association (ALA) Presidential Committee on IL defines IL as a set of abilities whereby an individual is able to recognize the need for information, as well as to locate, evaluate, and use the needed information effectively (ALA, 1989).

IL is a lifelong learning process which starts from a young age through to a post work stage. The Commission of higher education has put more emphasis on introduction of IL in institutions of higher learning. In particular, Universities are established not only to provide education and award degrees, but also, to make students self-learners and lifelong learners. However, the Information environment has become very complex and is constantly changing due to technological advancement. Hence, access and retrieval of information has become complex and IL has grown to become recognized as the critical tool for the 21st century (Hanumanth , Shashiraj Nayaka & Patil, D.B., 2014).

According to Syamalamba (2011), students should be equipped with competencies that will enable them to identify, locate, evaluate and use of information to solve a problem and meet their daily information needs. Syamalamba (2011) opines that, “students often lack the skills necessary to succeed in this rapidly changing environment, and need training and support to make use of new technologies for effective teaching and learning”.

Information literacy describes the abilities that individuals must have in this information society era. Emergence of Information and Communication Technology (ICT) has

brought many challenges in the academic sectors. Information is now available in different formats and hence the need for universities to upgrade the skills of their stakeholders so that they can be competent with handling information sources. Universities need to introduce IL programmes so that students are equipped with the lifelong learning skills (Ipri, 2010). Bruce (2004), also noted that “information literacy is conceivably the foundation for learning in our contemporary environment of continuous technological change”.

Access to information sources has tremendously changed from the traditional print resources to electronic resources. Consequently, information seekers have the challenge of dealing with the information overload and this has made institutions of higher learning to rethink of strategies that will help the users to overcome these challenges of information overload. Many universities have adopted the information literacy course in their curriculum.

The Commission of University Education (2007) make requirements that every academic institution should comply with the need of having a library that has enough resources that will support teaching and learning in the institution. The CUE further explained that there is need to provide information literacy skills in every University to facilitate teaching.

An information literate person is one who can use the information for decision making and in problem solving. A person who has IL skills will depend on herself on all aspects of life and this will help them to be creative, analytical and efficient. Needless to say IT has brought the element of information overload and Sasikala and Dhanraju (2011) contend that “in a world where an infinite amount of information is available,

individuals need to develop a greater understanding of information sources, and need abilities to acquire, evaluate, use and communicate information”. The authors further explain that individuals who are information literate will be critical in accessing different sources of information, evaluate, analyze and use it in an ethical manner.

Libraries are one of the key units in any academic institutions. A library has a wide range of resources that comes in different formats which in most cases are not being used or are underutilized. Students are faced with diverse choices of information in their studies. Information is available in the internet, libraries and service providers among others. Students may not know what information is suitable for their needs. The information resources will only be utilized once the library users have been equipped with the IL skills. According to Bundy (2004) “IL is required because of the ongoing proliferation of information resources and variable methods of access”. Bundy further explains that access to different sources of information requires different skills. In other words locating books from the library catalogue is different from looking for a journal article from subscribed databases or the internet. In this respect, IL skills are very vital to any individual who wants to get information that will help him to solve a problem and to make right decisions.

1.2 Information Literacy

Naik (2014) contend that Information literacy is not only the ability to recognize the extent and nature of an information need, but also to locate, evaluate, and effectively use the needed information. According to the Association of College and Research Libraries (2000), “information literacy is a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the

needed information”. In recent years, IL has become a global issue and many Information Literacy initiatives have been documented throughout the world particularly in the field of Higher Education. Information literacy is a vital skill that needs to be taught in higher education. IL skills prepare students for life-long learning and to become critical thinkers. Students will be able to know when they need information, what kind of information they need, locate the information, evaluate the information sources and use information ethically. IL skills as noted by Chipeta, Jacobs, and Mostert, (2009) will equip the students with skills that will enable them search, identify, locate, retrieve, and use information responsively.

1.2.1 Origin and Development of Information Literacy

The concept - information literacy was introduced in 1974 by Paul Zurkowski, the president of the US Information Industry Association, in a proposal submitted to the National Commission on Libraries and Information Science (NCLIS).

Webber (2010) noted that “information literacy has received increasing academic attentions since the mid-1970s, particularly in the USA and Australia, as a theoretical and practical response to the cultural, social and economic developments associated with the information society”. Information literacy has become a global issue and many information literacy initiatives have been documented throughout the world with particularly strong efforts and examples in North America, Australia, South Africa and Northern Europe (Rader, 2002). In Africa most universities have developed and implemented IL programmes.

1.2.2 Information Literacy in a Global Context

Eisenberg (2004) reiterates that Information literacy has been embraced throughout the world as rich and poor countries have recognized that information literacy is essential to produce a workforce of flexible, lifelong learners, which is increasingly a pre-requisite to economic development. In developed countries like Australia, information literacy is a well-developed concept that resulted in the hosting of the 3rd National conference on information literacy in December, 1997 (Eisenberg, 2004).

1.2.3 Information Literacy in the African Context

Developing lifelong learners is central to the mission of higher education institutions. This is why Africa University Library acknowledges and affirms its role in advocating, developing and supporting Information Literacy Skills (ILS) throughout the University community by ensuring that students at Africa University develop Information Literacy Skills, establish a model for embedding information literacy into the academic curriculum of the university, design Information Literacy programmes and curricula in accordance with the needs and expectations articulated by faculty and students (African University, 2013).

One of the common challenges for those working on information literacy programmes in Africa is that many of these programmes are fairly new. According to Lawal (2007) “the debate on the poor research skills of law graduates has challenged the responsibility of law schools in developing lifelong learning skills in undergraduate students. This debate is advocated by academics, practicing attorneys and librarians who have had the opportunity of dealing first hand with students in their scholarly pursuit”.

Standing Conference of Eastern, Central and Southern African Library and Information Associations (2010) observes that “Information literacy is key to raising institutional standards by improving quality of research. Although Information literacy skills begin with an emphasis on individual skills, however, little attention is paid to institutional or cultural context. Again, it is important to note that information literacy is central to the mission of any institution engaged in education or research, and not just a matter for librarians”.

1.2.4 Information Literacy in Kenya

The Government of Kenya has recognized IL concept as a development enabler (Tilvawala, Myers, & Andrade, 2009). Commission of Higher Education (2007) has mandated that all institutions of higher learning should have information literacy programmes. CUE (2007) further illustrates that “the Librarians, in partnership with the faculty, shall provide information and instruction to all users through a well-structured information literacy competency programme”. Similarly, Muema (2003) notes that Information Resources are now available in different formats and this calls for better skills to our users to enable them to handle and manage rich content which is readily available. Muema (2007) further notes that although IL skills are very essential in this era of information explosion, institutions of higher learning are only providing library orientations/tours to their students during the first year.

Suffice it to say here that Strathmore University not only provides the library orientation/tours, but also provides IL in its curriculum.

In yet another development by the Kenyan Government, Poghiso (2008) states that “the achievement of an information-based society is one of the main priorities... in order to realize national development goals and objectives for wealth and employment creation”. The Kenyan government has recognized IL concept as a development enabler (Tilvawala, Myers, and Andrade, 2009). Furthermore, Commission of Higher Education (2007) has mandated that all institutions of higher learning should have information literacy programmes and that “the Librarians, in partnership with the faculty, shall provide information and instruction to all users through a well-structured information literacy competency programme”.

1.2.5 Information Literacy in Universities

Lwehabura & Stilwell (2008) contend that Information literacy has become very essential in our world today because of the increasing variety and volumes of information resources. This is because users are confronted with abundant and varied information choices in their studies and at the work place. Students also need to evaluate resources carefully and determine how to use relevant information to solve problems and make wise decisions. The authors further state that technological changes have not only increased the amount of information available to users ,but also, created an environment that is complex for them in terms of finding, accessing, selecting, evaluating and handling information. The success of the twenty first century University largely depends on how much quality, timely and relevant information its academic community is able to access and utilize, and how much the same community is able to generate and contribute back into the global information and knowledge basket.

Furthermore, according to Mukungu (2011) the development of IL skills has become an essential curricular goal in university education as these programs form the background of IL among students. Mukungu opines that where there is an effective IL program, integrated in the curriculum and involving the collaboration of librarians and faculty, the graduates are more likely to be information literate. University libraries have therefore been mandated by the Commission of University to develop a curriculum that will support the teaching of IL at the universities.

1.2.6 Information Literacy Programmes

Advent and application of ICT has changed the whole philosophy of information literacy. Libraries are now more concerned with those programmes which help their users to develop the ability to identify information needs, seek out resources to meet those needs and analyze, evaluate, synthesize, and communicate the resulting knowledge.

1.2.7 Information Literacy Standards and Guidelines

IL standards and guidelines provide guidance to the librarian as well as to the faculty. Professional bodies such American Library Association (ALA) developed standards and guidelines which other institutions of higher education are using as a framework for developing their standards depending on the institutional vision. Information Literacy Standards for Higher Education provides a framework of identify individuals with information literacy competency. ACRL has five standards and twenty two performance indicators (Association of College and Research Libraries, 2000).From the ACRL standards, one is considered to be information literate if:

- i. The student defines and articulates the need for information
- ii. The student can access needed information effectively and efficiently
- iii. The student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system
- iv. The student, individually or as a member of a group, uses information effectively to accomplish a specific purpose
- v. The student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally

1.3 Background to the Study

1.3.1 Strathmore University

Strathmore University (SU) is one of the private institutions of higher learning that was chartered in June 2007. The University's charter was gazetted under the Universities Act (Cap 210B) in Kenya Gazette supplement no. 47 (legislative supplement no 27). SU's vision is to be a centre of academic and professional excellence that provides all-round education in an atmosphere of freedom and responsibility. In its mission, the university dedicates itself to the advancement of education through teaching, scholarship and service to society by providing an all-round education in an atmosphere of freedom and responsibility, creating a culture of continuous improvement, fostering high moral standards and developing a spirit of service and respect for others. SU aspires to provide high quality and all-round education, which is geared towards forming students of high standards professionally, academically, morally and spiritually in an atmosphere of

freedom and responsibility. The university has nine schools serving a student population of 5,000 students. With this growth Strathmore University is committed to providing quality education to their stakeholders and this can only be achieved once the information literacy of the students is up to the set standards and the library has been entrusted to provide IL skills to the library users.

Strathmore has a well-stocked library that has both the print and non-print resources. The library is committed to collecting the information sources in all formats and providing quality services. The library consists of three departments: Information Services (Circulation, Special collections and periodicals, Audio visual and electronic service department), Technical Services and Information Literacy (Strathmore University Library, 2016).

Information Literacy department is in charge of all the IL trainings. Currently IL has been embedded within the communication skills units. Library users are introduced to concepts of information literacy, search skills on various databases, locating information resources, how to evaluate the information sources and using them effectively and ethically. The SU IL programme was started in 2011 by the University library. IL will provide skills and concepts that will enable the students to be critical thinkers and independent in their day to day work. Burkhardt, MacDonald, and Rathemacher (2002) concur by saying that IL encourages critical and independent thinking. Students are able to get what they need and also find information that will answer their questions appropriately.

1.3.2 Postgraduate Programmes at Strathmore University

Strathmore University is committed to providing high quality graduate education and research. The School of Research and Graduate Studies (SRGS) provides a stimulating research environment and continuous support to researchers and students and contributes to enhancing national, regional and international leadership in research and graduate education. The SRGS coordinates and facilitates postgraduate studies and activities at the University. Inherent in these responsibilities is the development, support and regular review of graduate programmes, oversight of graduate student admission in collaboration with the relevant faculties and schools, monitoring of school standards and requirements, and maintenance of accurate student records.

Currently, there are six schools offering different postgraduate programmes namely: Master of Commerce (MCOM); MSc in Information Technology (MSc.IT); Master of Science in Computer-Based Information Systems (MSc.CIS); Master in Education Management (MEM); Master in Applied Philosophy and Ethics (MAPE); Master in Educational Practice for Academics (MEPA); Master of Science in Biomathematics (MSc.B); Master of Science in Statistical Sciences (MSc.SS); Master of Science in Mathematical Finance (MSc.M) and various Phds. There are 811 postgraduate students enrolled in various fields of study in the 2015/2016 academic session.

1.3.3 Information Literacy in Kenya

1.3.4 Information Literacy Programme at Strathmore University

Strathmore University was the first to incorporate IL programme in their curriculum in Kenya. The programme of SU is under the custody of the library. The library's mission is

to support teaching and learning at Strathmore University by engaging students and staff in the development and application of skills needed to find, evaluate, and use information that will contribute to their academic success and lifelong learning goals. For this reason, Strathmore University is expected to produce high skilled graduates thus information literacy programme is very essential.

The programme was started in 2011 and it was integrated with communication skills. Communication skills is a course which covers many cross-cutting skills and is useful to students throughout their life. One of the skills to be covered was library skills, and this was redefined to become IL skills and given an additional time of 6 hours. SU library came up with the policies which opened a way for the development of an IL strategy. SU has divided the IL programme into three modules.

Module 1

- i. Library orientations/tours
- ii. Understanding organization of resources in the library
- iii. Types of Information resources (primary, secondary, tertiary)
- iv. Use of Reference books for information search
- v. Introduction to internet resources
- vi. Role of the world wide web (www) in academics, research and development
- vii. Search engines
- viii. Type of web resources
- ix. Evaluating internet resources

- x. Importance of electronic resources
- xi. Different search techniques
- xii. Introduction to open access resources

Module 2

- i. Importance of academic honesty and quality research
- ii. Intellectual property and fair use of copyrighted materials
- iii. Introduction to bibliographic citations

Module 3

- i. Introduction to Lib 2.0
- ii. Rich Site Summary (RSS) Feeds

1.4 Statement of the Problem

Information literacy plays an important role in empowering students with the necessary skills to access and use information resources in the library. Students require the information in order to fulfill their knowledge gaps and academic needs. Information seeking and use has become a complex process for higher education students due to the increase of information technologies and resources in all types of formats.

Students at post-graduate level need detailed and comprehensive information for their assignments and research. The skills needed to retrieve this information, and to determine which resources are authoritative and useful to the task at hand, are important in order to fulfill their academic requirements. Being able to locate, retrieve, assess and adequately use information has always been an important part of learning, particularly in an academic setting.

In SU, an information literacy programme has been operational since 2011. The present IL programme caters for both undergraduate and postgraduate students. The programme cannot fully address the IL needs of post-graduate students. The problem is that the students are not adequately prepared by the current curriculum to demonstrate efficient information literacy skills. Skills in information retrieval, evaluation and management are essential for the research of postgraduates. Since the program was launched, lecturers and library staff have observed that post-graduate students have not acquired the information literacy skills that will enable them to conduct their research and searching for information. They rely heavily on their lecture notes and library staff to seek information despite having been taught and equipped with information literacy skills. Post-graduate students' lack of adequate IL skills can negatively impact upon their ability to perform research related tasks. Therefore there is need to develop an IL programme capable of addressing the special needs of the postgraduates' students.

1.5 Aim of the Study

The aim of the study is to analyze the information literacy needs of postgraduate students at Strathmore University and to suggest the ways in which their needs can be met.

1.6 Objectives of the Study

- i. To determine the Information Literacy needs of post-graduate students at Strathmore University.
- ii. Identify Information Literacy skills that will enable students to conduct their research using effective information searching skills.

- iii. Find out the level of effectiveness of information literacy programmes attended by postgraduate students of SU.
- iv. Identify challenges faced by postgraduate students when locating, retrieving, assessing and using information at Strathmore University.
- v. To suggest possible ways in which the IL needs for post-graduates students can be met.

