TEACHERS' COMPETENCIES IN THE IMPLEMENTATION OF THE COMPETENCY BASED CURRICULUM IN PUBLIC PRIMARY SCHOOLS IN NYAMIRA COUNTY, KENYA.

BY

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DECLARATION

Declaration by the Candidate

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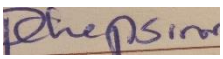
Sign …  …… Date 5th March 2025

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DEDICATION

I dedicate this thesis to my sponsors, Uncle Samuel Nyakondo Ogao, my brothers; Dr. Nyandusi Charles, Doctor Jared Orang'o, Mr. Samson Arosi Maosa and my mother Florence Bochaberi Ogao. My sister, Mrs. Nelly Maosa is no exceptional. I also dedicate this piece of work to my lovely wife, Milliam Kemunto Gisemba and my delightful God given son, Ethan Colson Ogero for their tremendous love, understanding and constant encouragement throughout my studies. God bless them abundantly.

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ABSTRACT

Kenya has implemented different levels of curriculum reforms to develop a competitive job market both regionally and globally by moving away from knowledge and skills acquisition to knowledge creation and application defining the Competency Based Curriculum (CBC). Research however, indicates that teachers lack adequate training to implement the CBC. The purpose of this study therefore was to examine teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County. Anchored on the pragmatic paradigm and drawing on inspiration from Diffusion of Innovation theory by Rogers, the study sought to; examine teachers' technological knowledge for implementing CBC, evaluate teachers' pedagogical knowledge for implementing CBC, assess the attitude of teachers towards the implementation of CBC and analyze teachers' evaluation techniques for implementing CBC. Mixed method approach was adopted through the convergent mixed research design. The target population constituted 101 head teachers and 516 grade six teachers from which a sample of 186 respondents consisting 31 head teachers and 155 grade six teachers was selected through purposive sampling and simple random sampling techniques respectively. Data collection instruments used were questionnaire, interview guide and observation guide that saw both quantitative and qualitative data analysis. Quantitative data from the closed ended questions was analyzed using Statistical Package for Social Sciences using descriptive statistics such as mean, standard deviation, frequencies, and percentages presented in tables. Qualitative data from the open ended questions, the interview and the observation guides were thematically analyzed and reported in narrative form. The study revealed that a significant majority of teachers (62.6%) lacked sufficient knowledge to effectively integrate technological tools in teaching, equally supported by head teachers who maintained that teacher training in integrating technology was not commensurate to the implementation of CBC. Most teachers (63.7%) predominantly utilized CBC teaching approaches. The head teachers similarly remarked that, teachers used the learner centered CBC teaching approaches, although some acknowledged occasionally resorting to lecture methods that did not align with CBC principles. Encouragingly, a majority of teachers (59.7%) demonstrated a positive attitude towards implementing the CBC with head teachers agreeing that teachers' attitude had positively improved as they felt motivated and confident teaching in line with CBC. Further, a substantial majority (68.2%) exhibited competence in employing CBC evaluation techniques. The head teachers unveiled that most teachers understood the CBC evaluation process, except for some who rarely constructed evaluation rubrics. In conclusion, while many teachers lack adequate technological knowledge for integrating technological tools into teaching, a majority largely employed CBC teaching approaches including role play, class discussions, modelling, experiential learning and fieldwork. Most teachers had a positive attitude towards implementing CBC with majority demonstrating competence in CBC evaluation techniques. The study recommends that the government should deploy computer experts to train teachers on technological skills. Teachers should undergo capacity building through re-tooling for them to adopt the learner-centered pedagogies and CBC evaluation techniques effectively. Teachers should be involved in the curriculum change process creating awareness on the benefits of CBC. It is hoped that this study will be useful to the policy makers, teachers and other stakeholders in mitigating CBC implementation shortcomings.

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ABBREVIATIONS AND ACRONYMS

CBA	Competency Based Approach
CBC	Competency Based Curriculum
CBEF	Competency Based Education Framework
CBT	Competence Based Training
CSO	Curriculum Support Officer
DoI	Diffusion of Innovation
E.A.C.	East Africa Community
GDP	Gross domestic product
IBE	International Bureau of Education
KESSP	Kenya Education Sector Support Program
K.I.C.D	Kenya Institute of Curriculum Development
KNUT	Kenya National Union of Teachers
MDU	Millennium Development Goals
NACOSTI	National Commission for Science, Technology and innovation
PCI	Pertinent and Contemporary Issues
PK	Pedagogical Knowledge
QUASO	Quality Assurance and Standards Officers
SDGs	Sustainable Development Goals
SNE	Special Needs Education
SPSS	Statistical Package for Social Sciences
TK	Technological Knowledge
TSC	Teacher Service Commission
U.S.A	United States of America
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.0 Introduction

This research investigated teachers' competencies for implementation of the competency-based curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya. This chapter presents the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, Significance and justification of the study, scope and limitations of the study, assumptions of the study, theoretical and conceptual framework and operational definition of terms.

1.1 Background to the Study

A nation may empower its citizens for both individual and national development by providing them with the fundamental values, knowledge, attitudes, and skills through its curriculum (IBE-UNESCO, 2017). The Kenya Institute of Curriculum Development (K.I.C.D, 2017) team created the competency-based curriculum (CBC), a new educational framework, to highlight the value of acquiring information and abilities as well as applying them to actual life circumstances. Competencies are the information, abilities, and attitudes necessary for a successful life in a knowledge-based society, (Ananiadou and Claro, 2009). By incorporating necessary abilities like teamwork and communication, self-efficacy, critical thinking and problem solving, creativity and imagination, and computer literacy, CBC has adopted the demands and goals of the twenty-first century (Njeru & Itegi, 2018).

An education system has the ability to equip its citizens with the required values, attitudes, skills and knowledge. This is essential to empower an individual and also for the national development. This has led to the introduction of the competence-based

system of education, in Tanzania, Arusha (East African Community, 2012). Kenya too has implemented different levels of curriculum reforms with an aim of improving the quality of education by moving away from knowledge and skills acquisition to knowledge creation and application through the introduction of CBC. This crucial change has been deemed necessary globally since it ensures development of knowledge-based skills for the current market.

According to Dale (2015), Canada described competency Education as personalized learning for every student that is based on guiding principles and focuses more on students demonstrating competencies on higher order skills. Jorma (2016) carried out a study in Finland on the effects of experiential learning on subsidiary knowledge and performance. Jorma found out that, the main focus in education was assessment, project and less on national examinations. Competency based curriculum in Zambia aimed at producing self-motivated, life- long learners that are also confident, productive and endowed with necessary education that enables them have a successful life. Mulenga and Kabombwe (2019) opine that the vision of Zambia was that through the competency-based system of education; the learner will be able to obtain the 3 critical education basics that are; useful appropriate knowledge, useful skills and suitable attitude. These education elements also known as competencies make up the students' ability to perform specific tasks.

According to a Hardy's (2003) study conducted in Canada, both pre-service and in-service teachers believed they lacked the technological know-how, pedagogical expertise, and assessment strategies necessary for the competency-based curriculum to be implemented successfully. According to Kaviti (2018), African countries like Rwanda, South Africa, Mozambique, Zambia, Zimbabwe, and Tanzania had

implemented CBC and teachers were able to walk side by side with the use of technological knowledge, well equipped with the relevant pedagogical knowledge and well informed on the CBC evaluation techniques to effectively implement the curriculum. On the contrary, these changes have not yet been affected in most of the Kenyan public primary schools since the inception of the CBC. For example, even with the emphasis given on the importance of relevant skillful tactics learners ought to acquire through active learning in the new curriculum. Amunga, J. Were, D., & Ashioya, I., (2020) opine that learning in the new curriculum may be challenging as most teachers have a negative attitude towards the CBC.

Waweru (2018) pointed out that a major barrier to the effective adoption of the new curriculum in Machakos County, Kenya, is the lack of teacher competency and training. This is consistent with research by Koskei and Chepchumba (2020) and Njeru and Itegi (2018), which found that as teachers are essential to the implementation of any school reform program, a major obstacle to the CBC's implementation was their lack of competency.

A letter by the Kenya National Union of Teachers (KNUT, 2017) addressed to the cabinet secretary for education by the KNUT secretary general expressed dissatisfaction on the side of trade unions. This, as cited by Yungungu (2017) show that trade unions have a role of promoting matters leading to the improvement of education and the establishment of a common system of education. However, according to Daily Nation Newspaper of December 27th 2017, KNUT complained on the hasty way the system change was being implemented without considering teachers' competency for implementing the CBC and called for an overhaul on the whole process.

Akala (2021) posits that teachers have encountered many challenges during the implementation of the CBC in Kenya. Given that this is a new dispensation, teachers may not have all the resources necessary for the successful implementation of the curriculum thus negatively impacting on their attitude towards implementation of the curriculum. A study by Syomwene (2022) found out that teachers alluded to having limited technological knowledge, pedagogical knowledge and evaluation techniques which are a prerequisite in the CBC philosophy and principles. On the same note, research by Jelagat (2020) in several North Rift and Western Kenya counties of Kakamega, Baringo, Trans Nzoia, Uasin Gishu, and Elgeyo Marakwet found out that Educational Assessment Resource Centers rarely instituted educational programs on the competency-based curriculum. This means that the government could have failed to adequately prepare teachers through training on methods of assessment, pedagogy and on technological knowledge before rolling out the new curriculum.

The 21st century skills are changing notably and this has increased demand for the current set of innovations imbued in CBC. This has generated a knowledge gap in teachers' competency for implementing the CBC. A report by KNUT (2019) noted that the shift of the education system in Kenya was hurriedly done without due consideration in properly preparing teachers on technological, pedagogical and relevant evaluation techniques for implementing the competency-based curriculum. Similarly, (KNUT, 2019) opined that the competency-based curriculum was being imposed on unprepared tutors. This suggests that as instructors have not fully adapted to the new pedagogies, technologies, and assessment strategies infused in the CBC, they could not be competent enough to apply the CBC (Momanyi & Rop, 2019).

Because of this, even though similar studies on teachers' competency to implement the CBC have been conducted throughout the nation, little emphasis has been placed on teachers' use of technology to implement the CBC, as well as on their pedagogical expertise and methods of evaluation that are consistent with the CBC principles—aspects that this study focuses on. Thus, there lacks clear evidence on whether teachers have been adequately prepared for the implementation of the Competence Based curriculum in Kenya. It was for this reason that this study considered it pertinent to find out teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya.

1.2 Statement of the Problem

The 21st century's rapid changing demands in the job market which prefer graduates who have acquired desired skills, knowledge, values and attitudes applicable in performing tasks in real life has resulted to curriculum change (Mary & Samuel, 2023). This has resulted to adoption of Competency Based Curriculum (CBC) globally, Kenya included. Thus, the introduction of the competence-based curriculum in Kenya has imposed new demands on teachers. In order to meet the expectations of the new curriculum on teacher education graduates, teacher education institutions must update their curricula (Warrio, 2019; K.I.C.D, 2017). Teachers have been receiving training in an effort to properly prepare them for the successful implementation of the CBC Muraya (2019). In this regard, teacher implementation of the competency-based curriculum is being trained by the Kenya Institute of Curriculum Development (K.I.C.D.) and the Ministry of Education (IBE-UNESCO, 2017). Thus, K.I.C.D requires and expects that at the end of the training, all the teachers should have the competencies necessary for effective implementation of the competency-based curriculum.

However, Jelagat (2020) maintains that despite efforts by the Ministry of Education and K.I.C.D. to train teachers on competency-based curriculum implementation through retooling for capacity building processes, there is a significant gap in teacher competency. This notwithstanding, the extent of teachers' competencies remains speculative and this has raised concern among teachers, addressed by the current study. The findings by KNUT (2019) reported that teachers had difficulties in implementing the curriculum because they lacked adequate training. The report again highlighted that CBC training sessions were inadequate, ineffective and the duration was short. A study by Muasya (2019) found one of the main obstacles to the successful implementation of CBC is the lack of proper training for teachers. According to Shawer (2017), curriculum developers should involve teachers both locally and centrally and ensure that they receive enough training. Momanyi and Rop's (2019) study, which was based on earlier findings, demonstrated that the primary obstacle to the successful implementation of CBC was instructors' inadequate knowledge and skills about curriculum implementation.

Wanzala (2018) as cited by (KNUT 2019) attributed this to the fact that the shift of the education system in Kenya was hurriedly done without due consideration in preparing teachers to competently implement the competency-based curriculum.

There is little evidence on the competency of teachers for implementing the competency-based curriculum (Amunga et al., 2020). Therefore, the present level of Kenyan teachers' competencies for CBC implementation is yet unknown. Furthermore, Mulongo (2017) discovered that teachers in Kenya, Tanzania, and South Africa under-perceived the newly developed curriculum due to lack of competency, which resulted in very poor implementation. This research was conducted on cross-national learning

assessments: relationship to education policy curriculum and capacity development to make teachers competent.

The available studies on CBC in Kenya cast doubts on the competence of teachers but do not actually interrogate the competence. These findings gave the researcher the motivation to investigate this gap by questioning teachers' technological, pedagogical, attitude, and evaluation techniques for implementing the competency-based curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya.

1.3 Purpose of the Study

The purpose of this study was to examine teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools in Nyamira South Sub-County, Nyamira County, Kenya.

1.4 Objectives of the Study

The following objectives guided the study.

i. To examine teachers' technological knowledge for implementing the competency-based curriculum in public primary schools.
ii. To evaluate teachers' pedagogical knowledge for implementing the competency-based curriculum in public primary schools.
iii. To assess teachers' attitude towards the implementation of the competency-based Curriculum in public primary schools.
iv. To analyze teachers' evaluation techniques for implementing the competency-based Curriculum in public primary schools.

1.5 Research Questions

The specific research questions for this study are:

i. What technological knowledge do teachers have in implementing the competency-based curriculum in public primary schools?
ii. What is the extent of teachers' pedagogical knowledge for implementing the competency based curriculum in public primary schools?
iii. What is the attitude of teachers towards the implementation of the competency-based Curriculum in public primary schools?
iv. What evaluation techniques do teachers use for implementing the competency-based curriculum in public primary schools?