1.7 Research Questions

- i. What are the IL needs of post graduate students at Strathmore University
- ii. Do post graduates students have the ability and capacity to identify and locate appropriate sources of information?
- iii. How effective is the Information Literacy programme at Strathmore University?
- iv. What are the challenges faced by postgraduate students at Strathmore University when locating, retrieving, assessing and using information?
- v. What are the possible ways that IL needs for post-graduates students be met

1.8 Significance of the Study

1.8.1 Theoretical Significance

The study intends to bring in a new contribution to the existing body of knowledge on IL programmes for postgraduate students.

1.8.2 Practical Significance

The study will provide practical solutions to challenges facing IL programmes.

1.8.3 Policy-Related Significance

This study will guide policy formulation in regard to IL programme that caters for the needs of post-graduate students.

1.9 Scope and Limitations of the Study

1.9.1 Scope of the Study

Information literacy needs of post- graduate students at SU

1.9.2 Limitations of the Study

Post-graduate programmes at SU are offered in an evening mode of study. The researcher was not able to reach to the student because they come after office hours. The researcher therefore used online questionnaires so that respondents can be reached.

1.10 Chapter Summary

Chapter one of the study provides an introduction to the concept of information literacy and the need to develop formal IL programmes in universities. Thesis introduction also has a background of the study, the research problem, its significance and, scope. Chapter one of this study also highlights the limitations, and definitions.

1.11 Definition of Terms

Information - Knowledge, intelligence, facts or data which can be used, transferred, or communicated.

Information literacy – ability to identify that you need the information, what kind of information, how has that information been organized, locate, evaluate and use the information efficiently and ethically.

Information literacy assessment: Evaluation of the level of information literacy skills among individuals

Information literacy programme – Guidelines which are developed by institutions that will give them directions when they are carrying or planning the IL instructions

Information literate person - A person who can recognize when information is needed

Information Literacy skills - skills which one must have for him/her to be categorized as being information literate and have the ability to locate, evaluate, and use effectively the needed information.

Information resources: Reading materials available in different formats such as print format and electronic format.

Information Technology – Use of electronic devices to access the information

Library orientation. Activities that introduce patrons to the facilities, services, and policies of the library

Lifelong learning: The provision or use of both formal and informal learning opportunities throughout people's lives in order to foster the continuous development and improvement of the knowledge and skills needed for employment and personal fulfilment

Literacy –The ability to read and write or use language in its written or recorded form

Literacy rate: The percentage of people who can, with understanding, both read and write a short, simple statement about their everyday life (World Bank, 2007).

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter covers the theoretical framework of the study and also reviews literature in the field of Information Literacy, particularly in higher institutions of learning. The aim of this chapter is to have a critical analysis of literature in Information Literacy, the needs of postgraduate students, and the skills required to access and use.

The chapter not only reviews literature on key themes related to the study area, but also presents theories and models in Information Literacy.

2.2 Theoretical Framework

A theoretical framework can be seen as a map or a travel plan that guides you to your destination. ACRL standard, SCONUL model and The Seven faces of Information literacy.

2.2.1 ACRL Information Literacy Standards

Several IL standards have been developed by the library and information professions to guide the development of IL programmes. ACRL standards was endorsed by the American Association for Higher Education in 1999 and approved by the Board of Directors of the Association of College and Research Libraries (ACRL) in 2000. This Information Literacy Competency Standards are useful for identifying areas of emphasis that any serious institution of higher learning that intends to run a strong IL should follow. They provide that an Information Literate student is able to:

- i. Determine the nature and extent of the information needed.

- ii. Select the most appropriate investigative methods or retrieval systems for accessing the needed information.
- iii. Evaluate information and its sources critically and incorporates information into his or her knowledge base and value system.
- iv. Individually or as a member of a group, use information effectively to accomplish a specific purpose.
- v. Understand many of the economic, legal, and social issues coming the use of information.

2.2.2 The Seven Faces of Information Literacy

Bruce (1997) narrates that the relational model frames information literacy into seven different ways of experiencing information-use through active and reflective engagement with the relevant information practices. The Seven Faces of Information Literacy has been further elaborated below:

- i. Information technology conception, which associates information literacy with the use of IT to gather and communicate information
- ii. Information sources conception, where information literacy is perceived as the knowledge of sources and the ability to access these directly or indirectly via an intermediary
- iii. Information Processing conception, which describes information literacy as “executing a process” where a new situation is tackled through the use of an appropriate strategy to find and use information (Bruce, 2007). The nature of the process varies according to the participant of this process

- iv. Information Control conception - where information literacy is associated with the effective control and manipulation of information through the use of mechanical devices, memory, or IT (Bruce, 2007)
- v. Knowledge Construction conception, where information literacy is perceived as “building a personal knowledge base in a new area of interest”. Bruce stresses that this differs from the storage of information, because it involves the application of critical analysis of the information read (Bruce, 1997)
- vi. Knowledge Extension conception, which envisages the application of knowledge and personal perspectives that lead to new insights
- vii. Wisdom conception, which is associated with the wise and ethical use of information considered in a wider historical or cultural context. In addition, the information here undergoes “a process of reflection which is part of the experience of effective information use” (Bruce, 2004).

This framework was adopted in order to examine the relations between postgraduate views of information literacy and the conceptions of information literacy as expressed by users in Bruce’s (1997) relational model which frames information literacy into seven different ways of experiencing information-use through active and reflective engagement with the relevant information practices.

2.2.3 The SCONUL Model

The model is one of the several models that have been used in the areas of IL .The Society of College, National and University Libraries (SCONUL) working group has defined IL as an “umbrella term that encompasses concepts such as digital, visual and

media literacy, academic literacy, information handling, information skills, data curation and data management”. SCONUL came up with the seven pillars of IL model and since the introduction of the model, libraries and teachers worldwide are using the model in delivering the information skills to the learners (Society of College, National and University Libraries, 2011). The model has given an overview of IL in the context of higher education. The model has concentrated on the core skills and competencies (ability) and attitude and behavior (understanding) of an information literate person. Within the seven pillars of IL an individual can develop from “novice” to expert as they continue with their learning life.

The model has been built on a three dimension format and it is in circular in nature which demonstrates that IL processes is not linear. To become an information literate one has to develop through different stages/pillars and in each stage an individual is expected to learn new skills or ideas that will be useful in the other stages of development. An information literate person should understand that new information and data is constantly being generated and there is more to learn thus should develop a learning habit.

The SCONUL seven pillar models have covered in detail the skills that higher education should nurture in their students. The student should be able to identify information that he will use to solve a problem or for decision making. There is a lot of information which comes in different formats and a student should know the extent (scope) of the information that he will require, and define a strategy that will help them locate the resources. There are different techniques that are useful in locating and accessing useful information and students should know how to use. Student should be able to evaluate the

sources of information before they use. Electronic sources need to be evaluated because anyone can publish and post the work in the net. The student should synthesis the information and uses it to solve his problems or for decision making. Information should be managed professionally and ethically through the appropriate software's. They should acknowledge all their sources so as to avoid the plagiarism and copyright issues.

A person can develop his/her IL skills a step at a time. The model has seven pillars which include ability to identify a personal need for information, scope, plan, gather, evaluate, manage and present. It presents an iterative process by which the information user reaches competency at the expertise level by practicing the skills highlighted (Reham, 2013). The Seven Pillars Model suggests a progression of skills among university students, from recognizing the need for information; distinguishing ways in which an information gap is addressed; constructing strategies for locating information; locating and accessing information; comparing and evaluating information from different sources; organizing, applying and communicating information to others; to synthesizing and creating knowledge. It also displays what people need to develop as an information literate person; the circular form emphasizes the non-linearity of the development as well as the fact that for each individual within the seven pillars, developments can happen simultaneously and independently (Society of College, National and University Libraries, 2011). According to (Society of College, National and University Libraries, 2011) “information literate people will demonstrate an awareness of how they gather, use, manage, synthesize and create information and data in an ethical manner.

The model in Figure 2.1 is conceived as a three dimensional circular, which was founded on an information landscape which comprises the information world. The circular nature

of the model signifies that becoming information literate is not a linear process. The following are the seven pillars:

1. Identify:

It's described overall as the ability to identify an information need. An information literate person should be able to identify the information gap in a subject area, come up with a topic/question in a simplified format then use the available information in answering the problem. If the literature doesn't solve the problem that is the time you will recognize that there is need for information and data.

2. Scope:

According to this pillar, an information literate person "can assess current knowledge and identify gaps". For example, an understanding of types and formats of information and the interrelationship of both, or the ability to identify the best - suited types of information to address the information need.

3. Plan:

Is the competency to "construct strategies for locating information and data". For example, an understanding of searching techniques and the ability to "select the most appropriate search tools".

4. Gather:

People who are competent in this area "can locate and access the information and data they need". They understand the organization of data or "the risks involved in operating in a virtual world" and on the skills level they are able to use a variety of retrieval tools and resources or to find out that their information need has not been met.

5. Evaluate:

Is overall referred to as the ability to “review the research process and compare and evaluate information and data”. A competent evaluator, for example, understands criteria for evaluation of information and sources, such as accuracy, reputation or relevance, and has the ability to apply them.

6. Manage:

This pillar is about the ability to “organize information professionally and ethically”. It includes, for example, an understanding of the notions of honesty with regard to information use as well as communication, systematic records or ethical storage, and the ability to cite sources correctly.

7. Present:

A competent information presenter “can apply the knowledge gained: presenting the results of their research, synthesizing new and old information and data to create new knowledge and disseminating it in a variety of ways”. For example, he understands “the difference between summarizing and synthesizing” and has the competency to do both of them orally and in written format.

The SCONUL model which is illustrated in figure 2.1 is conceived as a three dimensional circular “building”, founded on an information landscape which comprises the information world as it is perceived by an individual at that point in time (<https://www.sconul.ac.uk>). This study will adopted SCONUL seven pillars of information literacy as the framework that would appropriately inform the current study. The SCONUL framework was deemed appropriate because it was reviewed and updated in 2011 in line with the changing world of information and because it provides for the

essential skills that students in university and colleges should possess. Each pillar represents IL skills that an information literate person should possess.

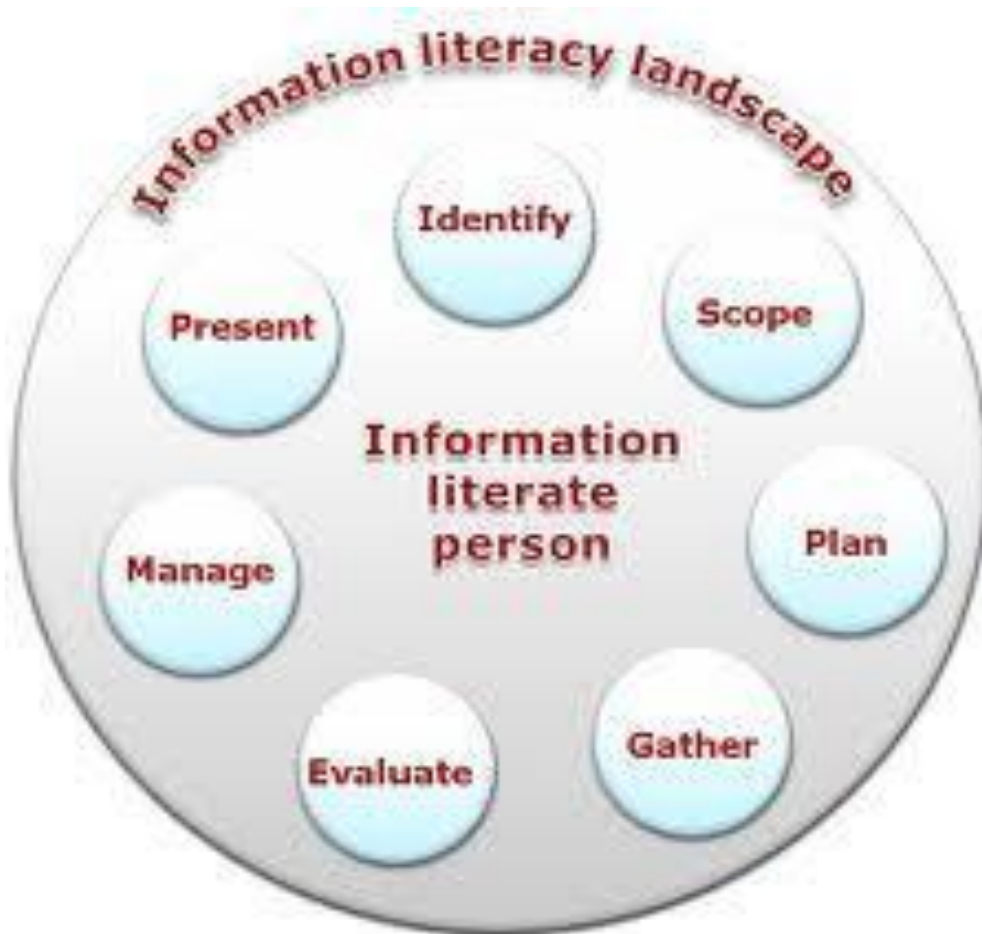


Figure 2. 1: SCONUL Model for Higher Education (2011)

Source: <https://www.sconul.ac.uk>

2.3 Review of Related Literature

2.3.1 Information Literacy Instructions

The urgent need for information literacy skills creates a strong need for information literacy instruction. The role of information literacy instructions is to create a life-long learner. IL makes students to be independent and critical thinkers when they want to

make decisions or to solve problem. “Due to information explosion it has become increasingly clear that students cannot learn everything they need to know in their field of study, within a few years, at school or the university. Information literacy equips them with the critical skills necessary to become independent lifelong learners” (Ranaweera, 2008). IL trainings will enable the students to be familiar with resources that are available in their field of interest. It is the role of the library to provide IL instructions to the stakeholders of the institutions. According to Labelle and Nicholson (as cited by Laura Thorne (2012), academic librarians should see the need of IL instructions by observing the difficulties that students go through when they are carrying out their research. The library should provide proper training to students in regards to different sources of information and how to use the available information tool. Development and implementation of an IL instructions programme is one of the initiatives that the library should undertake so as to provide appropriate skills and knowledge to the students.

2.3.2 Types of IL instructions

All graduate students, whether coming directly from an undergraduate experience or returning after an extended absence from higher education, are beginning a new level of research that is more sophisticated than they have previously experienced. To prepare these students instruction librarians should offer the following:

i. Library Tours and Orientations

When students need to learn about the information resources relevant to their program of studies as well as the services accessible on and off campus, tours and orientations provide an awareness of resources and services available in the library.

ii. **Introductory Classes**

Introductory information literacy classes are appropriate when students have an immediate need to locate, retrieve, use, communicate and cite information for a course or assignment. Information literacy classes moreover focus on using the library search tool, databases, and/or internet to locate appropriate course resources, evaluate information & sources, discuss plagiarism, and identify citation information needed for a references list. Besides, IL classes assist students to develop critical, evaluation, organization and presentation skills. These classes provide students with information and hands-on activities that result in a measurable skill set.

iii. **Advanced Classes**

Advanced information literacy classes are appropriate when students need to do more in-depth research and apply further critical evaluation skills to their search for information. This may include developing more complex search skills or using a wide variety of specialized resources, library web 2.0 and the use of RSS feeds.

2.3.3 Role of Information Literacy Instruction in Higher Education

Over the last few years information literacy has become internationally recognized as a crucial skill for students at higher education institutions. Universities recognize the need to develop post-graduate student skills beyond those conventionally taught within disciplinary programs. Unfortunately, one area that is not formally supported is information literacy development. Students have been surrounded with many sources of information. Not all information created is equal: some is authoritative, current, reliable, but some is biased, out of date, misleading, and false (Tonderai & Edwin, 2013). The main goal of information literacy instructions is to teach students how to learn and to

become independent learners (Oakleaf, 2009). The instructions will provide students with the critical skills that will help them manage their academic work. The learned skills will enable the students to find, locate, analyse and communicate information.

2.3.4 Information Literacy Skills

Students in higher education engage on research on daily basis through their assignments, theses and dissertations. IL skills are vital at all levels of education because student will require information so as to complete their work. Unfortunately, many graduate students do not have the required skills and knowledge to do the research required at a graduate level. With more and more information available, students are easily over loaded with data and information. To sum up, Librarians need to collaborate with faculties so as to provide IL trainings to students at all levels.

Information literacy skills are useful, especially to students, and will prepare them to be successful in their academic life and in their future job opportunities (Ranaweera, 2008). The skills are importantly critical skills that each individual should possess in this era of information technology. In particular, explosion of the internet has led to information overload and this has complicated access and retrieval of the information. Students need to develop an understanding of information sources and abilities to acquire, evaluate, use and communicate. The skills that students will get will indeed enable them to be creative and analytical when they are evaluating the different sources of information. “Information literacy skills would lead to independent and student-centric learning, rather than dependence on the teacher to provide answers to questions or problems that they

encounter (Sasikala & Dhanraju, 2011). Below are the information literacy skills that an information literate person should have.

- i. Identify available resources (print and electronic resources)
- ii. Acquire the ability to match resources to the information needed
- iii. Distinguish between a journal, magazine, and newspaper
- iv. Brainstorm keywords from a topic/topic sentence
- v. Demonstrate the ability to search with keywords in online catalogs, databases, and internet search engines
- vi. Use call numbers to locate physical materials within the library
- vii. Distinguish between citations, indexes, abstracts and full-texts in online resources
- viii. Apply web evaluation skills
- ix. Use the citation styles recommended for subject areas
- x. Search for information in specific databases using keywords and controlled vocabulary
- xi. Understand the ethical issues surrounding information use (copyright and plagiarism)
- xii. Interpret part of bibliographic citations and abstracts (how to use the abstract as the summary).

2.3.5 Assessment of Information Literacy

The mission and vision of any academic institution is to produce graduates who will be competent in the job market. Unfortunately students have turned to google and other search engines for their research and library resource are no longer being used. “The

development of information literacy strategies may be one of the ways libraries can continue to be a relevant” (Thorne, 2012). Faculties within the university should therefore collaborate with the library so as to provide IL instructions to the students. Through assessment the librarian will know whether the trainings they offer have any significance to the learning of the students. “Librarians need to adopt conceptual frameworks of assessment that will enable them to facilitate learning, increase instructional quality, and answer calls for accountability (Oakleaf, 2009).

Libraries need to determine how the effectiveness of the programme through regular assessments. From the feedback about the IL programme, the library can now work on improving the programme and its structure.

2.3.6 Information Seeking Behavior of Post-Graduate Students

Information seeking behaviour is defined as a purposive process of seeking information as a consequence of a need to satisfy some goals (Wilson, 1999). Information needs and seeking behavior of post-graduates students are changing due to several factors such as availability of information in multiple formats, new information discovery and delivery channels. Postgraduate students are among the major users of library resources and they use a variety of information sources to meet their diverse information needs (Majid, Hayat, Patel, & Vijayaraghavan, 2012). Information seeking behavior involves personal reasons for seeking information, the kinds of information which are being sought, and the ways and sources with which needed information is being sought (Prabhavathi, 2015). Nowadays, most users value Internet search engines for their convenience in searching for information. Google has been identified as their first choice for fast searches, thus by

passing other information resources. Thus the increase in availability of information on the Web has affected Information seeking behavior of graduate students.

2.3.7 Information Literacy Standards and Guidelines

Schools and institutions of higher education worldwide have implemented different IL standards and guidelines. Information Literacy Standards for Higher Education provides a framework of identify individuals with information literacy competency.

2.3.7.1 ACRL information Literacy Competency Standards for Higher Education

Professional associations, like the American and Australian library associations, have developed guidelines and standards for information literacy in the hope that they will be built into higher education programmes. The ACRL's Information Literacy Competency Standards for Higher Education were published in 2000 and have been widely accepted (Gullikson, 2006). The researcher adopted this framework of the ACRL standards, which propose outcomes and performance indicators, which can be adapted to the institution's needs. These indicators serve as guidelines to use for the development of the researcher's interventions as they provide competency levels to assess students' abilities.

The standards are structured in a logical hierarchy where each standard leads to several performance indicators and outcomes. A performance indicator answers the question "What do we want the student to learn?" A learning outcome answers the question: "How do we know that the student has learned?" (Association of College and Research Libraries, 2003).

The Table 2.1 below shows the five standards and the twenty two performance indicators.

Table 2.1: Information Literacy Standards Competency Standards for Higher Education

Information literacy competency standards	Performance indicators
<p>Standard one IL person determines the nature and extent of the information needed.</p>	<ol style="list-style-type: none"> 1. IL person defines and articulates the need for information. 2. IL person identifies a variety of types and formats of potential sources for information. 3. IL person considers the costs and benefits of acquiring the needed information. 4. IL person re-evaluates the nature and extent of the information need.
<p>Standard two IL person accesses needed information effectively and efficiently</p>	<ol style="list-style-type: none"> 1. IL person selects the most appropriate investigative methods or information retrieval systems for accessing the needed information. 2. IL person constructs and implements effectively designed search strategies. 3. IL person retrieves information online or in person using a variety of methods. 4. IL person refines the search strategy if necessary. 5. IL person extracts, records, and manages the information and its sources.
<p>Standard three IL person evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.</p>	<ol style="list-style-type: none"> 1. IL person summarizes the main ideas to be extracted from the information gathered. 2. IL person articulates and applies initial criteria for evaluating both the information and its sources. 3. IL person synthesizes main ideas to construct new concepts. 4. IL person compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information. 5. IL person determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences. 6. IL person validates understanding and interpretation of the information through discourse with other individuals, subject-

	<p>area experts, and/or practitioners.</p> <p>7. IL person determines whether the initial query should be revised.</p>
<p>Standard four IL person, individually or as a member of a group, uses information effectively to accomplish a specific purpose.</p>	<ol style="list-style-type: none"> 1. IL person applies new and prior information to the planning and creation and creation of a particular product or performance. 2. IL person revises the development process for the product of performance. 3. IL person communicates the product or performance effectively to others.
<p>Standard five IL person understands many of the economic, legal, and social issues surrounding the use of information ethically and legally.</p>	<ol style="list-style-type: none"> 1. IL person understands many of the ethical, legal and socio-economic issues surrounding information and information technology. 2. IL person follows laws, regulations, institutional policies, and etiquette to the access and use of information resources. 3. IL person acknowledges the use of information sources in communicating the product or performance.

Source: www.ala.org/acrl/standards/informationliteracycompetency

2.3.8 Information Literacy Programmes in Higher Education

Developing life-long learning is a vision that each institution is focused on achieving. Information technology (IT) has again brought many changes in the way information is packaged. Information sources are moreover available in different formats and access to information has become very easy. University students therefore have a greater challenge in locating and evaluating the right information as Leckie and Fullerton (1999) also note that “students cannot select appropriate sources of information, do not understand the structure or purpose of different sources of information, and cannot critically evaluate the information they retrieve”. There is a lot of information in the internet and library patrons

are being faced with information overload and too much information can cause barriers in our lives.

There is need for IL in the academic and professional environment and Bruce (2004) agrees by stating that “Information literacy is a natural extension of the concept of literacy in our information society, and information literacy education is the catalyst required to transform the information society of today into the learning society of tomorrow.

According to Commission of Higher Education (2007), “Information literacy significantly contributes to the learners becoming more self-directed thus assuming greater control of their learning”.

2.3.8.1 Information Literacy Programmes in Kenyan Universities

Information literacy is one of those skills which extends learning beyond formal classroom settings as individuals move out of the university into areas of responsibility. Developing lifelong skills is central to the mission of higher education institutions and should provide the foundation for the continued growth of students in their later careers, and as members of the community (Muema, 2003). The Kenyan government introduced Free Primary Education (FPE) in the year 2003 and this has led to the increase of numbers of both primary and secondary schools children and it has resulted to rapid increase of university education.

Universities have orientation programmes which are offered to freshmen soon after admission. Most universities have integrated IL programs in their curricula in order to equip their students with IL skills. Strathmore University IL programme was developed

based on the international and CUE standards. The programme was designed to cater for both undergraduate and post graduate students.

Post graduate students of any university need to be information literate. They undertake research that effect change in the society; their findings solve societal problems. It is therefore important for them to acquire information literacy skills so that they do not reinvent the wheel. In the Kenyan perspective, a lot of research has been done on Information literacy and but there is none that has been done on post-graduates information literacy.

2.3.8.2 Commission of Universities Education (CUE) Guidelines on IL

Schools and institutions of higher education worldwide have implemented different IL standards and guidelines. In Kenya Commision of Universities Education (CUE) has defined some standards and guidelines that universities must follow. CUE's standards mandates the library in the provision of IL programs to the university community. The University library shall facilitate academic success and encourage lifelong learning through information literacy and competency initiative (Commision of Universities Education, 2014). CUEs guidelines recommends that universities should integrate information literacy and competency programs in the academic programes of undergraduate and postgraduates' levels.

2.3.8.3 SWOT Analysis on IL program at Strathmore University

A SWOT analysis will be conducted on the current status of IL program at SU. The purpose of the SWOT analysis will be to build on the strengths, minimize on the

weaknesses, seize the opportunities and deal with the identified threats. After a critical evaluation of the existing programmes, it was also possible to determine factors that were likely to influence libraries to achieve their stated missions and goals. Consequently, it will be possible to chart the way forward for the SU to re-engineer the current IL programmes as shown on Table 2.1.

Table 2.2: SWOT Analysis on IL program at Strathmore University

<p>STRENGTHS</p> <ul style="list-style-type: none"> ● Experienced and qualified staff ● Commitment to strong instruction Program ● Collaborations between library and faculty ● Liaison librarians for every school ● Library workshops and orientations ● Strong print and online resources ● support from University Administration ● Adequate electronic infrastructure 	<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> ● Marketing library services and collections ● Collaboration and teaching with the faculty ● Career development ● Digital collections ● Increasing amount of electronic resources ● Internet alternatives to library services
<p>WEAKNESSES</p> <ul style="list-style-type: none"> ● policies not enforce ● poor external communication ● Underutilization of e-resources 	<p>THREATS</p> <ol style="list-style-type: none"> i. Users find information elsewhere (Google)

2.3.9 Barriers to Implementing Information Literacy in Africa

Information Literacy is essential to achieve the University's goal to graduate well-rounded adults capable of critical and independent thinking. It will help graduates to be among the most successful and will give them the skills they need to maintain a permanent love of learning. Application of information literacy skill programme differs from one university to another and from one library to another which may culminate into

barrier or success to information utilization. Below are some of the barriers to information literacy in Africa:

i. **Information Literacy Policy**

Lwehabura and Stilwell (2008) illustrate that there is no dedicated IL policy to guide IL practices. According to (Amunga, 2011), there is still no formal collaboration between the librarians and academic staff in designing and mounting information literacy programs. The lack of clear policy guidelines to formally bring the two together she observed leads to uncoordinated initiatives like the communication skills course where the librarian plays a fringe role. Amunga notes that “the lack of a clear information literacy policy is the key challenge to collaboration”.

Mwangi (2007) concurs observing that the lack of information literacy related policy in many academic institutions locally, fuels the conflict between librarians and lecturers as well as cementing negative attitudes of users towards the library. A clear policy would not only iron out such differences, but would also state clearly the scope of who should teach what, where and when it should be mounted with specific objectives

ii. **Research Skills**

Students tend to use the Internet for playing games, chatting, downloading music and movies, such that if they turn to scholarly electronic resources licensed by libraries, their search skills are poor and they are unable to distinguish appropriate from inappropriate resources for their assignments (Selematsela, 2005).

iii. **Students Attitude**

Selematsela (2005) observes that "modern students' behavior leaves much to be desired." The perception is that they read less and have less intellectual curiosity or it could be that they are too busy to explore and learn about what libraries have to offer and also there is lack of awareness among students about the IL instruction sessions on offer.

iv. **Technological Issues**

Insufficient computer facilities and slow Internet connections makes efficient Information literacy teaching very difficult and a lack of technology and qualified staff has made it difficult to develop meaningful information literacy programs and projects that would lead towards optimal exploitation of the available information resources (Ogunsola, Akindojutimi, & Omoike, 2011)

2.3.10 Library and Faculty Participation in Information Literacy

Success of students in this digital era will solely depend on the IL skills of an individual. Librarians and the teaching faculty staff have joined forces so as to provide students with the support in locating and accessing different sources of information. Librarians and faculty must work closely so that they can enhance IL skills for the students. Lindstrom and Shonrock (2006) observes that "Librarians must be fully prepared and feel competent to work with classroom faculty in teaching students how to use technology to access information and then how to utilize critical thinking in the selection of information". Lindstrom and Shonrock (2006) also notes that university libraries promote the faculty-librarian collaboration by introducing the subject specialist librarians who will work in liaison with various departments. The work of the liaison librarian is to coordinate with the faculty on how they should teach information literacy to the students.

2.4 Chapter Summary

The researcher has examined various literature that are relevant to this study. In this chapter, the study confirms that Information Literacy is a vital skill that needs to be taught at the undergraduate and postgraduate level in institutions of higher learning. Literature reviewed also indicate that students should be able to know when they need the information, what kind of information they need, how to locate the information and to know if the information is from the right source.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology that was applied in the study. Research design and methodology is explained in detail. It further illustrates why the chosen methodology was considered as appropriate for gathering data in line with the following research questions in chapter one: What are the post graduate students' IL needs?, Do the post graduate students have the capacity to identify and locate appropriate sources of information?, How effective is the information literacy programme for postgraduate students at SU? , What are the challenges faced by postgraduate students at Strathmore University in Information Literacy efforts?? What are the possible ways which Strathmore university can meet the IL needs of the students? This chapter gives details of the methods that were used in data collection and analysis and the ethical considerations that the study adhered to while conducting the research.

3.2 Research Approach

The study used mixed method design which includes both quantitative and qualitative elements. This method, according to Leedy and Ormrod (2014) gives a more holistic picture of the phenomenon that is being evaluated. The qualitative research method brings with it subjective, descriptive, interpretive and evaluative elements. The quantitative research method brings with it the element of generalizing results from numerical data. These qualitative and quantitative elements with its benefits and limitations are combined to complement each other's weaknesses. According to Johnson, Onwuegbuzie and Turner (2007) mixed methods research attempts to legitimize the use

of multiple approaches in answering research questions, rather than restricting or constraining researchers choices by rejecting dogmatism.

3.3 Research Design

The research method chosen for this study is survey method. The choice of this method was necessitated by the topic of the study. A survey research deals with gathering data about people and their thoughts and behavior. There are numerous reasons for using a survey as a method in research. Bell (2013) states that “the aim of a survey is to obtain information which can be analyzed and patterns extracted and comparisons made”. In other words, the purpose of survey research is to gather and analyze information by questioning individuals who are either representative of the research population or are the entire research population. Pickard (2007) also states that the term survey usually refers to a “study that has used a representative sample and questions must be asked using a standardized questioning procedure applied equally and consistently to all research participants”. It involves the systematic collection of data on an entity or a group of entities or operations and drawing conclusions from what the data shows. It provides in-depth investigation and it also allows for the studying of both large and small populations. Survey research method was considered suitable for this research due to the large sample of the population.