1.6 Justification of the Study

Several studies carried out in Singapore, Canada, Pakistan, Scotland, Finland and other African countries such as Rwanda, South Africa, Mozambique, Zambia, Zimbabwe, and Tanzania are unanimous that the introduction of CBC was not getting enough support from teachers. This could have been due to a majority of teachers not adequately and competently being trained for execution of CBC. Alternatively, it could be that teachers struggle to execute it (Rabia & Khan 2020; Debra & Susan 2014; Hardy, 2003; Momanyi & Rop, 2019; Christina & Kelvin, 2015; Ndayambaje, 2018; Albert, 2015; Hipolite, 2019; Muasya, 2019; Jelagat, 2020; Syomwene, 2022; Ondimu, 2018; Mulongo, 2017 and Oduor, 2019).

Although many researchers have studied teachers' competencies in the implementation of the Competency Based Curriculum, little research has been conducted regarding teacher's technological knowledge, teachers' pedagogical knowledge, teachers' attitude and teachers' evaluation techniques for implementing the competence-based

curriculum. Therefore, there lacks clear evidence on teachers' competencies in the implementation of the CBC. This situation is quite significant in African countries, Kenya included. Further, the available literature on the competence-based curriculum in Kenya also cast doubts on teachers' competencies in the implementation of the Competency Based Curriculum, (Koskei & Chepchumba, 2020; Akala, 2021; Amunga et al., 2020; IBE-UNESCO, 2017; Jelagat 2020; Mary & Samuel 2023; Momanyi & Rop, 2019; Nelly 2020; Ngeno et al., 2021; Njeru and Itegi, 2018; Obuhatsa, 2020; and Ondimu, 2018), but does not actually interrogate the competence.

There is therefore, a considerable gap on literature on teachers' competencies in the implementation of the CBC. The present study sought to contribute towards filling this gap, hence the justification for the study whose purpose was to examine teachers' competencies in the implementation of the CBC in public primary schools in Kenya.

1.7 Significance of the Study

According to Creswell (2018) significance of the study in research refers to the potential relevance or impact of the research findings. The government through the department of Basic Education, in the Ministry of Education would consider this study useful in training teachers adequately to improve on their technological knowledge, pedagogical knowledge and on the CBC evaluation techniques for effective curriculum implementation. This will enable teachers to achieve new levels of productivity and implement useful digital tools to expand learning opportunities for students.

The knowledge from this study will be useful in creating awareness for any future planning for technological integration in curriculum delivery in the public primary schools such as the provision of training of teachers in computer literacy and integration of technology for curriculum implementation. In addition, field officers will find this

research useful as it may assist them in determining areas of focus to be addressed for a successful implementation of the CBC.

To enhance the quality of teaching in the classroom, teachers will be equipped with learner centered pedagogies to effectively and competently implement the CBC.

The study might also generate information which may positively change teachers' perception on the implementation of the competency-based curriculum. Moreover, this study will be useful to teachers in carefully selecting and skillfully handling different evaluation techniques to make teaching and learning effective.

Quality Assurance and Standards Officers (QUASOs), might find this research useful in providing pre-service training to teachers on the paradigm shift and strengthen their supervisory roles so as to advice teachers on ways of improving classroom instructional pedagogies to improve on quality education. The study will also act as a base of knowledge for future research in Kenya as it will help to add new knowledge into the field of education specifically in curriculum innovations.

1.8 Scope and Limitations of the Study

1.8.1 Scope of the study

According to Matula et al. (2018), scope of the study refers to identifying and specifying what the study will include and what it will leave out in order to guide readers' understanding. It also refers to as the elements that will be covered in a study. The factors considered for the study focused on teachers' requisite technological knowledge, teachers' pedagogical knowledge, teachers' attitudes and teachers' evaluation techniques, necessary for effective implementation of the competency-based curriculum. The study involved grade six teachers and head teachers in the selected public primary schools. As much as other teachers were the implementers of the CBC

and they were suitable to be part of this study, the researcher chose grade six teachers only to be representative in determining teacher competencies for implementing the CBC. Head teachers were purposively selected for this study since they were the school administrators and they had experience on how the schools are prepared for the implementation of CBC and that they supervise curriculum implementation in their respective schools.

Moreover, grade six was selected for the study since it was at this level that the Kenya National Examination Council tested the learners in the Kenya Primary School Education Assessment in preparation to transit to junior secondary school.

The study was confined to public primary schools within Nyamira County in Nyamira South Sub-County. The decision to choose Nyamira South Sub-County was to act as a representative of the situation of teachers' competencies in the implementation of the Competency Based Curriculum among teachers in other areas of Kenya where CBC is being implemented.

The researcher used both purposive sampling and simple random sampling techniques to select the study sample. Moreover, the study used the questionnaire, interview guide and observation guide as data collection tools. This study adopted the pragmatic philosophical paradigm and utilized the mixed methods approach narrowed down to convergent parallel mixed methods design to gather both quantitative and qualitative data. With respect to theoretical orientation, the study was guided by Diffusion of Innovation theory by Rogers (2003). In this case, the CBC is an innovation in the Kenyan Curriculum.

1.8.2 Limitations of the Study

Wordvice (2021) maintains that limitations of any particular study concern potential weaknesses that are usually out of the researcher's control and they may affect the study design, results and ultimately, conclusions. Limitations for this study are therefore the constraints, which the researcher encountered when conducting the study and had little or no control over them.

This study encountered two major limitations. First, there was a challenge of the selected sample population in that the researcher depended on the cooperation of the respondents in the provision of data for the study. The researcher experienced the respondents' reluctance in cooperating with the researcher for fear of exposing the situation of their competency in the implementation of the competency-based curriculum. This was evident in data collection process, whereby some respondents were somehow reluctant to give information as others were not ready to be interviewed. The researcher mitigated this by explaining to the respondents the purpose of the study and assured them that their responses would be treated with uttermost confidentiality.

Secondly, throughout the time of data collection process, part of the study relied on the questionnaire for grade six teachers. In the course of answering the questions in the questionnaire, some of grade six teachers may not have been sincere in giving their responses making it difficult to establish the veracity and truthfulness of the information given. However, this was minimized through the simultaneous triangulation of the data collection methods where interviews for head teachers and observation schedule were incorporated to verify the responses elicited by the head teachers.

1.9 Assumptions of the Study

The study had the following assumptions;

1. The selected teachers in Nyamira South-Sub County, Nyamira County, will be cooperative during the data collection process.
2. The Government, the Ministry of Education and the Teacher service Commission will make use of the recommendations of the study findings.
3. The sampled teachers will give honest answers to the questions in the questionnaire.

1.10 Theoretical Framework

According to Tegan (2022), a theoretical framework is an outline for establishing the arguments in a research investigation, consisting of a foundational assessment of existing theories. Researchers create theories in order to make predictions, come to conclusions, and explain phenomena. The framework for defining the researcher's philosophical, epistemological, methodological, and analytical approaches to the dissertation as a whole is provided by a theory.

The study therefore, drew inspiration from Diffusion of Innovations Theory (DoI) as specified by Rogers (2003). According to Rogers, diffusion is the process by which an innovation is communicated through certain channels adopted by members of a certain community. According to this theory, the four factors that influence the adoption of an innovation include: the innovation itself, the communication channels used to spread information about the innovation, time, and the nature of the society to whom it is introduced.

To explain curriculum innovation in the Competence Based Curriculum, an innovation involves introduction of something new in the curriculum that deviates from the

standard and traditional practice, often because society has changed so must the curriculum. This aligns well with CBC which advocates moving away from knowledge and skills acquisition to knowledge creation and application. Thus, CBC as a Curriculum innovation in Kenya has introduced new and improved practices and methods into how students are taught by the teachers and how the curriculum should be implemented. Most of the CBC components are very new in that digital literacy has been imbued and now it is a requirement in CBC. Further, CBC requires teachers to abandon the traditional teaching and evaluation methods for the new ones that align with CBC principles. This is meant to effectively implement CBC which consequently affects the attitude of the implementers.

Thus, in relation to the four objectives of this study, Rogers' theory, Rogers (2003) explains that there are four major elements that deal with the diffusion of innovations and they include; innovation-decision process, the rate of adoption, the perceived attributes and the individual innovativeness.

The four objectives of the study can be linked with the four elements of Rogers' theory. Such that, the innovation-decision process is based on the knowledge stage where the potential adopters of an innovation must first learn the innovation and know how it functions. The potential users must also be persuaded as to the merits of the innovation before they adopt it. This element is in tandem with the first objective about teachers' technological knowledge for implementing the competency-based curriculum. In its connection, teachers must first learn about technological aspects to be used in order for them to be competent in digital literacy for implementing the CBC. Technology as an innovation is deemed an important aspect in education as it makes it easier for learners to grasp concepts easily and enjoy learning. Classrooms that immerse students in

technology are more likely to produce learners who are competent in skills like Critical thinking, Communication, Collaboration and Creativity; the core skills for CBC. On this aspect, teachers are supposed to be taken through in-service training and workshops organized for them to be able to competently use technology for implementing the CBC.

According to Rogers (2003), on the adoption rate, an innovation's first uptake happens gradually and slowly. After then, it will experience a fast development phase before stabilizing. Using an existing idea is the process of adopting an innovation. Rogers (2003) went on to say that innovations are embraced and institutionalized more quickly the more reinvention occurs. The degree to which an innovation is altered during the acceptance and implementation phase is known as reinvention. This component supports the second goal, which focuses on the pedagogical knowledge that teachers should adopt and how utilizing different pedagogies affects teaching techniques. The instructional knowledge of teachers is more malleable.

As an innovation, teaching methods offer a wide range of potential uses, and educators are capable of skillfully combining several child-centered pedagogies to promote learning. Teachers must first develop the necessary pedagogical abilities for implementing the CBC and gain a gradual understanding of their pupils before they can deliver lessons effectively.

Effective pedagogical skills adopted by teachers, improves teaching and learning styles. Moreover, they lead to better delivery as well as retention of knowledge by using various methods that match students' requirements and needs. According to Rogers (2003), regardless of the nature and characteristics of people, the properties of an innovation itself affects its rate of adoption in the society. In relation to implementation of CBC, the use of different pedagogies like problem-based learning, experiential

learning, modeling, class discussions, project-based learning, presentations, instructional method and collaborative learning makes teachers competent and gives them an insight into the best practices in a classroom setting. These pedagogies may have high rate of adoption by the teachers for they allow instructors to understand how different students learn so they can tailor their lessons to suit learner's needs.

According to Rogers (2003) perceived attributes of innovation, holds that the innovation must have some relative advantage over an existing innovation. Rogers (2003) defines relative advantage as the extent to which a new idea is viewed as superior to the one it replaces. Therefore, if an individual perceives that the innovation has greater advantages, he/she will develop a positive attitude towards the innovation and then its adoption will be rapid. This element is in tandem with the third objective of the study which talks about teachers' attitude towards the implementation of the competency-based curriculum. A teacher, who possesses a positive attitude towards the curriculum change, is likely to implement the CBC effectively.

Individual innovativeness is defined as developing, adopting or implementing an innovation Yuan (2010). Rodgers (2003), explains that the individual innovativeness idea holds that new knowledge is always being created within the social system and must be learned before being adopted or put into practice which needs to be learned before its adoption or implementation. This is in tandem with the fourth objective about the CBC evaluation techniques based on individual competency and not individual academic excellence for implementing the CBC. In relation to CBC, teachers are expected to learn about the new CBC evaluation techniques to competently implement the CBC. The Competence Based Curriculum requires that individual teachers regularly perform formative assessment that would be used to offer each learner a personalized learning pathway in line with their competencies.

The Diffusion of Innovations Theory Rogers (2003) was therefore used to examine the teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya.

1.11 Conceptual Framework

Adom, D. Kamil, E. H., & Joe, A., A. (2018) postulate a conceptual framework to a diagrammatic representation of the relationships among the variables under study. Further, Adom et al. opine that, a conceptual framework is a visual representation in research that helps to illustrate the researcher's understanding of how the research problem will be explored, the specific direction the research will take, and the relationship between the different variables in the research study. The Conceptual Framework is used to show how the independent variables affect the dependent variables.

The dependent variable was successful implementation of Competency Based Curriculum in public primary schools. The independent variables were: Teacher's technological knowledge, Teacher's Pedagogical knowledge, Teacher's attitude and teacher's evaluation techniques. The process was the compliance with competency-based approach to teaching and learning.

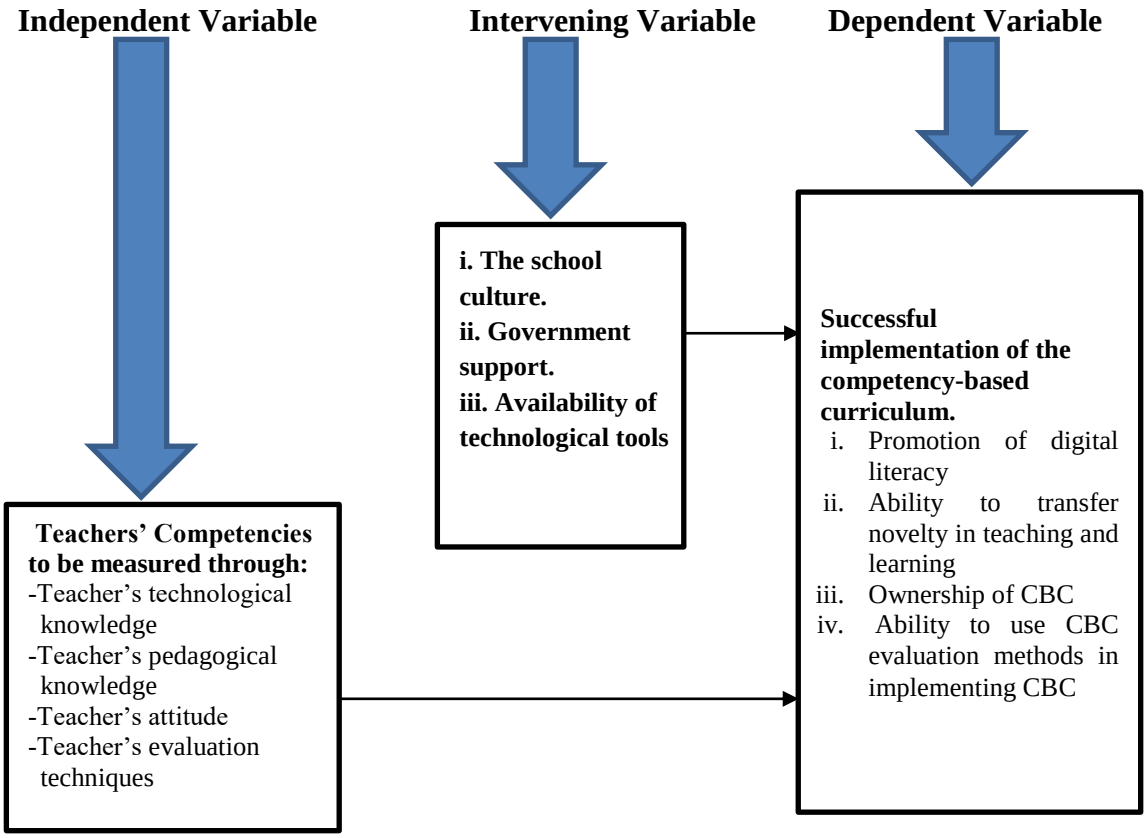

Figure 1.1: The conceptual framework showing the relationship between variables

Source: (Ogero, 2025)

Figure 1 shows the interaction of the study variables; independent, intervening and dependent variables.

Bhandari (2022) describes an independent variable is one that you alter, control, or modify in a research study to examine its effects. The reason it is referred to as "independent" is that it is unaffected by other factors. Teachers' competences served as the study's independent variable. The independent variable's characteristics were; Teacher's technological knowledge, Teacher's pedagogical knowledge, Teacher's attitude and teacher's evaluation techniques. They constitute the input variables. They are significant in that acting on and operating through the teaching and learning process, they influence the dependent variable that is implementation of the CBC curriculum (output variable). A teacher, who possesses requisite technological knowledge,

pedagogical knowledge, positive attitude towards CBC and adequate evaluation techniques, is likely to implement the CBC effectively. On the reverse, a teacher who lacks sufficient qualities of the same variables is likely to be unsuccessful in the implementation of the CBC.

Recent studies outlined by Cherry (2022) suggest that, a dependent variable refers to a variable that is being measured or tested in a research study. The dependent variable for the study was the successful implementation of the Competence Based Curriculum. Concerning successful implementation of CBC, the researcher inquired into whether teachers were able to respond to students productively through promotion of digital literacy, if they had an ability to transfer novelty in teaching and learning, and whether or not teachers own the new curriculum, an indication of having a positive or negative attitude towards the CBC. Further, the researcher inquired whether teachers had an ability to use CBC evaluation methods for successful implementation of the CBC. These aspects will be a clear indication that will reflect on the competence based approach to establish whether the CBC is successfully rolling or if there is need to retreat and reflect.

Finally, Creswell (2018) states that, an intervening variable stands between the independent and dependent variables and it transmits the effect of an independent variable on a dependent variable. The intervening variables were the school culture, government support and availability of technological tools.

The school culture influences whether or not the curriculum will successfully be implemented. School culture has a significant impact on a learner's teaching and learning process. A positive culture fosters an environment that supports a learner's well-being, promotes engagement and encourages academic achievements. Culture

instills values, ideologies, and customs in learners. Further, culture influences a learner's aspirations and if a learner feels that he/she is not taken into account or not expected to succeed, they will probably feel less care for their academic outcome. This aspect can be a source of distraction, undermining effective implementation of the CBC.

Moreover, educators function well within a school environment that values and encourages academic achievement and a desire to learn, and where effective CBC implementation is acknowledged and rewarded. Teachers who show a sincere interest in their students and their backgrounds will be able to affirm the students' experiences and culture, which will spark students' interest in the lesson and lead to a successful implementation of the CBC.

In addition, government support is necessary for a successful implementation of the CBC. This can be shown through the provision of funds by the government for training teachers through seminars, workshops and retooling which will enhance their competencies to successfully and competently implement the CBC.

Finally, availability of relevant technological tools significantly impacts student's learning and motivates them to learn. They also make teaching and learning process easier.

1.12 Operational Definition of Terms

Assessment criterion: The standards against which evaluation for a particular task is done (Armstrong et al., 2015). It is used in this study to refer to a teacher's ability to set standards used to guide learning and assess learners' outcomes.

Attitude: refers to a set of emotions, beliefs, and behaviors toward a particular object, person, thing, or event (Olufemi, 2012). In this study it denotes teachers' perception of CBC, leading to their action in its implementation.

Class discussions: A teaching approach that provides for a sustained exchange between and among teachers with their students (Carrasco & Irribarra, 2018). It denotes the interactive dynamic exchange of knowledge among students as used in this study.

Collaborative learning: Refers to a participatory learning approach which involves pupils working together on activities (Ghavifekr, 2020). In this study, it is used to refer to an approach where students work together to provide an appropriate response towards a problem.

Competence: refers to a broad definition that outlines the necessary behaviors, knowledge, and abilities as well as how they should be used to help people do well in a variety of settings, including the workplace, school, and other areas of life (Vitello et al., 2024). Competence in this study refers to teachers' capacity and flexibility to apply the CBC in a competent manner.

Competency- based curriculum – refers to a curricular that emphasizes the complex outcomes of a learning process among learners (Amutabi, 2019). In this study, it is a curricular that emphasizes the significance of not only developing skills and knowledge but also applying those competencies to real life situations.

Curriculum delivery- It's the process of imparting knowledge and skills. Explanatory, interactive, hands-on, and collaborative instruction are some of the curriculum delivery strategies that will be used in this study.

Curriculum implementation- refers to how educators use certain resources found in curricula to offer instruction and assessment. (Bediako, 2019). In this study, it refers to a teacher's ability to competently deliver instruction in achieving the desired educational goals by adoption and utilization of CBC teaching and learning methods and processes that will facilitate the development of the expected competencies in learners.

Experiential learning this is a teaching method where students learn by doing and focus on their learning process through application, observation and reflection (Kolb et al., 2017). In this study, it refers to hands-on activities like debates, panel discussion, symposium, reflection journals and laboratory experiments.

Pedagogical knowledge- Capacity to integrate subject-specific knowledge with teaching expertise, possessing subject-matter expertise and the ability to instruct a particular subject well (Shing et al., 2015). It relates to teaching expertise, including specialized techniques infused into the CBC, in this study.

Public schools- refers to educational institutions that are funded by the public and serve local students. They are typically part of a system of free public education that also includes elementary and secondary schools. The government-run primary schools in question are under the purview of the Ministry of Education and are subject to government approval and regulation over their sources of funding and expenses.

Technological skills of teachers: refer to an ability to interact and complete tasks using computer-based and other associated technologies. In this study, it refers to a know-how

in using technological tools like computers, phones and projectors for the implementation of the competency-based curriculum.

Transfer of learning. refers to putting newly acquired knowledge, tactics, and abilities to use in a different setting. It refers to using acquired knowledge, abilities, and concepts in novel situations in this research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The purpose of this study was to examine teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya. This chapter reviews literature related to the study and discusses various relevant studies related to teachers' competencies and the implementation of competency-based curriculum. The review is organized under the following sub-headings: the concept of competency-based curriculum, teachers' technological knowledge on implementation of competency-based curriculum, teachers' pedagogical knowledge on implementation of competency-based curriculum, teachers' attitude towards implementing competency-based curriculum and teachers' evaluation techniques for implementing competency-based curriculum, related research studies and the chapter summary.

2.2 The Concept of Competency Based Curriculum (CBC)

Kenya has implemented a new educational system known as the Competency-based Curriculum (CBC). It highlights how important it is to acquire knowledge and skills and to apply them to actual situations in life. The CBC idea places a strong emphasis on the development of skills as a combination of information, values, attitudes, and talents necessary for performing various activities Mulder (2014). Here, students work at their own pace to show that they have mastered the skills required for their chosen field of study Gruber, 2018. According to Jallow (2011), pupils exhibit their capacity to perform a task when they display a competency. Increased student engagement, which comes from students taking ownership of the learning process as one of the best consequences

of CBC. It is a completely tailored experience since it supports individualized learning and fits a range of learning styles (Gruber, 2018).

The United States of America (USA) introduced competency-based curriculum development and implementation in 1957, according to scholars. The general consensus that there was a problem with the standard of education in the United States served as the foundation for public discourse and government initiatives. The Performance-Based Teacher Education movement was one reaction to this dilemma, combining educational theory to create Competency Based Training (CBT) (Hodge, 2007). Political catalyst of the movement was the American reaction to perceptions about Soviet Union technological progress that came to a head in the launch of Sputnik Harris, R. Guthrie, H. Hobart, & Lundberg, D. (1995).

As Harris et al. (1995) report, the immediate reaction of the United States was to undertake some deep soul searching with respect to its education and training system. In order to regain the technological ground that seemed to have been lost to its Soviet opponent, the United States was spurred to restructure science and engineering education by Sputnik's beeping signal (Hodge, 2007).

Following shifts in the economy and the rate of technological advancement, deficiencies in the workforce's skill set were noticed in Australia, which resulted in the creation of CBC. (Smith, 1996). According to Wahyuni (2016) CBC was initiated in Indonesia in 2004 and was centered on building up the ability to carry out duties in accordance with certain performance standards that had not been set. The CBC was expected to produce graduates who could compete at the worldwide level.

According to Mauranaza and Mukamanaza (2017), developing nations are having difficulty adopting competency-based curricula since they are blatantly copying

developed countries' approaches. According to Cohen et al. (2010), this makes it difficult to prepare for and slows down the implementation of curriculum reform.

South Africa was the first country in Africa to implement a competency-based curriculum in 1998 in response to a severe lack of professionals, including technicians, engineers, and craftsmen. The goal of CBC adoption in South Africa was to transform people's perspectives and provide them with marketable skills to deal with difficult problems in the twenty-first century (Mulenga & Kabombwe, 2019).

According to Cheptoo and Ramadasi (2019), additional African nations have followed the CBC model. For example, competency-based curriculum (CBC) was introduced in Rwanda in April 2015. The new curriculum has received praise for being less academic and more skill-based, practical, and geared toward everyday living and the workplace (Cheptoo & Ramadasi, 2019).

The Zambian education system changed its curriculum in 2013 from a knowledge-based to a skill-based one in an effort to better prepare students for the difficulties that will face them in the quickly evolving global landscape. Producing self-driven, lifelong learners, self-assured, holistic people, and autonomous learners with the values, abilities, and knowledge necessary to thrive in education and in life was the goal (Zulu, 2015).

When teachers employed CBC approaches in the classroom, students found learning enjoyable; attendance improved, and pass rates rose. Large classes that hampered efficient delivery and a shortage of qualified teachers to carry out the curriculum were among the difficulties, as was the lack of adequate teaching and learning resources and experience applying technological knowledge to the teaching and learning process (Urunana, 2018).

Kenya's 8-4-4 curriculum system was overly restrictive and offered little opportunity to match students' basic education to their professional interests, aptitudes, and abilities. This was the driving force behind curriculum reform in Kenya. As a result, it was judged necessary to switch from rote memorization to teaching-learning strategies that encourage the development of competences and skills that can be used to solve problems in real life, such as incorporating technology knowledge into the classroom (World Bank, 2011).

The Kenya Institute of Curriculum Development (K.I.C.D.) has published the CBC design, which aims to develop students' competence in seven areas: citizenship, digital literacy, communication and collaboration, critical thinking and problem-solving, creativity and imagination, and self-efficacy. Eight fundamental values—love, responsibility, respect, unity, peace, patriotism, social justice, and integrity—are intended to be instilled in students through the curriculum (Warrio 2019; K.I.C.D 2017).

To better prepare educators for the successful implementation of CBC, training has been provided to them (Muraya, 2019). It is also mentioned that all instructors are expected to graduate from the program with the technological know-how, cutting-edge pedagogical strategies, and assessment methods that support the CBC ideals and are essential for implementing curricula effectively. Teachers believe that the system has quadrupled their workload even though they have received instruction on how to administer the curriculum. Since grades are given for both academic performance and extracurricular activities, they have a lot of work to do in maintaining each student's records (Warrio, 2019). It is expected of the teacher to maintain a portfolio with the information about each student's strengths and weaknesses from frequent assessments.

In Nairobi County, Kenya, Ogalo (2023) conducted a study on how teachers perceive the use of information and communication technology in teaching English in secondary schools. The study's findings indicate that teachers' technological expertise, pedagogical knowledge, and assessment methods are evolving significantly, and that there is a growing need for teachers to receive training on the most recent innovations in CBC. Teachers' knowledge gaps in applying the competency-based curriculum have resulted from this.

The K.I.C.D report of 2017 on Total Integration of Quality Education and Training revealed that one of the main obstacles to CBC implementation was the lack of technological proficiency among teachers. The survey also notes that a small number of teachers were familiar with CBC pedagogy and evaluation methods. Most of them were having difficulty grasping the idea and lacked the ability necessary to present the program in an efficient manner. Consequently, even though the Kenya Institute of Curriculum Development (K.I.C.D.) has taken steps to train teachers in this area, the degree of teacher competency for implementing the competency-based curriculum appears to be low (IBE-UNESCO, 2017).

According to the Daily Nation Newspaper of 22nd February, 2018, the stakeholders in Kenya raised concern about their competency coupled with criticism from educationalist based on its tasking and resistivity to change complaining on lack of proper training of teachers. Moreover, the Kenya National Union of Teachers contended that tutors who were ill-prepared were being forced to teach the competency-based curriculum (KNUT, 2019). It is clear that not much information is provided regarding teachers' capacity to apply competency-based curricula.

The review of related studies indicates that there is scarcity of documentation between teachers' competence and the current set of innovations imbued in CBC. This elucidates that minimal attention has been given on teachers' integration of technology for implementing CBC, and on the use of pedagogical skills and evaluation techniques that aligns with the CBC principles. Therefore, there lacks clear evidence on the competency of teachers and whether they have been competently prepared for implementing the Competence Based curriculum in Kenya. It is for this reason that this study considered it pertinent to find out teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya.

2.3 Teachers' Technological Knowledge for Implementing the Curriculum

Technological knowledge (TK) refers to teachers' ability to operate a variety of technologies for instructional purposes (Mishra & Koehler 2006). Technological knowledge is seen as a tool that helps in the learning process and helps students stay engaged (Bugueno, 2013).