3.4 Study Population

Cooper and Schindler (2014) describe a population as a total collection of elements whereby references have been made. In this study, the population consisted of all 2015/2016 postgraduate students of SU. According to Strathmore Graduates Studies

(SGS) postgraduate's statistics, Strathmore University has a population of 811 postgraduate students as shown in Table 3.1.

Table 3.1: Post-Graduates Students per Programme

Academic program	Population
MSIT	65
MSCBIS	27
MCOM	98
MTI	148
MBA	327
MPPM	54
MEPA	12
MAPE	12
MSc.ISS	33
MSc.MathFin	6
MSc.EDM	16
PHD	13
Total	811

3.5 Study Sample Size

Kothari (2011) defines sample size as number of items to be selected from the universe to constitute a sample. The sample size is the smaller set of the larger population (Cooper & Schindler, 2014).. According to Kumar (2005) data can be collected till one reaches a point of saturation. Time and financial resources factors have been considered when

selecting the sample size of the postgraduate students. Determining the sample size is a very important issue for collecting accurate results. To obtain a minimum population, the study adopted the table for determining sample size as shown in Appendix 9.

Table 3.2 shows the study sample size by program.

Table 3.2: Study Sample Size

Academic program	Population	Sample size
MSIT	65	56
MSCBIS	27	24
MCOM	98	80
MTI	148	108
MBA	327	175
MPPM	54	48
MEPA	12	10
MAPE	12	10
MSc.ISS	33	32
MSc.MathFin	6	6
MSc.EDM	16	14
PHD	13	10
Total	811	573

3.6 Sampling Methods

The study employed probability sampling and non-probability methods. Probability sampling is sampling in which the researcher can determine the chances each element in the sampling frame has to be included in the sample while non probability is a situation where the researcher chooses the area of which much of information of interest can be

obtained. Non probability sampling was necessitated in this study to enable the researcher to focus on in-depth information collection to help to draw some meaningful summaries from the information collected. Probability sampling gives each and every member of the population an equal chance of being selected for the sample. Probability sampling is usually used in quantitative research because it randomly draws representatives from a wider population and thus, allows the researcher to make generalizations from the findings of the study (Cohen & Manion, 2011). Similarly, Pickard (2007) confirms that “probability sampling is vital in order to make valid generalizations about the wider population”, Likewise Cohen and Manion (2011) note that a probability sample has less risk of bias than a non-probability sample. Probability method was used to choose respondents according to their strata’s of academic programmes and hence used to determine the respondents that were interviewed in this study. Non-probability sampling is whereby the researcher has no means of determining the chances of inclusion to the sample of a particular element in the population

3.6.1 Probability Sampling

For the post graduate students, probability sampling will be used because each student will have an equal and independent chance of being selected in the sample.

3.6.2 Non Probability Sampling

The study used non-probability sampling in selecting IL trainers at Strathmore University.

3.7 Sampling Techniques

The study employed stratified random and purposive random sampling techniques.

3.7.1 Purposive Sampling

The study used purposive sampling in selecting IL trainers at Strathmore University. The 9 IL instructors were subjected to focus group discussion.

3.7.2 Stratified Sampling

Stratified sampling techniques were used to categorize the respondents to be included in the sample. A stratified sampling technique is used to identify sub-groups in the population and their proportions and select from the sub-groups the respondents to form sample size. Stratified sampling was used to ensure that the target population was divided into different strata and each stratum is represented in the sample. The postgraduate students were first categorized according to their academic programme. There after a sample was taken from each of these strata using simple random sampling.

3.7.3 Simple Random Sampling

Simple random sampling was used to select individuals in various academic programme to participate in this study. Individuals from each academic programme were randomly selected till the sampled number was arrived at. According to Chadwick, Bahr and Albrecht (1984), each member of the population has an equal chance of being selected as subject. The entire process of sampling is done in a single step with each subject selected independently of the other members of the population. Each member in the population of this study is assigned a unique number.

3.8 Data Collection Methods

3.8.1 Administration of Questionnaires

A questionnaire is a list of questions which has been prepared by the researcher. Questions were distributed to the respondent who will interpret and provide the answer depending on the way he has understood the question. Questionnaire was used as the instrument for data collection for this research because the researcher can reach a large and geographically dispersed community at relatively low cost. Considering its significance, Osuala (2001) posited that a questionnaire is more economical for reasons of the time involved in conducting a research, and is directly associated with survey research design methods. Also, a questionnaire's ability to elicit both qualitative and quantitative data on an observable behaviour such as feelings, attitudes, ideas, opinions and viewpoints made it an instrument of choice.

This method was preferred because of the nature of the respondents. The respondents are part-time students who work on tight schedule. The researcher collected the emails of the respondent from the programme managers, and prepare questions and send them online.

3.8.2 Focus-Group Discussion

Focus group interviewing provides opportunities for the members of a group to interact with each other and stimulate each other's thinking. Focus groups were selected as research tools because they allow participants to explain their experience in depth, with more detail than a survey allows (Langford, & McDonagh, 2003).

It is not desirable or necessary for the group to reach consensus in their discussion (Lichtman (2010). Lewis (1995) is of the opinion that the group interaction may trigger

thoughts and ideas among the participants that do not emerge during an individual interview. This method was applied to interview librarians who are IL trainers in this study.

Focus group was conducted with nine IL trainers. The one hour focus group were held in a library conference room, conducted by the researcher, and tape recorded for subsequent transcription. The respondents were asked to state their professional qualifications to establish the qualifications of the staff providing IL programmes in the library. The respondents were also asked about the effectiveness of IL skills offered in the library to establish if the current IL programme was effective. The researcher sought also to know challenges that face IL programmes from the discussants (Appendix 3).

3.9 Data Collection Instruments

The main data for this research was collected using google docs form questionnaires tool and also Focus Group discussion with selected IL trainers. Other online survey tools such as monkey survey, were also considered. Google doc form was found to be the most appropriate and convenient for this research for its ease of use.

3.9.1 Questionnaire

A questionnaire is a written collection of questions to be answered by a selected group of research participants. Questionnaires are usually mailed or e-mailed to potential participants. A questionnaire administered in this way is relatively inexpensive and usually permits the collection of data from a much larger sample than an interview or personally-administered questionnaire. The demerits are that paper and pencil questionnaires mailed to respondents do not allow any opportunity to establish rapport

with the participants and the investigator cannot explain any unclear terms. The merits usually outweigh the demerits, especially if the sample is large or geographically scattered (Gay, Mills & Arasian 2006). According to Bryman (2012) Bryman, a self-completion questionnaire is quicker to administer, can be distributed in very large quantities and at the same time, eliminate the interviewer effects. The researcher administered one set of questionnaire to collect data from the post-graduate students sampled from the entire population. This approach was appropriate for studying the respondent's experiences, knowledge and opinions, especially from a large population. The respondents had enough time to think through their answers at their convenient time. A semi-structured approach was employed for ease of coding while allowing the respondents to freely express their opinions.

3.9.2 Focus-Group Discussion Guide

Focus-group discussion is a means of gathering together people from similar backgrounds or experiences to discuss a specific topic of interest. The purpose of FGD is to gain knowledge about a particular topic or need by interviewing a group of people directly affected by the issue. FGD was conducted with IL trainers. FGD was selected for this research because the participants have an in depth experience and details about the IL program of SU as shown on Appendix 3.

3.10 Validity and Reliability of Data Collection Instruments

3.10.1 Validity of Data Collection Instruments

It involves asking the right questions, following the objectives and, getting the intended information which is relevant. According to Sarantakos (2005), "validity tells the

researcher whether an instrument measures what it's supposed to measure and whether this measurement is accurate and precise". Validity was ensured by preparing questions which would measure the IL needs among the post-graduates. Questionnaires were formulated according to the objectives. The questionnaire was also scrutinized by experts and lecturers of Moi University.

3.10.2 Reliability of Data Collection Instruments

Mugenda and Mugenda (2003) defines reliability as "a measure of the degree to which a research instrument yields consistent results or data after repeated trials". If the researcher can get the same results under the same methodology, then the instruments will be considered reliable. Reliability can be obtained using the same instruments if the researcher asks the same questions to different students and the results obtained are consistent. The Researcher also used cronbach alpha reliability test which yielded a reliability coefficient of 0.8. This was considered within acceptable limits.

3.10.3 Pretesting Data Collection Instruments

A pilot study was done to pre-test the online questionnaires in order to make the necessary changes and corrections before sending the final version to the respondents. The survey was sent out to twenty selected students from different masters' programs through their e-mail messages containing the link to the questionnaire. Pre-test questionnaire was meant to test if the questionnaire was too long, clear, if it had grammatical mistakes technical terms or jargons, and if the objectives were adequately covered in the questionnaire as indicated in Appendix 4. To test validity, the researcher came up with questions pertaining to all that the researcher wanted to find out during the research. For instance, were the questions in line with the research objectives, and

research questions? For reliability, the researcher asked the same question but framed differently, in order to capture and assess the responses from the selected post graduates students.

3.11 Data Presentation, Analysis and Interpretation

The questionnaires gathered both qualitative and quantitative data. The quantitative data was analyzed by the use of frequency tables. The qualitative responses from the questionnaire was tabulated, coded and processed by use of the Statistical Package for Social Sciences (SPSS) version 22.0. This made it easy to generate frequency tables and percentages. The data from SPSS was presented in the tabulated output as well as graphs and pie charts. All the open ended questions were analyzed and presented in a descriptive narrative.

3.12 Ethical Considerations

The following ethical considerations guided the study.

- i. **Plagiarism:** The researcher ensured that all sources that have been used to develop this research are acknowledged according to SU rules.
- ii. **Confidentiality:** The researcher ensured that the confidentiality respondents was maintained.
- iii. **Voluntary participation:** This meant that respondents was free from coercion. Participants were free to withdraw their participation at any time. The study ensured that respondents were not coerced into participating in the research study.

3.13 Chapter Summary

This chapter presented the methodology and the methods that were used in carrying out the study, the sample and sampling used and the research instruments that were used in

gathering data. Data analysis and the ideas of this chapter were helpful in making sure that the approaches taken in the study relating to data collection, analysis and presentation, adequately served the aim and objectives of this study. The procedures given by the chapter were also vital in ensuring observance to ethical concerns in the research throughout this particular study.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents data that was collected and analysed based on:

- (i) questionnaires that were distributed to post-graduate students at SU,
- (ii) focus group discussions that were subjected to IL trainers at SU.

The data collected was presented, analyzed and interpreted according to the aim of the study, which was to analyze the information literacy needs of post-graduate students at SU. The respondents were categorized based on the programmes as shown in Table 4.1.

A total of 573 Post graduate students participated in this study, 54% of the respondents were in their first year and 46% were in their second year. According to academic programme, 30.8% were MBA postgraduate 18.8% MTI postgraduate students, 14% MCOM (Table 4.1).

Table 4. 1: Academic Programmes and Year of Study of the Respondent

Academic Programme	Year of study					
	Year one		Year Two		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
MSIT	27	8.8	29	10.9	56	9.8
MSCBIS	13	4.2	11	4.2	24	4.2
MCOM	44	14.3	36	13.6	80	14
MTI	54	17.5	54	20.4	108	18.8
MBA	94	30.5	81	30.6	175	30.5
MPPM	27	8.8	21	7.9	48	8.4
MEPA	9	2.9	1	0.4	10	1.7
MAPE	5	1.6	5	1.9	10	1.7
MSc.ISS	20	6.5	12	4.5	32	5.6
MSc. MathFin	4	1.3	2	0.8	6	1
MSc.EDM	8	2.6	6	2.3	14	2.4
PHD	3	1	7	2.6	10	1.7
Total	308	54%	265	46%	573	100%

4.1.1 Procedure for Organizing Data

In order to organize and categorize the data obtained through the administration of the online questionnaire and the FGD, the following procedure was used:

- i. The response were retrieved and captured into soft copy of SPSS. All responses were coded. The coding into categories were developed in a way that reflected on the responses from the respondents
- ii. From the open ended questions, thematic themes were formed that were also given codes accordingly
- iii. Data was analyzed and presented in frequency tables and graphs. They were presented and interpreted as discussed below

The findings were discussed in the following sub headings: Information literacy needs of post-graduate students at SU, Information literacy skills of postgraduate students at SU, effectiveness of information literacy programmes attended by postgraduate students of SU, Challenges faced by postgraduate students for lack of information literacy skills and suggestions for improving post-graduate literacy skills.

4.2 Information Literacy Needs of Post-Graduate Students

4.2.1 Information Literacy instructions

As shown in Figure 4.1, respondents were asked to state whether post-graduate students need Information literacy instruction on how to use library information resources in their subject areas, 92% agreed as opposed to 8% of respondents. An indication that there is great needs in information literacy skills among postgraduate students. According to Ranaweera (2008) Information Literacy skills is very vital students' success in academic

life and in securing future opportunities. The FGD also affirmed that the post-graduate students lacked many required skills thus there is a real need for an IL instruction

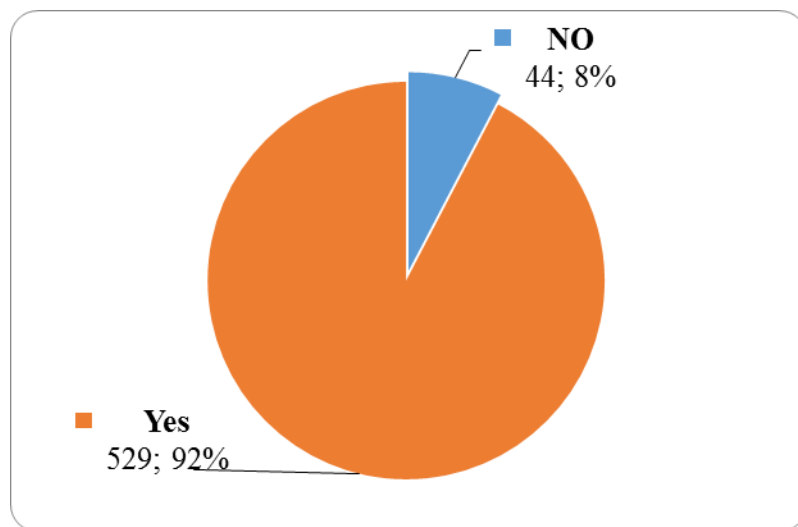


Figure 4.1: Need of IL Instruction Uses of Library Information Resources in Subject Areas

Comparatively, Dhanaju (2011) points out that there is need for students in institutions to develop a holistic understanding of how to access, evaluate and retrieve information from various sources to enable them critically analyze and use the information. Post graduate students who are much involved in researches need to be independent rather than dependent to teachers to providing solutions to challenges that they face that would otherwise have been solved through well-equipped in information literacy skills.

4.2.1 Experience in the use of Library Resources

The researcher further sought to know the extent in regard to experience the post graduate students had in the use of library resources and access to the online databases for their research. When the respondents were asked on a scale of 1 to 4, where 1=Experienced, 2=Not experienced, 3= somewhat experienced and 4 = very experienced, more than a

third (38.6%) and 38.4% of the respondents termed their experience in the use of library resources and access to the online databases for their research as experienced and somewhat experienced, respectively. Only, 3.4% of the respondents said they were very experienced while 9.6% said they had no experience as indicated in Figure 4.2. The findings indicated that almost half (48%) of the respondent were below average in experience in the use of library resources and access of databases for their research (Not experienced and somewhat experienced).