Researchers have found that integrating technology into teaching and learning has become more common, and that technology itself helps students learn. Chien (2016). Technology integration, according to Ramorola (2014), is the process of integrating technology into teaching and learning strategies in order to meet curriculum standards and learning objectives for every lesson, unit, or activity. Other technological means used in instruction, such as computers, interactive media, satellites, teleconferencing, and the internet, are also employed to support, enhance, inspire, and create learning.

According to Marcelo and Yot-Domínguez (2018), continuous technology training has been consistently highlighted in teacher training literature. However, assisting educators with technology use involves more than just teaching them how to use it; it also entails offering them ongoing assistance and direction as they work through the challenges of integrating technology into the classroom. Subject matter seems to influence both the demand for and type of technology utilization. According to Marcelo and Yot-Domínguez's (2018) investigation into the various ways lecturers use technology in their classes, social science lecturers typically use it to present information, engineering lecturers use it for experiential learning activities, and health science lecturers use it more for communicative learning activities. Hence, it is essential of educational institutions to generate competent and skilled educators and assist them in utilizing technology to carry out the curriculum. Therefore, teacher education institutions have incorporated the ICT courses in their syllabus Polly, D., Mims, C., Shephaerd, C., & Inan, F. (2010).

Throughout Europe, technology, education subject knowledge, structure and content vary greatly. Design education should be included into the curriculum in connection to technology (Williams, 2000). Computers and the internet are used in the educational systems of nations including Korea, Japan, China, India, and the United States of America. In an attempt to spur creativity, American schools have been using more technology. By offering innovative teaching strategies, encouraging self-sufficiency, and broadening the student's horizons, technology-integrated instruction can revolutionize modern classrooms and foster student motivation, engagement, and achievement (Howley et al., 2011). According to Howley et al. (2011), a variety of factors, such as teacher attitudes toward technology, administrative support, the suitability of the technology and school resources determines the effectiveness of a well

technology-integrated instruction towards the integration of the technology in education. Mulenga and Kabombwe (2019) claim that the rapidly evolving global landscape, in conjunction with rapid technological progress and a growing demand for trained personnel in the job market, have necessitated the integration of digital literacy into the educational curriculum.

Goos (2010) opine that technology should be used as a partner to assist the learners and teachers in developing access to new ideas and tasks. Further technology will also assist them to find a new way of handling the previous known tasks and to explore further perspectives of knowledge. For the students, technology becomes an inseparable part of the learning process. Classrooms that immerse students in technology are more likely to produce learners who are competent in skills like critical thinking, communication, collaboration and creativity technology has brought many changes in the 21st century and continues to affect many sectors in our modern society. According to Buageng-Andoh (2012) there is an increasing demand in the use of technology in schools in the delivery and teaching of knowledge and skills required for the 21st Century.

Teachers need technological resources to help improve their pedagogical practices and access to other online resources. The integration of technology in teaching and learning can help improve their content delivery and classroom engagement (Njeru & Itegi, 2018). According to Koskei and Chepchumba (2020), learners should ideally apply the competences they have gained through digital literacy to skills, knowledge, ethics, and attitudes in a variety of clearly defined real-life or practical scenarios.

Al-Awidi and Aldhafeeri (2017) opine that teachers should be equipped with all the teaching and technical skills that will help them to effectively and efficiently adopt and integrate technology into the school curriculum. According to Singh and Chan (2014),

teachers' readiness and willingness is fundamental for successful adoption and integration of technology into the learning and teaching process. This implies that, if teachers are not competent and well engaged in all phases of their integration to the curriculum, then technology knowledge may not be adequately implemented in the process.

Lubis (2018) carried out a study on ICT Integration in 21st-Century in Indonesia. Lubis found out that, technology integration in Indonesia had a good impact and it gave to a positive perception. However, time allocation and little knowledge on digital literacy were the main obstacles in the integration of ICT in learning institutions in Indonesia.

A study carried out in Canada by Hardy (2003) found out that pre-service and in-service teachers felt that they were not well equipped and sufficiently prepared with technological skills fundamentally for handling and use of technological tools for effective implementation of technology in their classrooms. Even though teachers had received formal training in instructional technology, majority of teachers had little knowledge on integration of computer technology into classroom instruction.

Hennessy, S. Harrison, D. & Wamakote, L. (2010) observed that the main hindrance in implementation of technology was low levels of teachers' technological knowledge and skills. Ramorola (2014) listed a number of obstacles to technology integration in the classroom, including a lack of technology policies, technophobia, a lack of resources, a shortage of teachers with the necessary skills, maintenance and technical issues, risks and security issues, a lack of parental involvement, and a lack of time. Buabeng-Andoh (2012) and Hennessy et al. (2010) point out that the teachers' perceptions towards technology determines to a large extent if they will adopt and integrate in their teaching.

They further state that fear, lack of confidence and competence among the teachers hinder use of technology.

Teachers frequently lack the ability to integrate technologies into classroom instruction due to the absence of professional development opportunities; this issue is more prevalent in schools located in remote areas. As a result, it's possible that these educators lack the knowledge necessary to integrate digital tools into the curriculum (Smith, 2013).

According to research, teachers in countries where CBC has been implemented do not fully comprehend the technology requirements of the curriculum, as Mulenga and Kabombwe (2019) honestly acknowledge. Because of this discrepancy, competences have been reduced to learning objectives, checklists, or result mastery. This has made it impossible to achieve the innovation's objectives.

According to Ondimu (2018) curriculum delivery and the teaching process can be facilitated by technology. However, the implementers who are the teachers lack sufficient knowledge and skills to maximally exploit, use and integrate technology to support curriculum implementation. Digital Literacy (DL) is a crucial area that is not frequently implemented in many schools. To keep instructors up to date on the newest and most effective teaching techniques and document preparation, it has been recommended that they undergo ongoing training and reskilling through online and in-service training (Komba & Mwandanji, 2015). In addition, teacher competency, a lack of virtual assistance, and a paucity of equipment are all potential barriers to low levels of digital literacy implementation (Njeru & Itegi, 2018).

Teachers vary in their beliefs about the role technology plays in the classroom, which correlates to their use of technology and perceived competence to use technology

(Marcelo & Yot-Domínguez, 2018). According to Marcelo and Yot-Dominguez (2018), a lecturer's comfort level with technology is correlated with how they use it. People who lack confidence in their abilities to use technology shy away from doing so because they believe it will impair their capacity to provide student-focused instruction.

Although many American schools have already incorporated technology into the classroom, not all schools have the same level of access to this learning opportunity (Howley et al., 2011). Schools in rural regions frequently lack the technology access necessary to serve a sizable student population that is underrepresented, especially when compared to urban and suburban neighborhoods (Blanchard et al., 2016).

Budgetary concerns and insufficient financing may prevent rural schools from acquiring technology, depriving pupils of regular access to computers and other basic tools or preventing them from using more sophisticated devices like printers.

Unfortunately, in many African countries, the lack of trained teachers and the low levels of teachers' technological knowledge and skills have been identified as major impediments to effectively introducing technology into schools. For instance, 80% of the pupils in South Africa (one of the most developed countries in Africa) leave school without any exposure to a computer (Mentz & Mentz, 2003).

Growing poverty, a lack of money for teacher wages, and an exponential increase in the number of students attending school all contribute to the worsening of this issue. The inadequate availability of computers in schools was found to be one of the main barriers to the implementation of management information systems in Mentz and Mentz's 2003 study in South African schools. Because of this, it may be said that there was a significant infrastructural issue with the implementation of information systems for school management in today's schools.

According to Kirimi (2013), the Kenyan government issued a strategy in 2006 that acknowledged technological expertise as a means of improving educational standards, although it seemed to place more emphasis on ICT infrastructure than on its use in pedagogy. However, Kenyan teachers continue to use traditional teaching methods, especially chalk and talk, in spite of these efforts to integrate technology into the educational system. This suggests that one of the crucial topics that shouldn't be disregarded in an innovation movement is how educators examine and assess cognitive tools and new educational technology from their perspectives. Accordingly, in response to the activity of technology, teachers need to possess distinct competences and attributes (Mentz & Mentz, 2003). However, it is noted that educators lack the necessary background knowledge to comprehend, adopt, and use novel strategies that keep pace with technological advancements.

Teachers are expected to create a technology-based environment to facilitate the teaching and learning process (Lim et al., 2011). Various countries all over the world including Kenya are emphasizing on the integration of technology into the school curriculum in all aspects in the teaching and learning process. In Kenya, for instance, there is a government policy that all schools should integrate ICT at all levels of learning to facilitate curriculum delivery in line with vision 2030. The teachers' competencies that need to be developed in order to make learning more captivating and extend it beyond classroom learning include knowledge and skills in the use of digital devices in all areas of the curriculum delivery.

According to Kinuthia (2009) a majority of the teachers in Kenya are computer illiterate and only a few can competently use a computer. Amunga et al. (2020) carried out a study on teacher-parent nexus in the competency-based curriculum success equation in

Kenya and found out that, Most of the teachers were not competent for implementing the competency curriculum. The implementers who are the teachers lack sufficient knowledge and skills to maximally exploit, use and integrate technology to support curriculum implementation.

In order to assist its citizens in obtaining the necessary knowledge, skills, values, and attitudes through education, Kenya implemented the Competency Based Curriculum (CBC) in 2017. The curriculum focuses on giving learners the ability to acquire, improve, and use knowledge, values, and attitudes, which in turn leads to the application of acquired skills. Teachers' input should never be undervalued because their technological expertise is crucial to the implementation of any curriculum (Mulenga & Kabombwe, 2019).

The majority of instructors' lack of technology proficiency has been identified as one of the issues preventing competency-based curriculum from being implemented. Furthermore, the majority of educators are unable to incorporate technology into competency-based curricula for both teaching and learning (Ondimu, 2018).

Despite the Kenya Institute of Curriculum Development's (K.I.C.D.) efforts to put mechanisms in place to train teachers on the same, the amount of technical competency for teachers to implement the competency-based curriculum appears to be inadequate (IBE-UNESCO 2017). Kenyan teacher unions have maintained that tutors who are ill-prepared and inept are being forced to teach using the competency-based curriculum.

Therefore, there is lack of substantial research on teachers' competencies in the implementation of the CBC (Amunga et al., 2020). This situation presents itself quite significantly in Nyamira South Sub-County and the approach resonates with the present study which sought to determine teachers' competencies in the implementation of the

Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya. There is therefore a considerable gap in teachers' competencies in the implementation of the Competency Based Curriculum. The present study sought to contribute towards filling this gap.

2.4 Teachers' Pedagogical Knowledge for Implementing Competency Based Curriculum

Alexander (2000) maintains that pedagogy comprises teachers' ideas, beliefs, attitudes, knowledge and understanding about the curriculum, the teaching and learning process which impact on teaching practices, that is, what teachers actually think, do and say in the classroom. Pedagogy is formed by an educator's teaching beliefs and concerns the interplay between culture and different ways to learn.

Pedagogical knowledge (PK), according to Mishra and Koehler (2006), is a teacher's in-depth understanding of the procedures, practices, and techniques used in teaching and learning. They include, among other things, the overarching goals, values, and purposes of education. This pertains to lesson planning, general classroom management techniques, and knowledge of how pupils learn. It comprises awareness of instructional methodologies, target audience characteristics, and methods for assessing students' comprehension.

According to Nleya and Batane (2013), a teacher with extensive pedagogical expertise comprehends how pupils build mental habits and favorable learning dispositions as well as how they construct information and gain abilities. Therefore, knowledge of cognitive, social, and developmental theories of learning and how they relate to students in the classroom is necessary for pedagogical expertise. A competent classroom instructor should also use a variety of simulative materials to support the students' development of

an inquiry-based mindset. This will support educators in using activity-based strategies rather than expository or lecture methods, which have been identified as a teacher-centered way of instruction.

According to (UNESCO, 2017) learning is dependent on the pedagogical approaches teachers use in the classroom. The capacity of the students, the teacher's lesson creation tactics, and the availability of resources all contribute to effective teaching. Authentic activities that bring out the best in each learner and enhance their educational experiences are produced by an effective pedagogy. This reminds teachers to design lessons based on how students can best learn a specific course material.

Recent curriculum reforms have moved away from 'teacher-centered' pedagogical approaches to more student-centered and they include; collaborative learning, role play and simulation method, project-based learning, class discussion, modeling, experiential learning, lecture method, fieldwork learning method and individualized instructional method (UNESCO, 2017).

Paulo (2014) conducted research on the competency and readiness of pre-service teachers to use competency-based curricula in Tanzanian secondary schools. Despite their awareness of the prescribed teaching strategies for implementing the competency-based curriculum, the study found that pre-service instructors were not following these guidelines when instructing students in the classroom. The findings showed that pre-service teachers continue teaching using traditional teacher-centered instructing methods in the classroom teaching against the demands of the newly adopted CBC that recommended learner centered teaching methods.

Instructors have not completely adopted the new pedagogies found in the CBC Momanyi and Rop (2019). Similar to this, Mulenga and Kabombwe (2019) report that

even though Zambia has adopted CBC, the nation is still having difficulty conceptualizing and putting assessment criteria and competences into practice. The best way to build them in each subject area is still up for debate (Momanyi & Rop, 2019; Ondimu, 2018).

Makunja (2016) points out on challenges facing teachers in implementing CBC curriculum in Tanzania. The study found that one of the main issues preventing the curriculum from being implemented sufficiently was instructors' lack of proper in-service training. This demonstrated that teachers lacked the necessary skills to apply and employ pedagogical information during the teaching and learning process.

In order to ensure that students learn effectively, particularly when following a competency-based curriculum, teachers must possess extensive knowledge on how to use the teaching tactics that are required Kafyulilo (2012). However, one of the main barriers preventing Kenyan instructors from successfully implementing the competency-based curriculum is their lack of pedagogical understanding (Momanyi & Rop, 2019).

Therefore, the degree of teacher pedagogical competency for implementing the competency-based curriculum seems still low despite Kenya Institute of Curriculum Development (K.I.C.D) putting measures to train teachers on the same (IBE-UNESCO 2017). The literature review reveals that there is paucity of empirical studies carried out on teachers' pedagogical practices for implementing the CBC. This study, therefore, sought to fill that gap. It was for this reason the researcher found it necessary to examine teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya.

2.5 Teachers' Attitude towards the Implementation of the Competency-Based Curriculum

Ali and Awan (2013) define attitude as a set of emotions, beliefs, and behaviors toward a particular object, person, thing, or event. Attitudes can have a significant impact on behavior and are frequently the outcome of experiences or upbringing. Studies show that educators who have a bad attitude about teaching spend less time in the classroom and employ didactic methods rather than ones that encourage students to actively participate in their learning.

According to Debra and Susan (2014), CBC was introduced in Canada, Scotland, and Finland and was a great success because of the teachers' positive attitudes, their training, and the government's strong financial backing. The implementation phases of the program in South Africa were a complete failure due to the attitudes, incompetence, and poor development of the teachers. Fernandez (2017) conducted a study at San Jose State University to find out how teachers felt about their support and readiness for implementing the English language arts curriculum core state standards found out that teacher competency and attitude were fundamental in execution of curriculum reforms. Teacher's readiness was considered as a prerequisite to integration of reforms where teachers first obtain a comprehension of the reforms before beginning to implement the curriculum reforms.

Teachers' attitudes toward implementing the competency-based curriculum (CBC) were found to be negative in a study conducted in Tanzania by Makunja (2016). This was due to the teachers' lack of orientation through in-service programs or workshops to keep them up to date on the CBC's implementation requirements.

According to a study conducted in Rwanda by Cheptoo and Ramadasi (2019), the success of competency-based curricula can be attributed to the positive attitudes of instructors. Instructors were just as at ease with the nuances of the adjustments, particularly when they were actively involved and prepared in accordance with the competences specified by the curriculum change. They participated in the planning process by running campaigns, involving teachers, ensuring that teachers were ready, and enhancing the procedures and direction for implementing the curriculum.

A study on the effects of curricular modifications on primary school teachers in Seshego Circuit, Limpopo Province, South Africa, was conducted by Maimela (2015). The results showed that teachers' attitudes had a significant role in inspiring and motivating other teachers. This was in view of the various modifications that affect the process of changing the curriculum and implementing it. Learning required both student and teacher motivation and evaluation.

Positive attitude and mathematical performance were found to be related in Ndifo's (2017) study on teacher attitude as predictors of student success in mathematics in Cameroon Secondary Schools. Ndifo (2017) went on to show that positive-minded educators are essential for improving student performance and curriculum implementation.

In order to implement the CBC, Waigera, J. K., Mweru, M. & Ngige, L. (2020) conducted research on the relationship between teachers' attitudes and the use of instructional materials in Kenyan pre-primary schools. The study's findings showed that, in comparison to their counterparts who had negative attitudes, teachers with positive attitudes applied instructional information to their classes at higher levels. This

study discovered that a teacher's good attitude was a crucial quality for carrying out the program.

According to K.I.C.D (2017), teacher's participation is paramount for the success of this education system implementation. Teachers need to be vigorously intricate in the whole procedure for them to develop a positive attitude in the implementation of the competency-based curriculum for the objectives of CBC to be realized. Murararaneza and Mtshali (2017) advised that for successful education reform, change in the way teachers act and perceive the change is necessary. Studies on teachers' attitude for implementation of CBC in Kenya are scanty (Cheptoo & Ramadas, 2019). Most of the studies on teacher's attitude towards the CBC implementation are foreign, hence the need for a local study such as this one. It was for this reason that it was considered pertinent to find out teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya.

2.6 Teachers' Evaluation Techniques for Implementing Competency Based Curriculum

According to Scheopner and Greller (2018), evaluation activities are conducted to determine whether the curriculum content provided to students resulted to gain of knowledge and understanding. The competency-based curriculum requires learners to demonstrate mastery of content which happens through evaluation where they apply knowledge taught. It is necessary to employ new assessment methods that are in line with the new curriculum in order to implement CBC. The level of teacher comprehension and competency in evaluating students enrolled in public elementary

schools has not received much attention since Kenya implemented the new Competency Based Curriculum (CBC) (Makunja, 2016).

Greller, W. Santally, M. I., & Boojhawon, R. (2017) conducted a qualitative case study in the United States of America to ascertain the methods by which the three New Hampshire districts put the competence education reform into practice in secondary schools. The results showed that teachers faced numerous obstacles in their attempts to assess competence education, even after more than six years of advancement at each site. As a result, the reform had not been fully implemented because of inertial, technological, normative, and political constraints. Changes to grading and evaluation were particularly difficult to implement. A study carried out by Macedonia et al. (2018) observed that teachers in the educational process had difficulty in their efforts to evaluate the knowledge accurately and adequately. In the absence of specialized policies and recommendations, many teachers applied informal, individual evaluation techniques and adaptations to learners with disabilities.

In Philippines, Villamero (2014) explored how the three regular primary school teachers in Negros Oriental, Philippines evaluated children with disabilities in the regular classrooms. The assessment strategies that teachers employed are based on the diagnostic, formative, and summative purposes of assessment. Under these three purposes, teachers employed assessment strategies such as tests, observations, portfolios, and groupings. Findings show that teachers needed to use a range of evaluation procedures when evaluating students with special needs. Teachers adapt the content and delivery of the aforementioned evaluation procedures to the needs of the children with disabilities.

Sudha (2018) carried out a study on tips for designing rubrics for assessment at Nalanda Education Institutions Mumbai in India and found out that it is significant to develop capacity in teachers to create valid rubrics for evaluation. According to Sudha (2018), creating limit in instructors to design appraisal rubrics is significant and requires proper training.

A study conducted in Indonesia by Retnawati et al. (2016) on teachers' challenges in implementing the assessment in curriculum showed that instructors regularly experienced troubles in formulating the assessment indicators. Teachers likewise experienced difficulties in designing the rubric for learners' skill assessment. In Botswana Mangope et al. (2012) looked at the Botswana Assessment Center's role and capabilities in identifying primary school pupils' learning requirements. The findings showed that while School Intervention Teams (SIT) were in charge of sending students for evaluation in most schools, their exact function was not always understood in other settings, which prevented evaluation processes from accurately identifying the learning needs of elementary school pupils.

Tanzania is among the nations that adopted and implemented competency-based curriculum (CBC) before Kenya, but research by Paulo (2014) found that even though teacher candidates in colleges were aware of the competency-based curriculum evaluation techniques, they were not implementing these techniques during their teaching practice sessions in classrooms. They frequently employed the conventional techniques of evaluation, which prevented students from acquiring the necessary competencies. This was further supported by study done in Tanzania by Lukindo (2016), who discovered that teachers were not implementing the CBC-recommended

procedures for evaluation, negating the purpose of implementing the curriculum in schools.

In pre-primary schools in the Dodoma municipality of Tanzania, Mapunda et al. (2017) investigated the existence of a functional school-based system of evaluation for the purpose of identifying and implementing intervention programs for children with special needs. The study's conclusions showed that the Dodoma municipality lacked the special education needs policy evaluation frameworks required to compel the provision of special education needs for preschoolers. This led to a discrepancy between the actual implementation of the policy at the local and school levels and the anticipated consequence.

Feruzi and Yang (2019) examined implementation of the competence-based curriculum in Tanzania. It was found out that teachers gave students very low performance task during learning process and this resulted to a weak foundation for students' academic progress. In this case it was expected that teachers give students enough activities and assignments to strengthen their understanding. Majoko (2019) examined the evaluation competencies education teachers should have from Midland educational province of Zimbabwe for effective curriculum implementation. The study found out that, the key evaluation competencies for education are demonstration and possession of knowledge, skills and understanding in order to assess a given task to a described standard. This demonstration requires the equipping of learning institutions and training teachers on learner centered learning and evaluation approaches imbued in CBC.

According to K.I.C.D (2018), the essential core competencies of a teacher in CBC are communication and interpersonal skills, organization and planning, classroom management, facilitation and engagement, assessment and coaching, collaboration and

teamwork, caring and inclusiveness, flexibility and adaptability. However, according to Nelly (2020) these essential core competencies especially on evaluation techniques have not effectively been grasped and put into practice because teachers have not undergone any training over the same. Therefore, this study was conducted against such a background to address the gap.

Jelagat's (2020) study in a number of North Rift and Western Kenyan counties, including Baringo, Elgeyo Marakwet, Kakamega, Trans Nzoia, and Uasin Gishu, revealed that the necessary CBC assessment procedures were infrequently implemented in those counties' educational evaluation systems. Thus, even though the Kenya Institute of Curriculum Development (K.I.C.D.) has taken steps to train teachers on the subject, the degree of teachers' evaluation competency for implementing the competency-based curriculum appears to be low (IBE-UNESCO 2017). This raises concerns about teachers' awareness of and practical implementation of the CBC evaluation techniques. Therefore, the goal of this study was to close that gap.

KNUT (2019) claims that instructors who are ill-prepared and inept are being forced to teach the competency-based curriculum. It's clear that not much information is provided regarding instructors' ability to use competency-based curricula (Amunga et al., 2020). Studies on CBC in Kenya that are now available raise concerns about teachers' qualifications without really challenging them. This served as inspiration for the study, which looked at teachers' skills for implementing the Competency Based Curriculum in Nyamira County's public primary schools in an effort to close the gap. This is why the goal of the study was to identify and evaluate the teacher abilities needed to implement CBC in public primary schools in Kenya's Nyamira South Sub-County, Nyamira County.

2.7 Related Research Studies

The purpose of the study was to examine teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya. A review of literature on various aspects of teacher competencies in CBC implementation reveals a diverse landscape with clarity that there is still difficulty on the move towards the implementation of the competency-based curriculum in public primary schools in Kenya and it was for this reason that this study was considered pertinent. Much of the justification for preparing teachers adequately to effectively implement the curriculum has been rooted in the quest for quality education.

It is noteworthy that all the reviewed studies conducted in Kenya as well as outside (Nzwili, 2017; Sibanda et al., 2016; Uriah, H. T., Eniekenemi, E., & Okorogba, L. J. 2016; Mwila 2018) are unanimous and have striking similarities. The studies established that technological tools were found inadequate, teachers were ill trained on integrating digital literacy and technological integration in teaching and learning was found to be minimal. Lubis (2018) carried out a study on ICT integration in 21st Century in Indonesia. Lubis found out that, technology integration in Indonesia had a good impact and was perceived positively by the implementers. However, time allocation and incompetence on digital literacy were the main obstacles in the integration of ICT in learning institutions in Indonesia.

Ondimu (2018) postulates that, teachers lack sufficient knowledge and skills to maximally exploit, use and integrate technology to support curriculum implementation. Technology can therefore potentially revolutionize teaching and learning if skillfully integrated into teaching. Thus, if teachers do not have technological skills, then it will

not be easy for them to implement the curriculum during this technological advancement era.

Efforts by teachers to use different CBC technological knowledge for implementing the curriculum in teaching are approached differently in different countries (Rabia & Khan, 2020). For instance, in the United Kingdom, Malaysia and Singapore; training of teachers on integration of technology in teaching and learning process became part of teaching accreditation requirement for teachers to embrace digital literacy in teaching.

Research has also stressed on the importance of the learner centered approach in the teaching and learning process (Blomeke & Delaney, 2012). A study carried out by Komba and Mwandanji (2015) investigating reflections on the implementation of the CBC in Tanzania found that most of the teachers were not well informed and conversant with the pedagogy for implementing CBC. Paulo (2014) points out that for a teacher to evaluate the learners' assignment on a specific activity; she or he should be well informed about the content knowledge. Teachers are inadequately prepared for curriculum implementation, which according to them are restricted because of the lack of available resources at school, professional development programs and not having time to search for the needed information through in service training (Mulenga & Kabombwe, 2019)

A study carried out by Paulo (2014) on pre-service teacher's competency to implement competence-based curriculum in secondary schools in Tanzania revealed that pre-service teachers were not using the methods outlined for teaching in classroom despite the fact that they were well informed of the assessment and teaching methods laid down to be used for the implementation of the competency-based curriculum. The findings showed that pre-service teachers continue teaching using traditional teacher-centered

instructing methods in the classroom teaching against the demands of the newly adopted CBC that recommended learner centered teaching method (Kafyulilo, 2012).

In his research on the difficulties teachers face when implementing the CBC curriculum in Tanzania, Makunja (2016) found that one of the main issues impeding curriculum implementation was a deficiency in teacher in-service training. This demonstrated that instructors lacked sufficient in-service training, which resulted in a negative attitude toward the evaluation methods ingrained in the CBC and a lack of proficiency in the utilization and implementation of pedagogical and technological information. The findings also revealed that although teachers were eager to adopt the competency-based curriculum, they lacked sufficient expertise in its implementation.

In their investigation of the key elements of professional staff development that enhance secondary school effectiveness in Bungoma District, Kenya, Wanjala et al. (2011) found a strong correlation between teacher preparation and the curriculum's successful technological implementation.

They noted that inadequate professional development is frequently cited as a barrier to the integration of computer into the educational setting. Inadequate pre-service teacher training courses and inappropriate in-service workshops do not prepare teachers to integrate technology into their teaching. They established that lack of support by administrators is identified as a significant barrier towards the implementation of technological knowledge in a classroom setting. According to Kirimi (2013), the Kenyan government issued a strategy in 2006 that acknowledged technological expertise as a means of improving educational standards, although it seemed to place more emphasis on ICT infrastructure than on its use in pedagogy. However, Kenyan instructors still employ conventional teaching techniques, such as "chalk and talk,"

despite these attempts to incorporate technology into the educational system (Manduku et al., 2012). Manduku et al. (2012) connected pre-service training, attitudes, and beliefs to Kenyan teachers' incapacity to incorporate technology knowledge into their instruction.

As a result, it is difficult to determine whether Kenyan instructors are qualified and ready to teach the Competency Based curriculum. It was for this reason that it was considered pertinent to assess teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya.

2.8 Chapter Summary

This chapter has reviewed relevant and specific literature relating to teachers' competencies in the implementation of the Competency Based Curriculum. The researcher has reviewed literature globally, regionally to locally in context to the study objectives. Most of the reviewed studies, established that teachers are ill-trained on digital literacy and technological integration for implementing the curriculum was found to be minimal (Amunga et al., 2020; Nzwili, 2017; Sibanda et al., 2016; Uriah et al., 2016; Mwila, 2018; Beri & Sharma, 2019 and Sutter & Kihara, 2019).