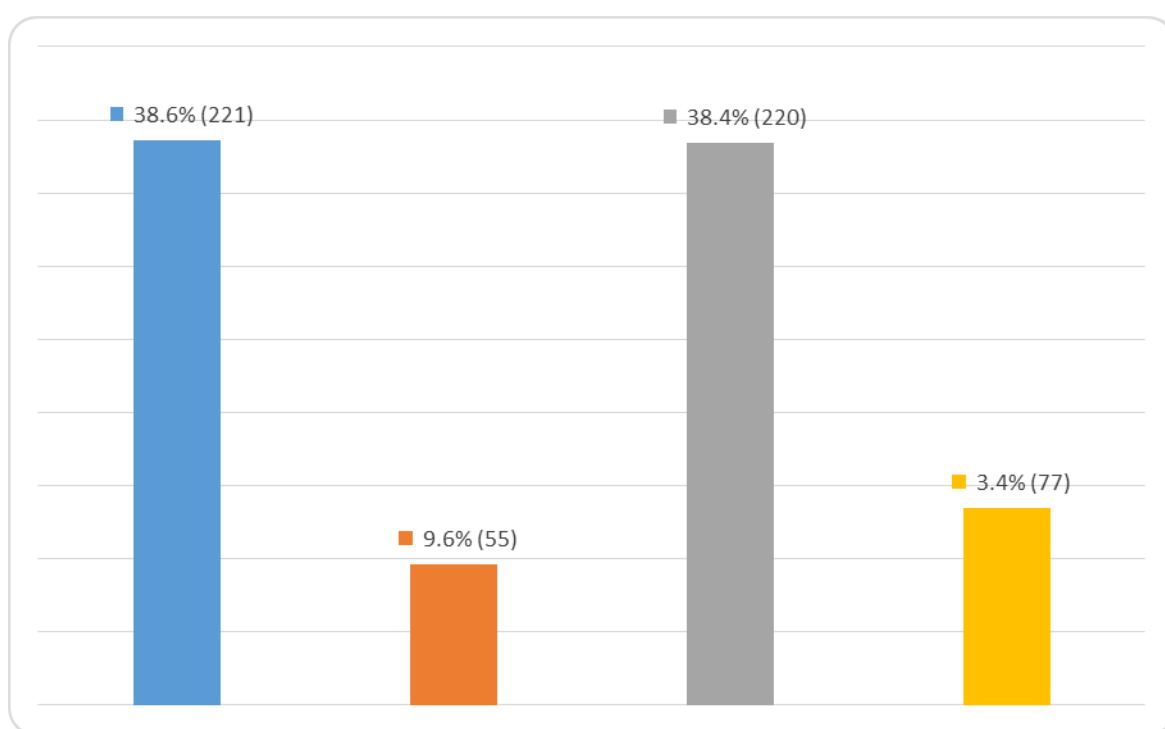


Figure 4.2: Experience in use of Library Resources

Lindstrom and Shonrock (2006) stated that there is a great urge for the librarians to take a step of working hand in hand with students on improving students' information literacy skills especially in the use of technology to access, retrieve and in utilization of critical thinking in the selection of information. When librarians and faculty work in hand to provide students with the necessary support in locating and accessing information, it will

to great extent boost the information literacy skills in this current technology based digital era. This was true as supported by sentiments of one of the FGD participant who said that there should be an Increase interaction between faculty and professional librarians for mutual understanding.

Similarly, Alexandria Proclamation of 2005 emphasizes on the need and importance of information literacy skills to an individual. With proper information literacy skills an individual is enabled to achieve personal, social, occupational and educational goals. Information literacy skills are influential to an individual lifelong learning and it adds to knowledge in the community. The similar sentiments were echoed by Campbell (2004) pointing that the information literacy skills is applicable in all areas of human development that involve the recognition of information needs, locating and evaluating quality information, retrieval and of information and make effective ethical use of information. With lack of information literacy skills, students face high task hill in critically using various sources of information especially in writing their research papers and dissertations.

4.2.3 Challenges Faced when Writing a Research Paper

Table 4.2 shows challenges that post graduate students expressed facing when writing a research paper

Table 4.2: Challenges Faced when Writing a Research Paper

Section	Frequency	Percent
Citation of references	43	7.5
Constructing and Refining Research Strategy	128	22.3
Evaluating Quality information	43	7.5
Final Presentation	43	7.5
Finding a topic	255	44.5
Finding Relevant Information	41	7.2
Unsure	20	3.5
Total	573	100

In terms of challenges faced when writing research papers, empirical results indicate that the majority of respondents (45%) face challenges when looking for a topic for a research paper, followed refining a research strategy (22.3 %). Other challenges stated were citation of references (7.5), evaluating quality information (7.5), presenting the final paper (7.5) and finding relevant information (7.5) as shown in Table 4.2.

In conforming with the findings in this study, Labelle and Nicholson (as cited by Laura Thorne (2012), point out that many students in academic institutions go through various challenges when it comes to writing their papers. The duo cite that academic librarians should come into terms with these challenges faced by students and introduce IL instructions, by observing and trying to these challenges. They assert that librarians should teach students on how to use various sources of information by providing training. Development and implementation of an IL instructions programme is one of the initiatives that the library should undertake so as to provide appropriate skills and

knowledge to the students. Table 4.3 shows information resources used by students in sourcing various sources of information

4.2.4 Information Resources used

Table 4.3: Information Resources Used

Information Resource	Hardly Used		Lowest		Moderate		Mostly Used	
	n	%	n	%	n	%	n	%
E-Journals	17	3.0	42	7.3	118	20.6	396	69.1
E-books	69	12.0	95	16.6	232	40.5	177	30.9
Wikipedia	181	31.6	157	27.4	165	28.8	70	12.2
Google Scholar	48	8.4	88	15.4	164	28.6	273	47.6
Google	16	2.8	101	17.6	73	12.7	383	66.8

On a scale that ranged from mostly used, moderate, lowest and hardly used, respondents were asked to rate various information resources they use. More than half of the respondents (69.1%) said they used E-journals followed by Google (66.8%) as indicated in Table 4.3. The findings give a clear indication that online reading is mostly used by students for their information seeking pattern. Mokhtari, Reichard, and Gardner, (2009) did identify how individuals' dependency of online environment has become. Students like any other individuals use online resources to generate problem or question form one's social context, read to locate information online, to critically evaluate information online, to synthesis information online from multiple sources or use online resources to read and communicate in order to exchange information with the rest of the world. On an FGD discussion, one of the participant said that following this trend of our .com generation we as librarian need to guide our users on how to get good resources from the net. Resources used by an individual in seeking information are often dependent on the

person applying their information literacy skills. In most academic places, individuals may acquire information through use of manuals or in dedicated databases. Such sources have the surety of information quality as compared to other sources such as Google or internet use where the authentication of the information retrieved is often filter on the quality of the information retrieved. Most information retrieved online and from internet have been termed has lacking credibility and accuracy though at times they may credible to the unskilled eye. Education and training are needed to help people acquire the skills to not just locate, but also to evaluate information sources, and therefore IL indicators must include this skill (UNESCO, 2008).

4.2.5 Service Post-Graduate Most Needed

Table 4.4 shows library services that are needed most by post graduate students in the Strathmore University.

Table 4.4: Services they Most Needed

Library Services	Frequency	Percent
Formulating search strategies	151	26.4
Electronic databases	128	22.3
Use of referencing software's	106	18.5
Digital repository	53	9.2
Literature searches	48	8.4
Use of Online Public Access Catalog (OPAC)	42	7.4
Research Support	30	5.3
Off Campus Access	15	2.5
Total	573	100

When respondents were asked about the type of library services they needed, most of them (26.4%) expressed the need for formulated search strategies, while others (22.3%) said they needed electronic databases. The findings also revealed that quite a number of respondents (18.5%) preferred having referencing software's to meet their graduate needs. Other needs stated were digital repositories (9.2%), Literature searches (8.4%), use of Online Public Access Catalog (OPAC) (7.4%), research support (5.3%) and off campus access (2.5%) as shown in Table 4.4.

Corall (2008) is of the view that the ability to find, assess and use information effectively is now widely used as an essential competence for effective participation in modern society. Library OPACs and search engines exist as some of the most widely used tools for information retrieval. Porter (2011) highlights two types of information retrieval systems, that is, web-based information retrieval (IR) systems, also known as search engines (Yahoo, Google and ask Jeeves), and library information retrieval systems. Library IR systems are proprietary resources that libraries subscribe to and often consist of journal databases and a large collection of information resources (Porter 2011). Mi & Weng (2008) note that for many years, before the Internet search engine emerged, library catalogues were the sole information-seeking gateway. However, there is a paradigm shift due to the emergence of the internet.

The library needs realized in this study conform to Megan (2006), who points out that globally over the decades, Information literacy skills have been at the fore front and a role maker for students at higher education institutions. Not all information is equal and varies in content as some is authoritative, current and reliable while another is biased,

out of date, misleading, and false (Tonderai and Edwin, 2013). Megan (2006) emphasizes that the real objective of information literacy instructions is to impact students to become independent learners. The training that students are provided with, will enable them have critical skills that will help them manage their academic work. The learned skills will enable the students to find, locate, analyze and communicate information.

Pejova (2002) reinforces these sentiments that there is currently great effort internationally and in many ways the advancement in handling issues related to information literacy skills has taken great strides. The procurement of ICT apparatus in Libraries to equip it with good services has also been accompanied by adoption of curriculum in institutions whose main goal is to develop information skills.

4.2.6 Library Services Needed by Post-Graduate students

Research results as indicated in the table below (Figure 4.3) reveal that the majority of students (38.2%), require the help of plagiarism tools, followed by

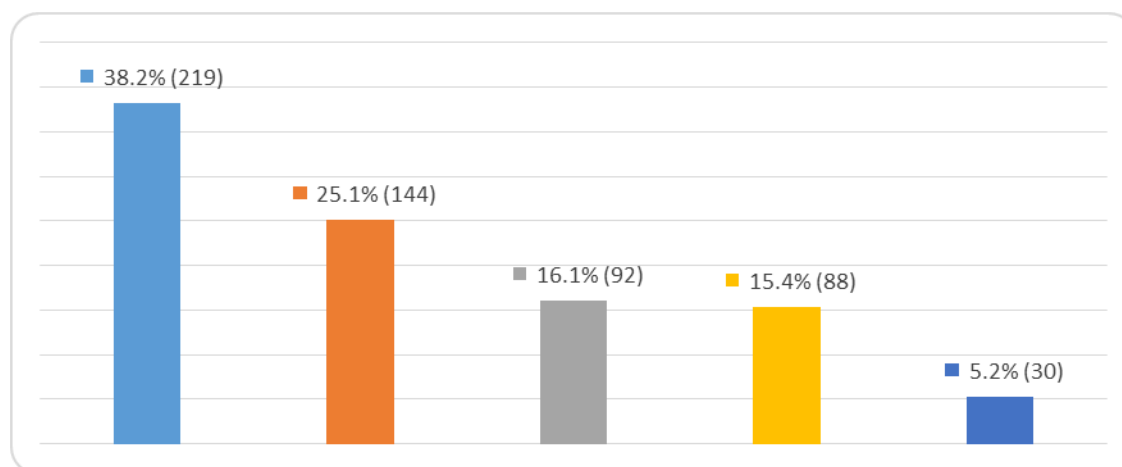


Figure 4.3: Library Resources Needed

post graduate students who need the use of citation and referencing software's (25.1%) as compared to accessing journal databases, accessing print resources and accessing e-books databases (16.1%, 15.4% and 5.2%), respectively. Plagiarism is a form of cheating and a serious offence in postgraduate studies. While many students are concerned about having their papers rejected, most institutions are in fear of their degrees being devalued and have developed guidelines on how to deal with this vice. The guidelines require students to stick by them and get awarded genuinely for their efforts (University of Birmingham, 2016). Furthermore, the use of referencing and citations are also useful skills for the postgraduate students. There are various types of referencing styles that different universities and other academic institutions can use as a guidelines for postgraduate for example,

The need to have resources that will lead to competent literacy skills among institutions is very vital. Some of the standards that have been set up by professional bodies have done well great in the environment of literacy skills. Professional bodies such as American and Australian library associations have come up with guidelines and standards for information literacy in the hope that they will be built into higher education programmes. The ACRL's Information Literacy Competency Standards for Higher Education were published in 2000 and have been widely accepted (Gullikson, 2006). The outcomes and indicators proposed by this framework that was adopted by this study are very essential for institutional needs. The indicators proposed as guidelines to use for the development of the researcher's interventions would provide competency levels to assess students' abilities (Association of College and Research Libraries, 2003).

In the current era, there exist various information sources for library use apart from print sources. Library services have incorporated modern technology for storing information resources in electronic formats. Library sources range from various formats such as DVDs, CD-ROMs, online databases, e-books, e-journals, and others. There is less or minimal reliability on the old ways of preserving information. Often, students have been used to using online resources in order to write quality articles and papers. However, the use and access of such information depend mostly on the ability and information skills that a particular student possess. Maybee (2006) points out that knowledge of the available sources aid to quick retrieval of required information. Making library sources readily available and accessible to students in public institutions could significantly increase the effectiveness of public policies, such policy being vital elements in developmental efforts. Well thought out policies are central to achieving key county performance goals such as alleviating poverty, raising living standards, creating good jobs, ensuring security, strengthening education, as well as improving public health and protecting the environment (Haynie, 2001).

4.3 Post Graduate Students' Information Literacy Skills

Table 4.5 shows information literacy skills of post-graduate students. On a scale of 1 to 5 where Excellent = 1, Good = 2, Average = 3, Poor = 4, Not sure = 5, respondents were asked to rate their literacy information skills on various aspects. A third (33.5%) of the respondents said they were excellent when it came to formulating questions based on information needed with 42.2% rating their information literacy skills in this aspect as good while 24.3% of the respondents rated average their information literacy skills on formulating questions based on information needed.

On ability to identify potential sources of information, respondents rated their information literacy skills as good and average, 42.1% and 36.3%, respectively. In this aspect, only 15.5% of respondents rated their information skills excellent as shown on Table 4.5. There was a similar pattern in all aspects namely; developing successful search strategies, locating sources of information, Evaluate information in terms of relevance and accuracy for your research, Organize information for application on your research, Use acquired information in critical thinking and problem solving and acknowledging the use of information sources (citation and referencing) where respondents rated them between being good and average at the information literacy skills as indicated in Table 4.5.

Table 4.5: Information Literacy Skills

Statement	Excellent		Good		Average		Poor		Very Poor	
	n	%	n	%	n	%	n	%	n	%
Formulate questions based on information needed	192	33.5	242	42.2	139	24.3	0	0.0	0	0.0
Identify potential sources of information	89	15.5	241	42.1	208	36.3	35	6.1	0	0.0
Develop successful search strategies	19	3.3	175	30.5	312	54.5	67	11.7	0	0.0
Locating sources of information	18	3.1	359	62.7	179	31.2	17	3.0	0	0.0
Evaluate information in terms of relevance and accuracy for your research	19	3.3	240	42.0	296	51.7	17	3.0	0	0.0
Organize information for	89	15.5	225	39.3	242	42.2	17	3.0	0	0.0

application on your research										
Use acquired information in critical thinking and problem solving.	137	24.0	189	33.0	246	43.0	0	0.0	0	0.0
Acknowledge the use of information sources (Citation and Referencing)	207	36.1	124	21.6	86	15.0	105	18.3	51	8.9

According to Lau (2006) information literacy skills is regarded as a set of valuable skills that aid individuals to reap from the rich availability of knowledge in oral, paper or electronic format. Information Literacy skills is a determinant in transforming information into knowledge. The information with absence of knowledge notion is regarded as raw data. The use of information requires a mastery of cognitive skills, including critical thinking, and this in turn depends upon the capacity to locate, evaluate and then use information. The aim of information literacy skills among students is to impact them with the ability to be innovative and make use of knowledge. The FGD participant also had this to say “IL skills are very critical at all levels of education. At post-graduate level IL skills should be provided immediately after the start of the course and when the students are due to write their project proposals. University libraries should provide ‘library clinics’ where students can visit and consult at all times without restrictions.

Comparatively, Bruce (2002) terms information literacy skills as an empowerment that helps students in academic to evaluate, use and create information effectively, so as to enable them achieve their personal, social and occupational goals. Bruce further points out that the information literacy skills is an important determinant in the individuals development of learning, not only in formal education settings, but also in the wider social, cultural, political and economic arenas. The term ‘lifelong learning’ is often used to signify the ideal of an informed, independent and self-reliant individual who is capable of finding and using the information s/he needs within all these arenas. Being information literate can therefore be seen as a key part of lifelong learning, and “central to achieving both personal empowerment and economic development”. It is a means of enriching human experience and the individual’s quality of life. The researcher further sought to find out the confidence of postgraduates students in seeking information on Library resources.

4.3.1 Confidence in Seeking Information on Library Resources

Table 4.6 shows the confidence in seeking information on library services.

Table 4.6: Confidence in Seeking Information on Library Resources

Seeking Information from;	Confidence		Not confidence at all		Not so Confidence		Very Confidence	
	n	%	n	%	n	%	N	%
Librarian	254	44.3	11	1.9	99	17.3	209	36.5
Search engine (Google)	242	42.2	0	0.0	99	17.3	232	40.5
Google scholar	287	50.1	0	0.0	44	7.7	242	42.2
E-resources portal	275	48.0	0	0.0	34	5.9	264	46.1
Library Catalogue	297	51.8	33	5.8	111	19.4	132	23.0

When respondents were asked to ascertain their confidence levels when seeking information for their research, the findings showed that the majority of the students (43%) had confidence in seeking for information from the various library resources. However, 19.3% were not confidence at all or not so confidence in seeking information for their research from Library as shown on table 4.6. Students were not so confidence 19.4% in using library catalog as compared to other resources. On the other hand, E-resources portal, Google scholar and use of search engines were the sources which students had more confidence in using to seek information for their research from library.

Use of electronic resources has resulted to information surplus that has caused difficulty in access and retrieval of the information that is of quality. There should be a lot of cautiousness when students use such sources because they need to develop an understanding of information sources and abilities to acquire, evaluate, use and communicate to avoid compromising quality. Institutions should impact information skills to the students that would enable be creative and analytical when they are evaluating the different sources of information. “Information literacy skills would lead to independent and student-centric learning, rather than dependence on the teacher to provide answers to questions or problems that they encounter (Sasikala and Dhanraju, (2011).)

Majid, *et al* (2012) states that information needs and seeking behavior for post-graduates students have been dynamic due to various determinants , for instance accessibility of information in various configurations, new information disclosure and conveyance channels. Postgraduate students are among the significant clients of library users and they utilize an assortment of information sources to meet their various information needs.

Information seeking behavior according to (Prabhavathi, 2011) includes individual explanations behind seeking for information, the sorts of information which are being looked for, and the ways and sources with which required information is obtained from. Currently, most users choose Internet search for their convenience for searching information. Google has been identified as their first decision for quick pursuits; along these lines by passing other information resources. The increment in accessibility of information on the Web has influenced Information seeking behavior of graduate students.

4.4 Effectiveness of IL Programmes Attended by Postgraduate Students of SU

4.4.1 Information Literacy programmes

Table 4.7 shows information literacy programme at SU. Three quarter (75.7%) of the respondents said that they have never attended any computer aided instruction programme (online tutorials, videos) as compared to 10.1% of those who have attended. A similar 75.7% of the respondents said they have never attended workshop (Annual weekly programme). Slightly more than a half (58.3%) of the respondents reported to have attended briefing by Librarian while more than a third (35.6%) of postgraduate students interviewed in the study had not attended this programme (Table 4.7). The results shows that quite number of respondents reported to had not equally attended other information literacy programmes that is orientations, one on one discussions, introduction to information literacy, referencing and citation management and computer aided instructions. Table 4.7 shows the rest of the summary.

Table 4.7: Information Literacy Programme

Programme	Attended		Not Attended		Not Sure	
	N	%	N	%	n	%
Briefing by Librarian	334	58.3	204	35.6	35	6.1
Library Tours	285	49.7	264	46.1	24	4.2
Orientation	426	74.3	135	23.6	12	2.1
Workshops (Annual Library week)	58	10.1	434	75.7	81	14.1
One-on –one discussions	286	49.9	252	44.0	35	6.1
Introduction to Information Literacy	242	42.2	286	49.9	45	7.9
Referencing and Citation Management	310	54.1	217	37.9	46	8.0
Computer aided instructions (Online tutorials, Videos)	58	10.1	434	75.7	81	14.1

Creating long lasting learning is a dream that every academic institution is dreaming to accomplish. Information technology (IT) has acquired numerous methods on the way information is relayed. Information sources are accessible in various arrangements and access to information has turned out to be simple. University students have a more uphill task in finding and assessing the right information and Leckie and Fullerton (1999) likewise noticed that "students are more likely to choose wrong information sources, if they don't comprehend the structure or motivation behind various sources of information, and can't fundamentally assess the information they retrieve". There is availability of much information in the web and library benefactors are being confronted overload and an excess of information that may lead to barriers in our lives. Information Literacy will give abilities that will empower a person to know when he needs the information and where to find it viably and productively, dissect and assess it before utilizing it for choice making.

There is requirement for an IL in the scholarly and professional environment and Bruce (2004) concur by saying "information literacy is a characteristic augmentation of the idea of literacy in our information society, and information literacy training is the impetus required to change the information society of today into the learning society of tomorrow. An information literate individual ought to have the capacity to identify, find, oversee, assess and utilize the information responsively and morally.

Academic institutions are presently creating or have executed Information Literacy courses in their educational programs. It is a necessity for each scholarly establishment to incorporate the IL course with alternate units and the library and personnel ought to co-instruct the provided units. As indicated by Commission of Higher Education (2007), "information literacy altogether makes learners become self-coordinated in this manner expecting more prominent control of their learning".

4.4.2 Effectiveness of Information Literacy Programmes

Table 4.8 shows the effectiveness of information literacy programmes at Strathmore University.

Table 4.8: Effectiveness of Information Literacy Programmes

Information Literacy Programme	Very effective		Effective		Fairly effective		Not effective		Not sure	
	n	%	n	%	n	%	n	%	n	%
Briefing by Librarian	242	42.2	242	42.2	89	15.5	0	0.0	0	0.0
Library Tours	199	34.7	209	36.5	33	5.8	22	3.8	110	19.2
Orientation (Introduction about Library resources and services)	177	30.9	176	30.7	66	11.5	0	0.0	154	26.9
Workshops (Annual Library week)	254	44.3	176	30.7	44	7.7	0	0.0	99	17.3

One-on –one discussions	66	11.5	187	32.6	44	7.7	55	9.6	221	38.6
Introduction to IL (Search strategies, Use of Boolean, Evaluation of information)	210	37.4	110	19.6	55	9.8	11	2.0	176	31.3
Referencing and Citation Management	165	28.8	110	19.2	77	13.4	0	0.0	221	38.6
Computer aided instructions (Online tutorials, Videos)	154	26.9	143	25.0	66	11.1	22	3.8	188	32.8

Respondents were asked to rate the effectiveness of Information Literacy program on the Scale of: Very effective = 1, Effective = 2, fairly effective = 3, Not effective = 4, Not sure = 5.

Most of the respondents (84.4%) rated briefing by librarians as both very effective and effective as indicated on Table 4.8. The pattern was similar to the rest of the literacy programmes where respondents termed orientation (introduction to library services), library tours, Workshops (Annual Library week), One-on –one discussions, Introduction to IL (Search strategies, Use of Boolean, Evaluation of information), Referencing and Citation Management and Computer aided instructions (Online tutorials, Videos) to be either very effective or effective. Information gathered during the focus group sessions indicated that the IL program is meeting the need of post-graduates students partially. The current programme of SU is majorly addressing the needs of undergraduate students as shown on Appendix 5.

Information literacy programmes enables students to cope with the data smog, by equipping them with necessary skills to recognize when they need information, where to locate it, and how to use it effectively and efficiently. Consequently it will help decision

making and productivity which is beneficial to the society. Information literacy programmes need to be implemented mainly by the library staff in schools, universities, public and other libraries in order to achieve library goals and to convert their users to lifelong learners and critical thinkers (ACRL, 2000).

Despite efforts to take the literacy skills to another level in institutions and low levels of uptake information literacy programmes among students there is still unawareness among students on these literacy programmes. The assessment of information skills and competencies among institutions has not yet taken root. This has created gap in the formulation of literacy programmes. Minimal interventions and innovations are taking place in the evaluation of information literacy skills among students. The quality and effectiveness of information literacy seeking behavior in Kenya can only be accomplished by capacity building through research and development, which are components of information skills (Kandiri, 2006).

4.4.3 Extend the IL Postgraduate Programme Covered

Table 4.9 shows the extent the IL postgraduate programmes are covered. Respondents were asked to rate the topics covered on a scale of: Well Covered = 1, Moderately Coverage = 2, Fair Coverage = 3, poorly overage = 4.

Almost two thirds of the respondents (61.6%, and 65.3%) said that using appropriate search engines and using electronic repositories were one of information Literacy programmes which were well covered as shown in Table 4.9. Bibliographic citations, Copy right and plagiarism, using subject-based portals/gateways and online data bases were also rated moderately and well covered by a high proportion of respondents as

indicated in Table 4.9. However, 29% of the respondents reported access to OPAC as an information literacy programme that was poorly covered as well as RSS feeds (25%). There is a clear indication that although some information programmes are rated as either fairly, moderately, or well covered by the respondents, almost every programme was rated as poorly covered. This is an indication that much has to be done to reach high levels of well utilization of information through IL programmes.

Table 4.9: Extend the IL Postgraduate Programme Covered

Extend of coverage	Well Covered		Moderately Coverage		Fair Coverage		Poorly Coverage	
	n	%	n	%	n	%	n	%
Access to OPAC	99	17.3	231	40.3	77	13.4	166	29.0
Online databases	286	49.9	155	27.1	55	9.6	77	13.4
Using appropriate search engines	353	61.6	121	21.1	66	11.5	33	5.8
Using Subject-based portals/gateways	309	53.9	165	28.8	55	9.6	44	7.7
Literature search	122	21.3	297	51.8	99	17.3	55	9.6
Open access to research papers	154	26.9	331	57.8	55	9.6	33	5.8
Using electronic repositories	374	65.3	111	19.4	55	9.6	33	5.8
Evaluating research information	210	36.6	253	44.2	77	13.4	33	5.8
Copyright and plagiarism	297	51.8	111	19.4	110	19.2	55	9.6
Bibliographic citations	342	59.7	121	21.1	66	11.5	44	7.7
Introduction to Lib 2.0	309	53.9	143	25.0	55	9.6	66	11.5
Rich Site Summary (RSS feeds)	232	40.5	110	19.2	88	15.4	143	25.0

There are many benefits that are associated with good information programmes an institution to both undergraduate and post graduate students. Good IL programmes act as a good investment of time to both students and teachers. It saves the students time in the long run and helps them by ensuring that they use appropriate databases for their research. IL programmes covers a lot of concerns that postgraduate students have been having and missing in their education life. Student's abilities to search are improved through such programmes and they are able to share ideas with other students who it could be difficult to meet other researchers. The IL programmes not only are essential to students but also excellent example of collaboration between learning technologists and library staff (Secker & Rowena, 2011).

4.5 Challenges Faced by Postgraduate Students for Lack of Information Literacy Skills

Table 4.10 shows the challenges faced by post-graduate students. When respondents were asked to state some of the challenges to information literacy education and training courses at Strathmore University. A number of challenges were stated which includes: lack of interest in, and /or understanding of the concept and its importance and relevance in today's economies and society, lack of interest among librarians and information professionals, lack of interest among faculty and poor information and library structure were most stated challenges (32%, 19.7%, 12.3%, 11.1%) respectively. Other challenges were lack of interest among students, lack of enough time, lack of interest among the student, lack of funding/financial Support, at the moment no major challenge and lack of understanding of the concept as shown on Table 4.10.

Table 4.10: Challenges Faced by Postgraduate Students for Lack of IL

Challenges	Frequency	Percent
Low of interest in, and/or understanding of the concept and its importance and relevance in today's economies and society	260	32.0
Low of interest among librarians and information professionals	160	19.7
Low of interest among faculty	100	12.3
Poor information and library infrastructure	90	11.1
Low of interest among students	71	8.7
inadequate time	51	6.3
Low of interest among the student	31	3.8
Low of Funding/Financial Support	30	3.7
At the moment no major challenge	10	1.2
Low of understanding of the concept	10	1.2
Total	813	100

The information Literacy programmes are currently changing day per day more on to conform with the advancement in information and technology used. The old concepts of organization, bibliographic description and dissemination of information are to be reworked on by the library and information professionals. In the wake of this, new challenges are met by the LIS professionals working in the environment. It's very vital therefore for the players in this industry to develop the appropriate skills in information literacy that can equip them in identifying, evaluating and using relevant information efficiently. Information Literacy Program (ILP) is the need of the hour for maximum utilization of these resources in teaching, learning and research (Rani, 2011).

Sara *et al*, (2012) states that the literacy challenges facing students in institutions nowadays are the common need to better prepare students for current information literacy demands. Moreover, the specific need to reduce the disparities in literacy outcomes among students from disadvantaged backgrounds and those more privileged. The literacy skills needs to be broadened to include a set of competencies that go well beyond the ability to only recognize but also include abilities such as evaluating and synthesizing the information.

Teaching information literacy abilities has incredibly been influenced by the progress of information correspondence innovation throughout the decades. Instructors now end up in exceptionally influenced situations (Pincas, 2002). Confronted with the difficulties of overcrowded classes, high stakes testing, and benchmarks based situations, utilizing instructional practices that move understudies to more elevated amounts of thoroughly considering more "true" types of learning are lost. Despite the number or level of difficulties, educators still stay responsible for encouraging literacy development among all students (Pincas, 2002). The next section looks at possible suggestions put forward for fostering information literacy skills for post graduate students to higher and satisfactorily levels.

4.6 Suggestions in which the IL Needs for Post-Graduates Students can be met

Respondents were asked to suggest ways, in which the information literacy skills can be improved in Strathmore University, Some of the ways suggested were; the need for the library to be interactive online, IL programme should be among the first courses in Post graduate, Enhance training on the necessary skills required to create a proper search strategy and filtering of relevant information among many others as shown on Table 4.11.

The future depends increasingly on advanced literacy skills and the education and training adopted at current, it is important for educators, policy makers, and the public to understand what advanced literacy is. In short, a new definition of literacy is required one that highlights the skills those children need to deal with the new demands (Pincas, 2002).