Further, studies carried out by (Ondimu, 2018; Paulo, 2014; Momanyi & Rop, 2019; Mulenga & Kabombwe, 2019; Kafyulilo, 2012) intimate that teachers were not using the pedagogies outlined for teaching in classroom citing lack of training on the new pedagogies that align with CBC. Moreover, teachers had a negative attitude towards implementing the CBC for they had not been oriented through in-service programs (Makunja, 2016). Additionally, teachers rarely instituted the CBC evaluation techniques and they had many challenges in their effort to evaluate the CBC (Galevska & Pesic,

2018; Makunja, 2016; Greller et al., 2018; Lukindo, 2016; Feruzi & Yang, 2019; Jelagat, 2020).

The literature review reveals that there is paucity of empirical studies carried out in Kenya on teachers' competencies in the implementation of the CBC. Therefore, there lacks clear evidence on whether teachers have the competencies required for implementing the Competence Based curriculum in Nyamira County- Kenya. The current study sought to fill the gap. It was against this background that the researcher considered it pertinent to find out the teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The purpose of the study was to examine teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya. Described in this chapter are the philosophical world view, the study area, research design, target population, sampling procedure and sample size, data collection procedures, research instruments, validity and reliability of data collection instruments, pilot study, data presentation and analysis, ethical considerations and the chapter summary.

3.2 Research Paradigm

Creswell (2018) defines a research paradigm as a basic set of beliefs that guide action maintaining that such can be seen as general philosophical orientation about the world and the nature of research that a researcher brings to a study.

This study adopted the pragmatic approach that combines both positivist and constructivism positions within the scope of a single research according to the nature of the research question (Creswell, 2018). Pragmatists argue that, it is not possible to access the truth about the real world solely by virtue of a single scientific method, thus pragmatism research paradigm, is not committed to any one system of philosophy and reality. The pragmatism research paradigm is therefore a methodology that entails mixed methods research where researchers draw liberally from both quantitative and qualitative techniques of data collection and analysis in evaluating different aspects of a research problem. The researcher based the inquiry on the assumption that collecting diverse types of data best provided a more complete understanding of a research

problem than either quantitative or qualitative data alone. The pragmatism research paradigm directed the researcher in focusing on both positivism and constructivism camps of inquiry as postulated by Kaushik and Walsh (2019).

The study adopted a mixed method research approach to collect, analyze and interpret the research data. The researcher collected quantitative data from grade six teachers through a closed-ended questionnaire in order to generalize the results. At the same time, the study focused on qualitative data through open-ended interviews to collect detailed views from the head teachers to help explain the initial quantitative data. The resulting integration helped in drawing from and complementing the strengths of both approaches (Guetterman et al., 2015). Information from all the four objectives was therefore handled both quantitatively and qualitatively. The quantitative data was used to confirm and test the results of qualitative data, and qualitative data to confirm and complement the quantitative data.

3.3 Research Design

According to Kothari and Garg (2013), a research design refers to the structure, outline or scheme within which research should be carried out in order to discover solution to the problem under investigation. The researcher used the mixed method research design for this study. The philosophical perspective and the research technique influenced the decision to use the mixed method research design. Creswell (2018) describes a mixed methods research design as a procedure for collecting and integrating both quantitative and qualitative data in a single study to utilize a pluralistic way to derive knowledge about the research problem.

The main mixed method design utilized for the study was the convergent parallel mixed methods design wherein the researcher collected both the quantitative and qualitative

data in one visit at roughly the same time, analyzed the two sets of data concurrently and then integrated the information in the interpretation of the overall results as advocated by Creswell (2018).

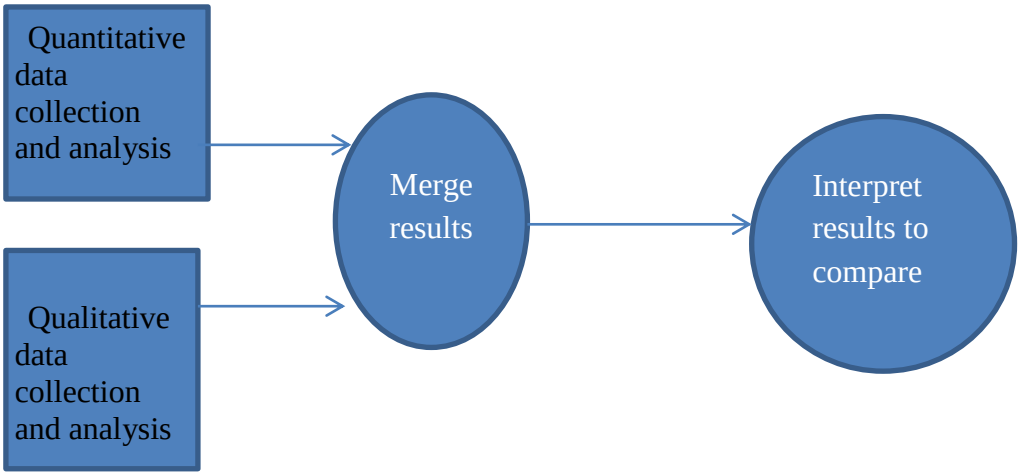

Figure 3.2: The Convergent Parallel Mixed Methods Design (one-single phase)

Source: Creswell (2018)

The study employed quantitative methods to gather information through closed ended questions administered to grade six teachers and this information was cross-checked through qualitative data obtained from the head teachers' interview guide, the open ended questions and the observation checklist. Both quantitative and qualitative data in the study was collected concurrently but analyzed separately and the findings were mixed before comparing and interpreting of the results.

3.4 The Study Area

Selected public primary schools in Nyamira South Sub-County, Nyamira County, were the study's sites. Homa Bay County to the north, Kisii County to the west, Bomet County to the south-east, and Kericho County to the east are the counties that Nyamira County borders. One of Nyamira County's four sub-counties is Nyamira South Sub-County. It is bordered by Manga Sub-County to the West, Borabu Sub-County to the

East, Nyamira North Sub-County to the North and Masaba North Sub-County to South West. It is located on the Latitude; 0.55-degree South and Longitude; 34.9-degree East. The people who are predominantly natives of Kisii's practice agriculture and tea being the most cultivated cash crop. Other cash crops in the area include; pyrethrum and coffee. Food crops in the area includes: maize, beans and bananas.

The choice of the study area in Nyamira South Sub- County was informed by its feasibility as a county implementing the CBC, just like any other Sub-County in Kenya would be feasible. Nyamira South Sub- County was randomly sampled out of Nyamira County. The Sub-County has trained, qualified and experienced teachers who have been retooled by the Ministry of Education for effective implementation of the CBC. This county was among the counties in the National survey in September 2021 that identified gaps in relation to teachers' competency for implementing the CBC. The survey revealed that 80% of teachers had not been competently trained on CBC. Therefore, the study was conducted in Nyamira South Sub-County to examine teachers' competencies in the implementation of the Competency Based Curriculum.

3.5 Target Population

Shukla (2020) defines population as a set of all the units which possess variable characteristic under study and for which findings of research can be applied. Target population refers to a complete group of individuals or elements that the researcher chose for the study and to which the research results are generalized Shukla (2020).

Nyamira South Sub-County has 101 public primary schools. The researcher involved all the head teachers in the 101 public primary schools. Head teachers were purposively selected for this study since they were the school administrators with experience on how the schools are prepared for the implementation of CBC and that they supervise

curriculum implementation in their respective schools. Additionally, the study involved grade 6 teachers. This made a target population of 101 head teachers and 516 grade six teachers hence a target population of 617 respondents.

3.6 Sample Size and Sampling Procedures

Shukla (2020) defines a sample as any subset of the population that accurately represents all the various population components.

3.6.1 Sample size

According to Orodho (2006), sampling technique is a process of selecting a number of individuals from the given population and the number of individuals selected from the population consists of elements representative of the characteristics found in the entire group. Sampling is done because it is impossible to test every single individual in the population (Creswell, 2014). Gay et al. (2009) opine that a sample size of 30% of the target population is sufficient to make a generalization. The sample size for this study and its composition are illustrated on Table 1.

Table 1: The Target Population and the Sample Size

Respondents	Target population	Sample size	Sample size percentage
Teachers	516	155	30.0
Head teachers	101	31	30.7
Total	617	186	

Table 1 above shows the target population and the sample size for the study. Participants in this study were selected using two sampling techniques; the purposive and simple random sampling technique.

The study used simple random sampling technique to select 31 schools since they were all public primary schools. The sample size of the head teachers in this study was 31 and it was drawn through purposive, then simple random sampling technique to get in-

depth information on teachers' competency for implementing the CBC.

Finally, simple random sampling technique was used in order to sample Grade 6 teachers who were part of this study. In this regard, simple random sampling was carried out on grade 6 teachers because all the teachers in grade 6 were the key implementers of CBC and had equal chance to fit in this study. This technique was under probability sampling where a code was assigned to every member of the entire population, written on a piece of paper, folded and put in a box. Selection was then done by the researcher until the required sample sizes were gotten. Teachers totaling to 155 were selected from the 31 public primary schools.

3.7 Research Instruments

The research instruments used to collect data included; the questionnaire for teachers, interview guide for head teachers and observation guide for determining the availability of technological tools in the sampled schools.

3.7.1 Teachers' Questionnaire

According to McLeod (2023), a questionnaire is a research tool that consists of a set of questions intended to elicit information from respondents about their perceptions, attitudes, beliefs, values, views, and other non-cognitive attributes. Teachers of sixth grade received the questionnaire. There were both closed-ended and open-ended questions on the survey.

The questionnaire was divided into five sections as per the objectives. The cover page contained the general instructions consisting of; the introduction of the researcher, the purpose of the questionnaire, how that data was to be used and managed and the statement on adherence to research ethics. Section A comprised demographic information. Section B obtained information on teacher's technological knowledge for

implementing the competency-based curriculum; Section C obtained information on teacher's pedagogical knowledge. Section D obtained information on teachers' attitude in implementing the CBC. Section E entailed teacher's evaluation techniques.

3.7.2 Interview schedules

Cooper and Schindler (2003) assert that, interview schedule is a two-way conversation, initiated by an interviewer, to obtain information from a participant. This method encourages participants to share as much information as possible in an unconstrained environment, and resembles a form of conversation that systematically explores topics of interest (Lindlof and Taylor, 2002). The instrument was deemed reliable because the head teachers had more information on teachers' competency for implementing the CBC. As established by Cohen et al. (2010), interview guide enables the researcher to collect in-depth information about the head teachers' experiences, feelings and views on teachers' competency for implementing the CBC. The researcher booked an appointment with the head teachers of the sampled schools for interviews. Thereafter, the researcher conducted face-to-face interview with the sampled head teachers as per the pre-constructed interview guide. During the interview, the researcher introduced himself to the interviewees and explained the purpose of the interview in which the researcher assured the respondents that the information would be treated with uttermost confidentiality. The questions administered to the head teachers were mainly open ended as one of the instruments towards data collection. The interviewer took short notes to capture all the important information. Immediately after each interview, the researcher reviewed the notes to ensure dependability of the data collected.

3.7.3 Observation Guide

Gay et al. (2009) posit that in qualitative research, the researcher gets into a social setting deeply so as to know the people. This research instrument was used by the

researcher to gather information related to objective one, sub-section one. Thus, the researcher checked out on the availability of technological tools for implementing the CBC as an observation area. In this case it helped the study identify and confirm the curriculum delivery processes through digital literacy by the teachers. The researcher took notes about technological tools that were available in the course of collecting data in the study. This enabled the researcher to verify responses elicited by the head teachers of the sampled schools.

3.8 Validity and Reliability of Research Instruments

3.8.1 Pilot Study

Following Creswell's (2018) assertion, pilot study is used to establish the time required for the study to be accomplished and the content validity of scores on the instruments used in providing the internal consistency of the items.

The purpose of undertaking a preliminary study is to check for problems or omissions in the instruments (Drost, 2011). The researcher piloted the questionnaire and the interview guide by distributing them to grade 6 teachers and head teachers in four public primary schools in Nyamira North Sub-County not earmarked for participation in the study to ascertain the feasibility of the proposed study area. After piloting, the validity of each question was examined for clarity, relevance and suitability for the study purpose. Based on the collected input after the pilot study, items found to be ambiguous and not framed were revised and fixed accordingly.

3.8.2 Validity of instruments

Validity is defined as the extent to which a concept is accurate in the study (Heale & Twycross, 2017). Further, validity is the degree to which a research instrument measures what it purposed to measure and whether the instruments provide accurate

data as required by the researcher (Gay et al., 2009). To enhance the internal validity of the tools, the study adopted simultaneous triangulation and sourced data through use of three research instruments namely; questionnaire, interviews and through the observation guide.

Creswell (2018) postulates that there are three forms of validity to look for and they include content validity (Do the items measure the content they were intended to measure?), predictive or concurrent validity (Do scores predict a criterion measure? Do results correlate with other results?), and finally, construct validity (Do items measure hypothetical constructs or concepts?).

In order to determine the content validity of the research instruments, the researcher discussed the content of the research instruments with the supervisors to find out whether the questions in the questionnaire and items in the interview schedule could elicit the expected responses for this Study. The supervisors helped in refining and improving the instruments. Then the researcher was able to assess whether the content of the questionnaire measured what it was supposed to measure or not. The supervisors' feedback in form of recommendations, advice and clarifications to the researcher were incorporated in the final instruments. Thus, to check for content validity, the researcher ensured that the items arose from the research objectives.

To check for predictive validity, the researcher used a test-retest method to estimate the degree to which the same results could be obtained with a repeated measure of accuracy. Finally, to check for construct validity, the researcher piloted the research items in two public primary schools in Nyamira North Sub-County not earmarked for study. In addition, instrument validity was established by pre-testing data collection

tools through a pilot study. Validation of the items helped the researcher in ascertaining that the items elicited relevant responses for the study.

3.8.3 Reliability

Reliability is defined as consistency of a measure. It means that it must have the ability to consistently yield the same results upon testing and re-testing when the measurements are repeated to the same people under similar conditions **(**Heale & Twycross, 2017).

The study employed simultaneous triangulation methods of data collection for the purpose of validating and improving reliability of the findings by using various tools of data collection such as the questionnaire, interview guide and observation guide. The reliability of the instruments ensured: the responses were consistent across variables (consistency), individuals did not vary in their responses when the instruments were administered a second time (stability) and errors made during administration or scoring of the instruments were eliminated as pointed out by Kothari (2011). The two aspects, consistency and stability enabled the researcher in determining the reliability of the instruments by comparing results of the first and second test which enabled to secure consistent results.