Table 4.11: Respondents Suggestions on meeting the IL Needs for Post Graduate

Suggestions	Frequency	Percent
The Library need to be interactive online	52	9.1
IL programme should be among the first courses in Post graduate	42	7.3
Enhance training on the necessary skills required to create a proper search strategy and filtering of relevant information	14	2.4
IL programme should be among the first courses in Post graduate and be examinable	14	2.4
Improve areas covered under evaluation of research information according to relevance to topic/ subject of study and RSS feeds	14	2.4
Proper training on Library use and Research methodology	14	2.4
Students should be sensitized on available library resources and how to access and use them.	14	2.4
Awareness	13	2.3
Comprehensive and adoption of technology to self-learn about the resources	13	2.3
Continued refinement to focus on increasing access and encouraging investments	13	2.3
Orientation and thereafter continuous updates on search tips, updated publications amongst others	13	2.3
Not Stated	329	57.4

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives the summary of the main findings of the study that address key issues to establish the information literacy needs of post-graduate students at Strathmore University and to suggest ways in which they can be enhanced. Several conclusions and recommendations have been made based on the study findings. Finally, the study provides suggestions for further research.

5.2 Information Literacy Skills for Post Graduate Students

The findings revealed that a majority of post graduate students (92%), need Information literacy instruction on how to use library information resources in their subject areas. This was followed by about half of the respondents who had little or no experience in the use of library resources and access to the online databases for their research (48%). It was further noted that Academic institutions need to factor in information literacy abilities in their educational programmes to enable them obtain clear comprehension of information seeking behaviour among the students. In addition to this, aptitudes on access, assessment and retrieval of information would help postgraduate students to appropriately use and examine information needed in their course of study.

Findings from the study clearly revealed that post-graduate students needed Information literacy instruction on how to use library information resources in their subject areas. This was noted by a majority of the respondents who agreed that students were in dire need of such instructions (92%). This high percentage revealed a gap that gives more

reason why information literacy skills should be given priority to post graduate students especially those undertaking research studies. Information literacy skills are key factors to students' success in their academic career and a sure roadmap in preparing them to face future opportunities.

There is a definite need for academic institutions to increase students' awareness on how to acquire a holistic comprehension of advanced skills and knowledge on how to access, evaluate and retrieve information from different sources. This empowerment fundamentally helps students develop abilities that examine and utilize the acquired information in a proper way.

Post graduate students should be autonomous rather dependent on instructors to give solutions for issues they confront. This can be done only by giving students the know how through information literacy programmes.

It was further noted that Post graduate students should have a good hands on experience on the use of library resources and access to the online databases for their research by having great aptitudes that are needed of good information literacy. The use of technology cannot be ruled out in this digital era.

At Post graduate level, the right selection of various sources of electronic information requires not only the ability on how to retrieve and access information, but also on how to critically evaluate the information given for proper implementation. Librarians and faculties within the institutions are expected to work hand in hand to provide the students with the appropriate support to enable them easily retrieve useful information from information systems.

There are many advantages of being an all-around student, fitted with information literacy education aptitudes at the Post graduate level. With the acquisition of legitimate information proficiency aptitudes, a postgraduate student can be empowered to accomplish individual, social and educational objectives. Information Literacy abilities are powerful to an individual in their entire academic life.

Information proficiency abilities is an empowerment in every aspect of human advancement that includes:- (i) the acknowledgment of information needs,(ii) seeking behavior and evaluating quality information,(iii) retrieving of information and making successful moral utilization of the information retrieved. With the absence of information literacy skills, postgraduate students are confronted with high end slope in fundamentally utilizing different sources of information particularly in composing their research papers and theses.

From the information given in table 4.2, the research revealed that a number of students faced challenges when writing research papers due to lack of proper information literacy skills. Among the challenges noted were (i) Finding a topic, constructing and refining its research strategy,(ii) citation of references, (iii) evaluating quality information, (iv) presenting the final paper and (v) finding relevant information. It goes without say therefore that there is need for librarians to come to terms with the challenges that students face and mitigate them by introducing information literacy education to eliminate some of the challenges. Information literacy programmes once embraced in libraries, can be of assistance to students and should be among the initiatives that libraries should consider introducing. These programmes would provide more insight, skills and

knowledge to trigger or impact positively on information seeking behavior of the students.

As shown in table 4.3, the findings further revealed that a high number of students used e-journals and Google as information sources (69.1%; 66.8%) respectively. It was also noted that electronic resources had been greatly preferred as a resource where access to and retrieval of information was easy and convenient.

For postgraduate students, dependency on the online environment was highly increasing. Online resources to a great extent have enabled students to formulate problems of their research papers and retrieve literature that helps them to build their papers by critically evaluating the information. There are multiple online sources of information that provide a wide range of choice of information. However, there is need for postgraduate students to have literacy information skills that will equip them with the ability to choose quality information for their benefit as not every online source is credible.

The findings, as illustrated in table 4.4, showed that post graduate students need various library services to help them meet their postgraduate student information needs. Research strategies and electronic databases (26.4%, 22.3%) were the most searched for services as stated in Table 4.4. Other library services stated were; (i) referencing software's to meet their graduate needs, (ii) digital repository, (iii) literature searches, (iv) use of Online Public Access Catalog (OPAC), (v) research support and off access campus. In modern times referred as digital era, the ability to efficiently get the information that you require has become a major factor in information literacy skills. Library OPACs and search engines are among the widely used library services in information retrieval. Search

engines like Google, Yahoo among many others have become common library information retrieval systems especially among the students. Library information retrieval frameworks are exclusive assets that libraries subscribe to and usually comprise of journals, databases and an extensive accumulation of data resources. For a long time, before the internet search engines arose, library catalogs were the sole information retrieval sources in recent times however, there is an outlook to change due to the emergence of the internet.

The library needs realized in this study are in tandem with the information needs faced globally by all and sundry. Information literacy skills for students in developed and developing countries, have been in the forefront and are recognized as a catalyst for student's information seeking behavior at higher levels of learning. The only confusion that has arisen amid many available information sources is that students get mixed up with the information that suits their needs thus a reason for proper information skills. The ability to recognize whether information is outdated, current, biased, authoritative, credible or misleading is necessary for students who do their research papers. The real essence of information literacy skills is to make readers to be independent learners. These skills enable an individual to be able to critically analyze information and communicate the right information.

The findings further revealed that the use of plagiarism tools and that of citation and referencing software's (38.2% and 25.1%) respectively are the library resources mostly needed by post graduate students as shown on Figure 4.3. Plagiarism has emerged as the biggest impediment to post graduate students when it comes to writing their academic papers. In many academic institutions and across the globe plagiarism is an offence. The

writer is supposed to be independent in his/her ideas without infringing on the copy rights of other writers. The borrowed ideas are expected to be raised in a way that they do not directly duplicate the sources where that information was retrieved. Most institutions have come up with guidelines that have given postgraduate students difficulties in complying with them. The plagiarism tools that exist are either expensive for students to acquire. The tools make it easier for the student to examine their own papers against plagiarism before submitting, giving them enough time to credibly evaluate the information. On the other hand there exist various types of referencing styles that are difficult for students to manually comply with but with aided software they could manage easily.

5.3 Post Graduate Students' Information Literacy Skills

Post graduate students need information literacy skills to help them in formulating questions and problems of their research work. The findings revealed that less than half the respondents rated their literacy skills in formulating questions for information needed as good and excellent (33.5%). The results further showed that (42.1%) of the respondents considered their ability to be good in identifying potential sources of information as indicated on Table 4.5. Excellent information literacy skills would account for enabling students to not only identify credible sources of information and formulating questions on information needed but also in developing successful search strategies, locating sources of information and , evaluating the information in terms of relevance and accuracy for research. It further enables students to organize information for application on research, use acquired information in critical thinking and problem solving and acknowledging the use of information sources.

Information literacy skills that are acquired by students is a great asset in their academic life. It will enable them to reap from the vast availability of knowledge in either oral, manual or electronic format. The acquisition of Information Literacy skills by students is vital and plays a key role in synthesizing information with knowledge. A set of ideas that helps a student to maneuver and acquire the information needed depends squarely on the information literacy skills one has at hand which will serve as a capacity to retrieve and use that information. Information literacy skills are the backbone of innovation and invention.

The results further revealed that some of the students were not confident in using the library catalog as compared to other resources (19.4%). On the other hand, as shown in Table 4.6, E- resources portal, Google scholar and use of search engines were the sources which students had more confidence in using to seek information for their research from library. As earlier noted in this study electronic sources have become the most favorite vehicle for information retrieval not only for students but also for all aspects of information seeking behavior.

The use of the electronic format source, has also been seen as the most preferred way of retrieving information. This has brought about the surplus of information retrieval systems that has brought a variety of information sources to choose from. However, it is not all the web based information that has been found to be good for use. Considerable measures therefore should be taken into account when using web based sources for information retrieval. Academic institutions ought to effect information literacy programmes to the students that would empower them be critical thinkers and explicit when they are assessing the diverse sources of information.

Information needs and information seeking behaviors for post-graduate students have been progressive over many years. For instance when considering the different ways that are available for access to information, various types of sources and different conveying channels are some of the facts that unveil information needs have far evolved over time. Postgraduate students are among users of library services in their academic work with high needs of information retrieval. These needs come with their own challenges not limited to the capacity of technology needed to implement the needs. The holistic infrastructure that is required for information literacy skills comprise also of the information literacy programmes that users need to be trained in. Therefore, modern library services need to incorporate all necessary services to meet these demands.

5.4 Effectiveness of IL Programmes Attended by Postgraduate Students of SU

The findings revealed that more than three quarters of the surveyed respondents said that they have never attended any computer aided instruction programme (online tutorials, videos) (75.7%). Notably, as noted in Table 4.7, another similar number of the respondents had never attended any workshop (Annual weekly programme) (75.7%). The results further revealed that the study participants had not equally attended other information literacy programmes such as orientations, one on one discussion, introduction to information literacy, referencing and citation management and computer aided instructions. This is shown on Table 4.7.

It is mandatory for every institution to consider accomplishing satisfactory needs for student's information requirements. With the modern digital era, Information technology (IT) has brought various convenient ways to deliver information. Academic institutions have embraced these technologies in their libraries but most have fallen short of

introducing Information literacy programmes to equip the ability their users in the use of various information sources. University students have an uphill task in finding and assessing the right information due to lack of information literacy trainings hence leading to wrong choice of information.

There is t need for information literacy programmes in the scholarly and professional environment. An information literacy skill is a trademark growth of education in the current society, and acts as a bridge for preparing a driving force required to change the information society of today into the learning society of tomorrow. An information literacy educated individual should have the ability to recognize, find, and use the information responsively and ethically.

Academic institutions and scholars are supposed to initiate information literacy courses as modules to be taught during the first years of study. It is a need for each insightful institution to join the information literacy courses with various modules at the library services level. Teachers should also be trained and instructed to train the given units. This will bring about information proficiency and will make learners get to be self-composed and taking more notable control of their learning.

The results further revealed that most (84.4%) of the respondents reported that briefing by librarians was one of the ways that is currently effective. Other effective programmes stated were; orientation (introduction to library services), library tours, Workshops (Annual Library week), One-on –one discussions, Introduction to IL (Search strategies, Use of Boolean, Evaluation of information), Referencing and Citation Management and Computer aided instructions (Online tutorials, Videos) as shown on Table 4.8.

Learning in institutions solely majors on impacting knowledge, skills and attitudes, associated with particular subject areas. Irrespective of the disciplinary stream, it's vital for each and every student be able to access, use and communicate information in an innovative manner. The Information literacy programmes play a vital role in nurturing these skills among the university and school students. For these programmes to become a reality in institutions they should be implemented by the library professionals with the help of academic and administrative staff.

Information literate students improve the academic quality of life in general and in society. Information literacy students in their daily life such as choose the best subjects, choosing a school, making an investment, and making other critical decisions in life. Information literacy skills are of prime importance in order to achieve every body's academic goals.

Therefore, there are many benefits that are associated with good information programmes in an institution. Well covering of these programmes will ensure the best achievement in academic life of a student. It is important to note that the literacy programmes become more important in a student academic life more when they are early covered at their initial stages of learning. By so doing, the student is able to apply the skills acquired through learning in his/her entire academic life. Though, at the end of completion of academic programmes more advanced literacy skills are also acquired. The reason why it is important for these literacy programmes to be taken at initial stages is that most students at initial stages of their academic life fail to recognize different methods used for search for information, to use the library catalogue, to evaluate the information and to present the information. Some even get difficulties at the end of taking their relevant

academic courses to write their papers because they were not at any stage taught on how to do academic writing, reading, note taking, note making, direct quoting, paraphrasing and reference in styles. This makes many students to be teacher centered learners.

5.5 Challenges Faced by Postgraduate Students for Lack of Information Literacy Skills

Some of the challenges faced by Strathmore University students include the following: lack of interest in, and /or understanding of the concept and its importance and relevance in today's economies and society;, lack of interest among librarians and information professionals in IL;, lack of interest among faculty and poor information and library structure;, lack of interest among students; lack of enough time; lack of interest among the student in IL skills and lack of Funding/Financial Support . See Table 4.10.

5.6 Suggestions in which the IL Needs for Post-Graduate Students can be met

According to findings of this study, there were a number of ways in which the information literacy needs of post-graduate students could be met. They included the following

- (i) The need for the library to be an interactive online system. Information literacy programmes should therefore be among the first courses to be taught in post graduate studies
- (ii) Enhance training in the necessary skills required to create a proper search strategy and filtering of relevant information, among many others as indicated in Table 4.11. The determinant for critical learners in future relies on the balance in the adoption of advanced literacy skills and training of the same. It

is very vital for educators, policy makers, and the public to understand what advanced literacy is. In short, a new definition of information literacy is required that highlights the skills that institutions need to deal with in a digital environment.

(iii) If students are to achieve high literacy standards, the study suggests that the determinant is coined to what the instructors or teachers know. This could have a positive impact on student achievement. Furthermore, the institution should be ready to embrace current literacy programmes in their institutions and be willing to conduct training to both their students and teachers.

(iv) The study also suggests that if teachers are to negotiate the demands of new standards and new students, they must have access to a deeper base of knowledge and expertise.

5.7 Conclusion

This study provides insight for the continuing efforts to improve the literacy levels of post graduate students. They are, however, neither exclusive nor exhaustive. It provides a common ground of critical thinking of improving information literacy skills. In relation to objectives of the study, conclusions arrived at include the following:

(i) To determine post graduate information literacy skills.

The study concludes that there are various information literacy needs for post-graduate students at Strathmore University. Respondents expressed inadequacy in Information literacy instructions in relation to various subject areas they are undertaking. Lack of library resources skills and difficulties in the access of online databases greatly hampers

access of information for vital use for post graduate students. There was low experience in the use of the library resources. The study further concludes that there is lack of continuous trainings based on information skills to library staff and teachers. The challenges faced when writing a research paper are due to lack of proper information literacy skills and this calls for measures to be taken such as teaching research skills and other information literacy skills to post graduate students at initial stages of their registration.

(ii) Identify Information Literacy skills that will enable students to conduct their research using effective information searching skills.

In regard to this objective, the study concludes that there is lack of adequate information literacy programmes. There is lack of full involvement of library staff in implementing these programmes in the university. There is no module that has focused in achieving better library information literacy skills amongst students and to convert them to lifelong learners and critical thinkers. This reveals to us that there is a disconnection between inter-joined library staff cooperation that can oversee quality training of administrative staff. Due to this situation, post graduate students face an uphill task to play a more prominent and meaningful role in writing quality papers. The study concludes that students lack the ability to develop successful strategies and in acknowledging the use of information resources (Citation and referencing). There is lack of confidence amongst post graduate students in seeking various information from the library, using search engines such as Google, E- resources and how to use the library catalogue.

(iii) To find out the level of effectiveness of information literacy programmes attended by post graduate students of Strathmore University, In regard to objective three of the study, the study concludes that information literacy programmes at Strathmore University are not effective especially in the areas of computer aided instructions (online, tutorials, videos), referencing and citation management, and one-on-one discussions. Study findings indicate that a number of students have not attended these important information literacy programmes. Moreover, access to OPAC and Rich Site Summary (RSS feeds) information literacy programmes were poorly covered.