To ensure reliability, the research items were piloted in two public primary schools in Nyamira North Sub-County not earmarked for study and this was done on 12th August 2023. Data obtained during this phase was used to validate the research instruments and also to estimate the required time to collect the data. A reconnaissance visit to the study area was carried out by the researcher two weeks before data collection process. The researcher then presented the introductory letter to the head teachers in the sampled schools. The prior visit to the selected schools was done for the researcher to refine the research instruments and familiarize with the respondents and explain to the head

teachers and the teachers the procedure and purpose of the study.

The researcher used a test-retest method to estimate the degree to which the same results could be obtained with a repeated measure of accuracy. In two public primary schools in Nyamira North Sub-County that were not designated for study, the research instruments were pre-tested. During the pre-testing two head teachers were interviewed while nine grade 6 teachers filled the questionnaire. The answered questionnaire and the responses from the interview guide were scored manually and after two weeks the same were administered to the same group. After which, a comparison between the answers obtained in the first and second test was made. It was noted that the results obtained by each respondent was relatively close indicating high reliability of the research instruments for the study. The two sets of score for each school were correlated to determine the reliability of the instruments.

3.9 Data Collection Procedures

This refers to the collection of information to serve or prove some facts (Kombo, 2006). It involves the real process of going to the field to get the required information from the selected population. Before the administration of the research instruments to the sampled population, a research authorization letter was obtained from Moi University, school of education. Further a research permit was obtained from the National council for science, technology and innovation (NACOSTI). The acquired permit was then taken to the County Commissioner, the County Director Teacher Service Commission, Nyamira County and the County Director of Education, Nyamira South Sub-County to seek permission to conduct research.

The researcher visited the schools of the study to plan for the actual study. The researcher liaised with the head teachers of the sampled schools. Upon their consent, the

head teachers then introduced the researcher to grade 6 teachers. The researcher then booked appointments with grade 6 teachers and the head teachers of the sampled schools to administer the questionnaire, conduct interviews and carry out an observation checklist.

Copies of the questionnaire were self-administered to grade 6 teachers and interviews were also conducted by the researcher to the head teachers upon assuring them uttermost confidentiality and privacy of the data and the need for honest responses. An average of 4 to 5 teachers in the sampled schools participated in the study. To avoid biasness on the selection of the teachers in a school with more than 5 grade 6 teachers, the researcher guided the teachers on how it should be done by folding papers and writing number required from which the teachers then picked randomly. The researcher then interacted with the respondents and sought for information related to the study. Focus was made on the major themes in the questionnaire, interview schedule, and observation checklist. The researcher thereafter administered the questionnaire to grade 6 teachers. Each questionnaire was packed in a separate envelop for each teacher and clear instructions were provided on how to handle the instruments. Further, the researcher conducted the interviews with the head teachers, which was done on one- on-one basis. A total of 31 head teachers were interviewed. The duration of the interview per head teacher took 15-20 minutes. The interview with the head teachers was conducted face to face, while the interviewer was taking notes of the responses. Finally, the researcher used observation to check out on the availability of technological tools for implementing the CBC and then verified by comparing the responses elicited by the head teachers on the availability of technological tools.

3.10 Data Analysis Procedures

The main method of analyzing the data was descriptive. Data analysis followed the convergent parallel mixed methods design whereby the quantitative and qualitative data was collected and analyzed concurrently in relation to research objectives. The closed-ended questions were analyzed quantitatively. The quantitative data was coded, organized, and analyzed using the statistical package for social sciences. This involved in-putting the raw data into the SPSS, generating frequencies, means, standard deviation, and percentages which were further presented in tables. Qualitative data analysis from the open-ended questions, the interview guide and the observation checklist involved narration, identification, examination, and interpretation of themes in textual data. The qualitative data was organized into themes based on recurring topics and reported in narrative form.

This was followed by merging the two sets of data in a side-by-side comparison. The researcher first reported the quantitative statistical results and then discussed the qualitative findings alongside it that confirmed the statistical results during the interpretation of the findings.

3.11 Ethical Considerations

An ethical consideration was quite necessary in this study. Agreed-upon standards for research ethics help to ensure that the researcher explicitly considers the needs and concerns of the people they study, that appropriate oversight for the conduct of research takes place, and that a basis for trust is established between the researcher and study participants (Creswell, 2018).

In ensuring ethical considerations the following were done: A recommendation letter was obtained from Moi University which was used to obtain a research permit from the

National commission for Science, Technology and innovation (NACOSTI), before undertaking the research. The NACOSTI letter was used to get permission for undertaking the study from the County Director Teacher's Service Commission, the County Commissioner and the County Director of Education, Nyamira County. This gave the researcher authority to conduct the study.

Informed consent and confidentiality were ensured in this study. The researcher promised to protect the participants' confidentiality from other people in the setting and from the general reading public since the determination of this study was mainly for academic purpose. To ensure anonymity, no one was allowed to indicate his or her name. The researcher communicated to the respondents what was being studied, who were to be involved in the study, the purpose of the study and its significance. Moreover, the following safeguards were employed by the researcher to protect the participants' rights: The research objectives were articulated verbally and in writing so that they were clearly understood by the participants (including a description of how data was to be used). Written permission to proceed with the study was received from the participants.

The principle of voluntary participation was adhered to throughout the whole study. Therefore, the respondents were informed on the voluntary nature of the study to make them feel free during the process.

3.12 Chapter Summary

In summary, the research was carried out in Nyamira South Sub-County in Nyamira County. The research employed convergent mixed methods research design with both qualitative and quantitative approaches targeting public primary school head teachers and grade six teachers in Nyamira South Sub-County, Nyamira County. The researcher

used purposive and simple random sampling technique to select headteachers and teachers respectively. The target population of the study constituted 101 public primary schools, 101 head teachers and 516 grade six teachers from which a sample size of 31 public primary schools comprising 31 head teachers and 155 grade six teachers were selected. Piloting was done to pre-test the study tools. The research instruments used in the study were; the questionnaire, interview guide, and observation guide. Validity and reliability were the two most important quality control objects and technical concepts in measurements for the study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 Introduction

In this chapter, the researcher analyzed, presented, interpreted and discussed the research findings obtained from the study on teachers' competencies in the implementation of the Competency Based Curriculum (CBC) in public primary schools in Nyamira South Sub-County, Nyamira County, Kenya. In particular, the key aspects of inquiry included; teachers' technological knowledge for implementing the competency-based curriculum in public primary school, teachers' pedagogical knowledge for implementing the competency-based curriculum in public primary schools, teachers' attitude towards the implementation of the competency-based curriculum in public primary schools and teachers' evaluation techniques for implementing the competency-based Curriculum in public primary schools.

4.2 Response Rate of the Research Instruments

The research instruments which were used in this study consisted of teachers' questionnaire, interview guide for the head teachers, and observation guide for collection of data for the study. The questionnaire was administered to grade six teachers while the interview guide was for the head teachers in the sampled public primary schools. The researcher used observation guide to check out on the availability of technological tools for implementing the CBC.

The number of questionnaires administered to grade six teachers was 155. The researcher selected 31 head teachers for interview out of 101 head teachers. Out of 155 questionnaires administered to the teachers, 151 were dully filled and returned for analysis representing a response rate of 97.4% of grade six teachers. Out of the 31

interviewees 2 declined to be interviewed for unknown reasons. Thus 29 head teachers were interviewed which represented a response rate of 93.5%. The overall response rate of all the instruments was 96.8% and this formed the basis for data analysis. Mugenda and Mugenda (2003) maintain that a 50% response rate is considered adequate, 60% is considered good while a response rate that is above 70% is considered excellent for analysis and reporting. The procedures that the researcher used attributed to the high response rate, as the researcher self-administered the questionnaire and kept reminding the participants to fill in and later picked them. As established by Aday and Cornellius (2006), response rate is viewed as an important indicator in determining the quality of survey. Hair et al. (2017) asserts that a response rate of more than 80% is quite appropriate for quality survey and thus, this study considers the 96.8% responses to be appropriate for making conclusions.

Table 2: Response Rate

Category	**Sample**	**Return rate**	**Percentage return rate**
Grade 6 teachers	155	151	97.4
Head teachers	31	29	93.5
Total	**186**	**180**	**96.8**

Table 2 shows that 151 questionnaires administered to grade six teachers were filled as expected and returned representing a response rate of (97.4%) and 29 return rates for interview representing a response rate of (93.5%) for head teachers who participated in the interview. Both the return rates for respondents were above 80% and hence were deemed adequate for data analysis as stated by Hair et al. (2017) that a sample which is more than 80% is quite appropriate and sufficient for data analysis.

4.3 Demographic Data of Grade 6 Teachers

This section presented the background information of the respondents who consisted of grade six teachers and the head teachers of the sampled public primary schools. The background data analyzed herein consists of gender, age, academic qualification and teaching experience of the respondents.

4.3.1 Gender of respondents

Table 3: Gender of Grade 6 Teachers

Gender of respondents		
	Frequency	Percent
Male	98	64.9
Female	53	35.1
Total	**151**	**100**

Table 3 shows that all the participants were categorized by gender depicting participation by both parties in the study to avoid bias. The study established that most of the respondents were male 98(64.9%) compared to female 53(35.1%) reflecting the existing gender disparity among teachers in public primary schools. This implies that male teachers constitute the highest population in public primary schools with fewer teaching roles being taken up by the female teachers. This may negatively affect the education of a girl child due to the shortage of female teachers with whom the female pupils can relate. This finding is in contrast with the findings that there is need for competencies of female teachers who deserve to act as a role model for a girl child (Nzeli, 2013). There is therefore, a need to have more female teachers to whom the girl child can identify with.

It was also notable from the interview schedule that there was gender parity in the case of head teachers with (Male=20; Female=9) showing that the appointment of head teachers was directly proportional to the teachers' gender in public primary schools.

Having both male and female head teachers would give the pupils a wider choice and chance to learn from those who they perceive as role models whether male and female. This is in agreement with a study by Dee (2007) which found out that teacher's gender is positively correlated with the students' test scores and student engagement with the teacher's subject. Dee (2007) further identified that students educated by same gender, exhibited superior education outcomes. The study further established that male head teachers constituted the highest 24(82.8%) as compared to female counterparts 5(17.2%) (Dee, 2007). This can be attributed to the findings by Makura (2009) who opine that women encounter leadership challenges due to their lack of confidence, negative attitude and unwillingness to face hardships related to distance and weather. In relation to the study, the CBC is being implemented by more male teachers as compared to female teachers. Information on gender is important in this study because research has shown that men and women have different opinions and roles about various topics (University of Sydney, 2021).

4.3.2 Age of Grade 6 Teachers

Grade six teachers of the sampled public primary schools were requested to indicate their age. Their responses are presented in Table 4.

Table 4: Age of Grade Six Teachers

Age	Frequency	Percent
20-29	26	17.2
30-39	88	58.3
40-49	24	15.9
50 and above	13	8.6
Total	**151**	**100**

Table 4 shows that 26(17.2 %) of grade six teachers were aged between 20 to 29 years, 88(58.3%) between 30 to 39 years, 24(15.9%) were aged between 40 to 49 years whereas 13(8.6 %) were aged 50 and above years.

This showed that most of the public primary school teachers constitute the young generation aged between 30 to 39 years with 58.3% representation with the least being teachers aged 50 years and above at 8.6%. Being young and energetic could pose better chances of implementation of the CBC which entails a change process that the young would be more willing and able to align than the teachers who are more advanced in age. Thus, there is a possibility of these teachers being more receptive to the new CBC competencies in teaching and learning process. According to Fernandez (2014), younger teachers are more able to raise learners' mean performance by engaging them in multiple ways and competently use appropriate technological tools for implementing the curriculum. This resonates with the findings by Berk and Weil (2015) who argue that older teachers might teach outdated knowledge. The Pew Research Center (2015) suggests that an individual's age is one of the most common predictors of differences in attitudes and behaviors. The age of respondents was considered an important factor in this research out of the common belief that a person's competency about a topic or subject will often be determined by his or her age.

Similarly, the researcher noted from the interview guide that many of the head teachers were between 40 to 49 years for 23 out of 29 and the rest 6 out of 29 had 50 years and above. This reveals that most schools in the study area are managed by head teachers who are more advanced in age than the teachers depicting a possibility of more experience. This scenario concurs with Pont (2017) who argues that experienced head teachers invest most of their time and energy in the school as they prepare the younger generation to meet new challenges and the demands of a dynamic world. According to Leithwood, K. Sammons, P., Hopkins, D., Gu, Q., Brown, E. J., & Ahtaridou, E. (2011), head teachers are charged with the responsibility of supervising the implementation of the CBC in their schools. The above observation therefore indicates

that the school headship in the study area is entrusted to head teachers who have not only gathered school management experience and competencies but have also been in the teaching service long enough to understand the implementation of a curriculum.

4.3.3 Academic qualification

Table 5: Academic Qualifications of Grade 6 Teachers

Academic Qualification		
	Frequency	Percent
Certificate	52	34.4
Diploma	80	53
Degree	11	7.3
Masters	8	5.3
Total	**151**	**100**

Teachers in Kenya are developed into qualified teachers at various levels of training namely; certificate, diploma, degree, masters and Doctor of Philosophy (PhD). The reason of the categorization of respondents by their education qualifications in the study is that the researcher wanted to find out whether grade 6 teachers have adequate competencies for implementing the CBC. According to Regina (2021), the higher a teacher progresses in professional training, the more one is likely to be exposed to different competencies for implementing the curriculum and able to use different and relevant technologies for implementing the curriculum.

It was established in Table 5 that a majority of grade 6 teachers, 80(53%) were diploma holders, followed by 52(34.4%) who had attained certificate level of education, then the degree holders with the frequency of 11(7.3%). The master's holders were the least with 8(5.3%) representation.

It is evident from Table 5 that all the sampled teachers are professionally trained, though at different levels of academic qualifications. Professionally trained teachers

have the potential and are expected to have acquired the necessary competencies in technological knowledge, pedagogical knowledge and evaluation techniques necessary for implementing the CBC. Thus, the results in Table 5 shows that the selected grade 6 teachers fulfill the standards required for implementing the CBC. Academic qualification is important for this research because it was predicted that a higher level of training for teachers would positively influence teacher's competency for implementing CBC.