(iv) To identify challenges faced by post graduate students for lack of information literacy skills.

In regard to objective four of the study, the study concludes that there are still enormous challenges that the post graduates are facing due to lack of information literacy skills. The most pertinent challenge being lack of interest and understanding of the concepts and its importance and relevance in today's economies and society.

(v) Suggestions in which the IL Post-graduate students can be met

In regard to objective five of the study, the study concludes that there is room and ways in which post-graduate information literacy skills could be enhanced at the university.

5.8 Recommendations

5.8.1 Short-Term Recommendations:

- i. All Post graduate students should attend a mandatory information literacy programme induction session as early as possible following registration. This will

make sure that students are empowered to be self-independent rather than teacher centric in formulating their problems and arriving at solutions. It will help also nurture students to being critical thinkers in evaluating and accessing information for their needs.

- ii. The induction sessions would help to empower post-graduate student's library resource skills and access to online databases. There should also be continuous training of the same. The Information literacy programmes should be mandatory first year courses for post-graduate students.

5.8.2 Long-Term Recommendations:

- i. There should be adequate information literacy programmes. The staff should be properly trained on IL so that they can be able to assist post-graduate students by sensitizing them on how to use library and other available resources and how to access them.
- ii. The level of effectiveness of information literacy programmes attended by post graduate students of Strathmore University, should be enhanced by adopting comprehensive technologies that can assist students to learn on their own. There should be thorough improvement of areas that are covered under evaluation of research information, according to the relevance to the topics/ subject of the study and RSS feeds.
- iii. Training on library use should be properly done alongside the teaching of research methodologies.

The uses of enhanced and advanced technologies can work best in eliminating the challenges and information literacy needs faced by post graduate students. A new paradigm shift requires comprehensive and systemic change. The information literacy frameworks that ought to be brought about, have to be re-oriented towards broad organizational, political, and economic presuppositions, on which definition and acquisition of change must be based. Moreover, there is need for involvement of teachers or instructors who are committed to be at the forefront of the reform process.

5.8.3 Suggestion for Further Research

This study analyzed information literacy needs of post- graduate's students at Strathmore University. The study suggests that a further comprehensive research should be conducted to ascertain the information literacy programmes of post-graduates students in other higher learning institutions.

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APPENDICES

APPENDIX 1: INTRODUCTION LETTER TO RESPONDENTS

Dear Respondents,

I am a postgraduate student at Moi University, undertaking a MSc. in Information Sciences (Library and Information Studies). As part of the course, candidates must submit a thesis in partial fulfillment of the Degree of MSc. Information Sciences. My research project is on Analyzing information literacy needs of post- graduates' students at Strathmore University, Kenya Towards this end, I would like to request you to spare a few minutes to respond to my questions to enable me carry out this study.

I assure you that the answers provided will be used only for the purposes intended in the framework of this study. In the description of results of this survey, no identification of the individuals will be possible. **YOUR INFORMATION WILL BE TREATED WITH STRICT CONFIDENCE.**

Thanking you in advance.

Emily Cheronno Sawe.

APPENDIX 2: QUESTIONNAIRE FOR STUDENTS**SECTION A: BIO DATA**

Academic program

Year of study

Year one

Year two

SECTION B: INFORMATION LITERACY NEEDS OF POST-GRADUATE STUDENTS

Do you think that post-graduate students need Information literacy instruction on how to use library information resources in their subject areas?

Yes

No

Rate your experience in the use of library resources and access to the online databases for your research

Very experienced

Experienced

Somewhat experienced

Not experienced

What are challenges when writing a research paper?

Select all that apply

Finding a topic

Finding relevant information

Constructing and refining search strategy

Evaluating quality of information

Citation and referencing

Final presentation

Unsure

When writing literature review section of your research paper which part is challenging?

Select all that apply

Developing and refining search strategy

Locating key articles

Evaluating quality of information

Everything is challenging

Others

Rate the information resources that you use:

Scale mostly used, Moderate, Lowest, Hardly used

	Mostly Used	Moderate	Lowest	Hardly Used
Textbooks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-Journals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-books	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wikipedia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Google Scholar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Google	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Which library services do you need the most help with to meet your graduate student information needs?

Select all that apply

- Use of Online Public Access Catalog (OPAC)
- Research Support
- Off-campus access
- Digital repository

Others

Which library resources do you need the most help with to meet your graduate student information needs?

Select all that apply

Accessing journal databases

Accessing e-book databases

Accessing print resources

Use of plagiarism tools

Use of citation and referencing softwares

Others

SECTION C: POST-GRADUATE STUDENTS INFORMATION LITERACY

SKILLS Rate your Level of Information Literacy Skills on the

Scale of: Excellent = 1, Good = 2, Average = 3, Poor = 4, Not sure = 5

	1	2	3	4	5
Formulate questions based on information needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify potential sources of information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop successful search strategies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Locating sources of information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evaluate information in terms of relevance and accuracy for your research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organize information for application on your research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use acquired information in critical thinking and problem solving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Acknowledge the use of information sources (Citation and Referencing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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How confident do you feel when seeking information for your research from the following? (Please tick where appropriate).

	Very Confidence	Confidence	Not so Confidence	Not confidence at all
Librarian	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Search engine (Google)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Google scholar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-resources portal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Library Catalog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What do you suggest should be done to improve IL skills among university students?

SECTION D: INFORMATION LITERACY PROGRAMMES

Information literacy program attended by postgraduate students at SU on a Scale:

Attended = 1, Not Attended = 2, Not Sure = 3.

	1	2	3
Briefing by Librarian	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Library Tours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orientation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Workshops (Annual Library week)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One-on –one discussions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Introduction to Information Literacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Referencing and Citation Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer aided instructions (Online tutorials, Videos)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How effective were the information literacy program of SU?

Rate the effectiveness of Information Literacy program on the Scale of: Very effective =

1, Effective = 2, Fairly effective = 3, Not effective = 4, Not sure = 5.

	1	2	3	4	5
Briefing by Librarian	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Library Tours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orientation (Introduction about Library resources and services)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Workshops (Annual Library week)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One-on –one discussions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Introduction to IL (Search strategies, Use of Boolean, Evaluation of information)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Referencing and Citation Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer aided instructions (Online tutorials, Videos)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To what extent were the IL programme for post-graduate students covered?

Rate the topics covered on the scale of: Well Covered = 1, Moderately Coverage = 2, Fair

Coverage = 3, Poorly overage = 4

	1	2	3	4
Access to OPAC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online databases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using appropriate search engines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using Subject-based portals/gateways	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Literature search	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Open access to research papers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using electronic repositories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evaluating research information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Copyright and plagiarism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bibliographic citations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Introduction to Lib 2.0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RSS feeds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What other comment or suggestion would you provide regarding information literacy programme at SU?

SECTION E: CHALLENGES FACING IL PROGRAMME

What do you think are some of the challenges to information literacy education and training courses at SU?

Select all that apply

Lack of understanding of the concept

Poor information infrastructure

Lack of interest among the student

Unwillingness of the faculty

Lack of skills among the librarian

Lack of time

Others

Suggest ways in which IL program at SU can improved

APPENDIX 3: FOCUS GROUP DISCUSSION GUIDE

State your professional qualification

.....
.....

How effective are the IL programmes in SU? Explain your answer?

.....
.....

The role of the librarian in teaching information literacy courses:

.....
.....

Instructional methods used in teaching IL programme. Is the mode of teaching satisfactory?

.....
.....

What strategies can be adopted for an effective delivery of IL at the SU?

.....
.....

What are some of the challenges faced in provision of IL programmes?

.....
.....

Suggestions for improving IL programme

.....
.....

APPENDIX 4: PRETEST CHECKLIST FOR QUESTIONNAIRE

Research title: Analyzing information literacy needs of post graduates students at Strathmore University, Kenya.

(Please refer to the accompanying interview schedule and kindly answer the following questions after reading the objectives listed below.)

1. To determine the information literacy needs of post-graduate students
2. To determine post graduate students' IL skills
3. Find out the level of effectiveness of information literacy programmes attended by postgraduate students of SU.
4. Identify the challenges faced by postgraduate students for lack of information literacy skills
5. To suggest possible ways in which the IL needs for post-graduates students can be met.

PRE-TEST QUESTIONS:

1. Are the questions too many

Yes

NO

If yes, what do you recommend?

.....

2. Are the questions clear for understanding?

Yes

NO

If no, what do you recommend?

.....
.....

3. Is the sequence of the questions logical?

Yes

NO

If no, what do you propose?

.....
.....

4. Are there any grammatical mistakes identified amongst the questions?

Yes

NO

If any, please identify which mistakes?

.....
.....

5. Are there jargon or technical terms used in the questions making it difficult to understand?

Yes

NO

If any, please point out?

.....
.....

6. Are the Objectives of the study adequately covered in the questionnaire?

Yes

NO

If no, explain?

.....
.....

7. What is your view on the diversity of the questions?

.....
.....
.....

APPENDIX 5: INFORMATION LITERACY CURRICULUM OF STRATHMORE UNIVERSITY

Session 1:

- Information sources and resources.
- Information organization.
- Choosing the appropriate resources, sources, or investigative methods based on research need
- Critical evaluation of information; value and distinctness of information resources (e.g., data sets, finding aids, Internet, library catalog, librarians, subscription databases, etc.)

The learning outcomes:

By the end of the session, the student should be able to:

- Identify various sources of information
- Describe how information is organized
- Examine and compare information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness and point of view or bias.

Session 2

- Topic definition and narrowing
- Identifying keywords, synonyms and related terms
- Search Strategies - Implement a search strategy appropriate to a research need
- Keyword and subject searching
- Broadening and narrowing search terms

The learning outcomes:

By the end of the session, the student should be able to:

- Identify and list key concepts and terms (synonyms, acronyms, alternate spellings and common terms for the concepts and terms) that describe the information need and distinguish key and non-key words.

- Combine key words using Boolean & truncation techniques to formulate a search strategy and use various search systems to retrieve information in a variety of formats
- Execute both keyword and subject searches; execute revised searches to refine results

Session 3:

- Identification of scholarly works - scholarly vs popular
- Evaluation of information obtained from various sources.

Learning Outcomes

By the end of the session, the student should be able to:

- Identify scholarly journal characteristics.
- Evaluate various information sources.

Session 4:

- Introduction to the economic, legal and social issues surrounding the use of information and accesses, and how to use information ethically and legally.
- Citation systems (with different sources taken to class: journals, newspapers, conference, multi-authored book, Book with editor, online sources etc group work)

Learning Outcomes:

By end of session two, the student should be able to:

1. Describe how information is produced and organized, as well as the role of copyright and fair use
2. Recognize ethical, legal and social issues surrounding the use of information (e.g., academic freedom, right to privacy, free and fee-based information, intellectual property)
3. Identify citation elements for information sources in different formats (e.g., book, article, television program, Web page, and interview).

4. Describe how to use a documentation style to reference common bibliographic forms (books, journals, web sources, CD-ROMs, conferences, reports etc)

Session 5:

- Introduction to collaborative tools e.g. Google docs, blogs, wikis, social networks
- Using current awareness methods to keep up-to-date (RSS / news feed)
- Bibliographic management and referencing tools (Zotero)
- Publishing on the net - creating your own content

Learning outcomes

By the end of the session, the students should be able to:

- Use collaborative tools by creating blogs, Google docs.
- Set up RSS feeds from databases and other sites in the areas of their interest.
- Install and use Zotero to create and manage bibliographies.
- Create own content and upload it on the net.

Session 6:

- Information literacy project that covers Literature review process

Learning Outcomes:

By the end of this session, one should be able to:

1. Describe the scholarly publication process - e.g. how to get information, how to assess the relevance of literature, based on a topic or question, how to use it effectively, key word searches, ethics of getting information - Paraphrases and uses conventions of quoting properly, etc.
2. Write a term paper citing sufficient literature i.e. employ the use of both primary and secondary sources of data for a term paper, cites sources in a properly formatted bibliography using the APA citation method.
3. Demonstrate an awareness of what academic writing entails.

APPENDIX 6: SU INFORMATION LITERACY STRATEGY

Objective/Goal	Outcomes/performance measures	Target time	Responsibility
1. Promote information literacy to the SU community.	<ul style="list-style-type: none"> ● Endorsed SU IL framework. ● IL supports university-wide teaching & learning plans. 	2014	<ul style="list-style-type: none"> ● Library ● Faculties
2. Map appropriate information skills learning for levels of study and research.	<ul style="list-style-type: none"> ● SU graduates achieve IL competency. 	2014	<ul style="list-style-type: none"> ● Library
3. Embed IL into course curricula.	<ul style="list-style-type: none"> ● Partnership between library & faculty in IL established & acknowledged as critical to teaching & learning. ● Number of subjects with IL integrated into courses increased. ● Student-centered & curriculum relevant learning. 	2012	<ul style="list-style-type: none"> ● Library ● Faculty

4. Update SU staff IL skills	<ul style="list-style-type: none"> • SU staffs have information skills necessary for teaching and research. 	2011	<ul style="list-style-type: none"> • Library • Staff
5. Ensure professional skills of library staff involved in IL training	<ul style="list-style-type: none"> • Competent & professional IL training. • Highly skilled librarians. 	2010	<ul style="list-style-type: none"> • Library
6. Ensure SU researchers have bibliographic management skills training	<ul style="list-style-type: none"> • Competence with bibliographic management. 	2013	<ul style="list-style-type: none"> • Library • SU Graduate school • Faculties
7. Continuous improvement of IL.	<ul style="list-style-type: none"> • Modified IL program. • Culture of IL on campus. 	2014	<ul style="list-style-type: none"> • Library • Students • Staff

Goal	Initiatives
1	<ul style="list-style-type: none"> • Formulate a SU IL document. • Proactive liaison with faculties.
2	<ul style="list-style-type: none"> • Provide various IL program e.g. online tutorials, presentations, tours, practical etc

3	<ul style="list-style-type: none">● Liaise with SU academic staff to define students' IL needs.● Work collaboratively with academics integrates information skills teaching & resources into subjects.● Participate in appropriate teaching & assessment projects with academics.
4	<ul style="list-style-type: none">● Liaise with SU staff regarding their IL needs
5	<ul style="list-style-type: none">● Library staff to undergo IL training
6	<ul style="list-style-type: none">● Provide training in bibliographic management e.g. Zotero
7	<ul style="list-style-type: none">● ongoing assessment & refinement

APPENDIX 7: LETTER OF AUTHORIZATION



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/16/76647/10195**

Date:

11th April, 2016

Emily Cheronno Sawe
Strathmore University
P.O.Box 59857-00200
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “*Analyzing information literacy needs of post-graduate students at Strathmore University,*” I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **6th April, 2017.**

You are advised to report to **the Vice Chancellor, Strathmore University, the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.


BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The Vice Chancellor
Strathmore University.


The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.

APPENDIX 8: RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MS. EMILY CHERONO SAWE
of STRATHMORE UNIVERSITY,
59857-200 Nairobi, has been permitted
to conduct research in Nairobi County
on the topic: ANALYZING INFORMATION
LITERACY NEEDS OF POST-GRADUATE
STUDENTS AT STRATHMORE UNIVERSITY
for the period ending:
6th April, 2017.

Permit No : NACOSTI/P/16/76647/10195
Date Of Issue : 11th April, 2016
Fee Received :ksh 1000



Applicant's Signature
Director General
National Commission for Science, Technology & Innovation

APPENDIX 9: TABLE FOR DETERMINING SAMPLE SIZE

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361

110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Source: Krecie & Morgan, 1970