In respect to the head teachers, a majority of them 19 out of 29 reported being degree holders with 7 out of 29 being holders of master's degree and the least depicted by 3 out of 29 having attained diploma qualifications. This education qualification of the respondents was effective with the responses provided in this study because the head teachers are responsible for the provision of leadership in the implementation of the competency-based curriculum.

4.3.4 Teaching experience

Table 6: Teaching Experience of Grade 6 Teachers

Teaching Experience		
Years	Frequency	Percentage
1-5	38	25.2
6-10	77	51
11-15	11	7.3
16-20	16	10.6
20 and above	9	6
Total	**151**	**100**

The issue of teaching experience is very vital to be considered in this study because it is positively associated with student's achievement gains throughout a teacher's career. This provides a base for the culmination of teacher's competencies for implementing the

CBC. In this regard the researcher categorized the respondents by their teaching experiences.

Table 6 indicates that a majority of the teachers 77(51%) had taught between the period of 6 to 10years, followed by 38(25.2%) who had taught between 1 to 5 years. Those who had taught between 16 to 20 years were 16(10.6%) followed by 11(7.3%) who had taught 11 to 15 years and the least 9(6%) had taught for 20 years and above. This is an indication that most of the grade 6 teachers in the selected schools are competent with experience for implementing the CBC.

These findings are in agreement with Bean-Mellinger (2018), who explains that teachers with a vast experience in handling young children have friendly set of qualities, patience and demonstrate an understanding that all children are different. On the other hand, from the interview guide, the researcher noted that a majority of the head teachers 27 out of 29 had taught for a period of 20 years and above and the rest 2 had taught 16 to 20 years. Teaching experience can be attested to have a significant influence on teachers' competency for implementing the curriculum. The longer the teacher's experience, the more teaching experience and competencies will be obtained (Teng, 2016). This implies that teachers with a vast experience have accumulated a set of qualities needed for implementing the competency-based curriculum.

4.4 Technological Knowledge for Implementing the CBC

The first objective of the study was to examine teachers' technological knowledge for implementing the competency-based curriculum in public primary schools. In measuring teacher's competencies in using technology for implementing the CBC, availability of technological tools in the selected schools had to be checked. The researcher was therefore interested with the information on the following: availability

of technological tools for teaching and learning, training of teachers on integrating technological tools in teaching and learning (in this case teacher in-service training acted as the measure), frequency of integrating technological tools during teaching and learning process, competence in basic computer operations in a classroom setting, concepts taught easily upon integrating technology in teaching and learning, challenges hindering integration of technological tools in teaching and learning process and how to overcome the challenges hindering the integration of technological tools in the teaching and learning process.

4.4.1 Availability of Technological Tools

Table 7: Grade 6 Teachers' Responses on the Availability of Technological Tools

Technological Tools	Strongly agree		Agree		Undecided		Disagree		Strongly disagree		Mean	SD
	F	%	F	%	F	%	F	%	F	%		
Digital Projectors	44	29.1	65	43.0	1	0.7	21	13.9	20	13.2	3.861	1.0135
Laptops	37	24.5	79	52.3	11	7.3	12	7.9	12	7.9	3.788	1.1231
Televisions	34	22.5	6	4.0	4	2.6	62	41.1	45	29.8	2.861	0.9801
Speakers	69	45.7	15	9.9	7	4.6	29	19.2	31	20.5	2.325	1.0555
Desktops	49	32.5	42	27.8	5	3.3	34	22.5	21	13.9	2.470	1.2900
Radios	61	40.4	26	17.2	11	7.3	39	25.8	14	9.3	2.874	1.0412
Tablet devices	58	38.4	37	24.5	15	9.9	24	15.9	17	11.3	3.603	1.3764
Printers	16	10.6	35	23.2	14	9.3	52	34.4	34	22.5.	3.166	1.3925

Grade 6 teachers were asked to state the extent to which they agreed or disagreed with the statements regarding the availability of technological tools. The results are presented in Table 7.

From Table 7 it is clear that digital projectors were mostly available in the selected schools (M=3.861; SD=1.0135). This is confirmed by a majority of the teachers 65(43.0%) who agreed and another 44(29.1%) strongly agreed that digital projectors

were available. However, 1(0.7%) of the teachers were undecided while 21(13.9%) of the teachers disagreed and a further 20(13.2%) strongly disagreed that digital projectors were available. From this item, it was generalized that a majority of the teachers 109 (72.2%) agreed that digital projectors were available while 41 (27.1%) disagreed on the availability of digital projectors while the least number 1 (0.7%) of the teachers were undecided. This implies that the digital projectors for implementing the CBC were adequate.

It was also highly notable from the findings that laptops were available in the schools represented by (M=3.788; SD=1.1231). In line with this, a majority of grade 6 teachers 79 (52.3%) agreed and 37(24.5%) strongly agreed that laptops were available. A small number of the teachers 11(7.3%) were undecided. However, the researcher found out that 12(7.9%) of the teachers disagreed with 12(7.9%) strongly disagreeing that laptops were available. Averagely, a majority of the teachers 116 (76.8%) were in agreement that laptops were available while 24 (15.9%) disagreed, with the rest 11(7.3%) of the teachers being undecided. This implies that the laptops for implementing the CBC were adequately available in the selected schools.

Further, as illustrated in Table 7, the findings showed that few schools had televisions available (M=2.861; SD=0.9801). The recorded mean even though above average depicted a majority of grade 6 teachers 62(41.1%) disagreed that televisions were available in their schools with 45(29.8%) strongly disagreeing on the availability of televisions. Even though some teachers were undecided on the availability of televisions showing that they did not know whether the schools had televisions, quite a number 34(22.5%) strongly agreed as 6(4.0%) agree that televisions were available. In general, a majority of the teachers 107 (70.9%) disagreed that televisions were available while 40

(26.5%) agreed on the availability of televisions while the least 4(2.6%) of the teachers were undecided. This means that televisions were not adequate, and this would considerably hinder the digital literacy process meant to be achieved using televisions.

As depicted in Table 7 another technological tool that the researcher sought to find out its availability was speakers. The findings show that some schools as illustrated by (M=2.325; SD=1.0555) had speakers. This was supported by a majority of grade 6 teachers, 69(45.7%) who strongly agreed and 15(9.9%) who agreed that the speakers were available. However, 7(4.6%) were undecided, 29(19.2%) of grade 6 teachers disagreed, and 31(20.5%) of the teachers strongly disagreed that the speakers were available in their schools. Generally, a majority of the teachers 84 (55.6%) agreed that the Speakers were available whereas 60(39.7%) disagreed on the availability of Speakers and the least 7(4.6%) of the teachers were undecided. This was an indication that speakers for implementing the curriculum were available in some schools while others did not have.

Importantly, the researcher also established the availability of desktops in the selected schools (M= 2.470; SD=1.2900). The study findings in Table 7 showed that a majority of the teachers, 49(32.5%) strongly agreed as 42(27.8%) of the teachers agreed that the desktops were available. It was noted that 5(3.3%) of the teachers were undecided. However, 34(22.5%) of the teachers disagreed and 21(13.9%) strongly disagreed on the availability of desktops. From these findings, a majority of the teachers 91(60.3%) agreed that the desktops were available while 55(36.4%) disagreed on the availability of desktops with a few 5(3.3%) of the teachers being undecided, an indication that they were not aware of the availability of desktops in their school. This showed that, a majority of the schools were fairly endowed with desktops for implementing the CBC.

In addition, the findings in Table 7 show availability of radios in the selected schools as depicted by (M=2.874; SD=1.0412). Of these, a majority of grade 6 teachers 61(40.4%) strongly agreed that radios were available while 26(17.2%) of the teachers agreed that radios were available while 11(7.3%) of the teachers were undecided. However, 39(25.8%) of the teachers disagreed and 14(9.3%) strongly disagreed that radios were available. In general, a majority of the teachers 87 (57.6%) agreed that the radios were available while 53(35.1%) disagreed on the availability of radios and the rest 11(7.3%) of the teachers were undecided. This implies that radios meant for implementing of the curriculum seemed to be readily available in most of the public primary schools except in a few of them.

Table 7 further portrays findings on the availability of tablet devices (M=3.603; SD=1.3764). From the findings, majority of grade 6 teachers 58(38.4%) strongly agreed followed by 37(24.5%) who agreed on the availability of tablet devices whereas 15(9.9%) of the teachers were undecided. However, 24(15.9%) of the teachers disagreed while 17(11.3%) of the teachers strongly disagreed that the tablet devices were available. Overall, a majority of the teachers 95 (62.9%) agreed that the tablet devices were available but 41(27.2%) disagreed on the availability of tablet devices in their schools while 15(9.9%) of the teachers were undecided. This indicated that, tablet devices were available for implementing the Competency Based Curriculum.

Finally, as illustrated in the study findings in Table 7, (M=3.166; SD=1.3925) showed availability of printers in the primary schools in the study area. This is supported by majority 52(34.4%) of grade 6 teachers disagreeing while 34(22.5%) strongly disagreed that the printers were available. Quite a number 14(9.3%) of the teachers were undecided to comment on the availability of printers. On the same note, 35(23.2%) of

the teachers agreed while 16(10.6%) strongly agreed that printers were available. Averagely, majority of the teachers 86 (57%) disagreed that the printers were available while 51(33.8%) agreed on the availability of printers and the least 14(9.3%) of the teachers were undecided. This implies that, the printers did not seem to be readily available for implementing the CBC in a majority of the schools.

This is an indication that basic technological tools such as digital projectors, laptops, speakers, desktops, radios and tablet devices seemed to be available in most public primary schools in Nyamira South Sub-County, Nyamira County. From the aforementioned findings, it is clear that one possible reason for the availability of technological tools is that the Kenyan government gave technology tools top priority when implementing the curriculum as expressed in CBC and by the Ministry of Education (2012) in the National Education Support Sector Program. So, with the availability of these technological tools, the CBC implementation was expected to be effective.

However, a majority of the teachers 107 (70.9%) maintained that televisions were not available as 86 (57%) indicated that the printers were similarly not available. This corroborates the head teachers' responses and as quoted by one of the head teachers on the availability of technological tools during the interview;

> The government never supplied our school with printers and televisions. The schools around depend on the school's financial capability to purchase one (Personal communication, 2024, Headteacher 1).

This implied that teacher's efforts were constrained in using televisions for teaching as the modern televisions are a type of technological tools that provides a wide amount of information about trending and emerging issues in education.

Further, in some situations, teachers were handicapped and could not print evaluation materials for implementing the CBC due to inadequacy of printers. Thus, lack of technological tools hinders teachers from implementing the competency-based curriculum in public primary schools. This is supported by Nwana et al. (2017) who observe that where technological tools are not available, there is no successful implementation of the curriculum.

The head teachers in the study were asked to comment on the availability of technological tools in their schools. It was noted through interviews that a majority of the head teachers' responses were congruent to that of grade 6 teachers that the digital projectors, laptops, speakers, desktops, radios and tablet devices were available in most of the public primary schools.

The researcher also used an observation guide to verify responses elicited from the head teachers. Following the observation, the researcher noted that digital projectors, laptops, speakers, desktops, radios and tablet devices were available in most of the public primary schools. The availability of technological tools is an indication that there is a possibility of advancing technological competency for implementing the CBC in public primary schools.

In a study carried out by Abuya (2019), similar findings were established that the availability and provision of up to-date technological tools are a prerequisite in successful implementation of the curriculum. Cognate to the study findings, Beri and Sharma's (2019) findings are in agreement with the current study as they postulate that the availability of technological tools are key factors in shaping the attitudes and perceptions of teachers towards integrating technology for implementing the curriculum. The current study findings corroborate Mbithe's (2016) findings where the

availability of technological tools was found to have a significantly positive relationship with technology integration in teaching and learning process.

More so, the current study findings are in line with Kamaruddin et al. (2017) who established that the teachers' ability to incorporate technology into classroom activities as well as appreciating the technologies' versatility was an important tool in teaching and learning depended on the degree of availability and familiarity of technological tools.

A key finding on the limited availability of televisions and printers in most public primary schools is congruent with Enu et al. (2018) who found out that teacher's technological competencies were at the minimal level in Ghana. The minimal technological integration in teaching and learning among teachers was attributed to lack of technological tools in the country.

4.4.2 Training of Teachers on the Integration of Technological Tools in Implementing the CBC

Grade six teachers were asked to state the extent to which they agreed or disagreed with the statements regarding training of teachers on the integration of technological tools for implementing CBC. The results are presented in Table 8. In addressing this objective, a likert scale of 5= Strongly Agree, 4= Agree, 3= Undecided, 2=Disagree, 1 =Strongly Disagree was used enabling the responses provided in Table 8.

Table 8: Teachers' training on integrating technology in teaching

Tech. Tools	Strongly agree		Agree		undecided		Disagree		Strongly disagree		Mean	SD
	F	%	F	%	F	%	F	%	F	%		
Digital Projector	8	5.3	42	27.8	23	15.2	32	21.2	46	30.5	2.563	1.3195
Laptop	5	3.3	42	27.8	21	13.9	34	22.5	49	32.5	2.470	1.2900
Television	7	4.6	32	21.2	10	6.6	46	30.5	56	37.1	2.258	1.2830
Speakers	17	11.3	36	23.8	12	7.9	45	29.8	41	27.2	2.623	1.3940
Desktops	13	8.6	25	16.6	14	9.3	54	35.8	45	29.8	2.384	1.3006
Radios	14	9.3	34	22.5	11	7.3	50	33.1	42	27.8	2.523	1.3507
Tablet devices	4	2.6	31	20.5	17	11.3	52	34.4	47	31.1	2.291	1.1865
Printers	4	2.6	19	12.6	11	7.3	59	39.1	58	38.4	2.020	1.0983

In reference to Table 8, it was established that most of the grade six teachers had been trained to integrate technology into the teaching process particularly on the use of speakers (M=2.623; SD=1.3940), digital projectors (M=2.563; SD=1.3195), radios (M=2.523; SD=1.3507), and laptops (M=2.470; SD=1.2900). Based on the findings, 46 (30.5%) strongly disagreed to having been trained on integration of digital projector, followed by 42 (27.8%) who agreed and 8(5.3%) strongly agreed that they had undergone training. Nevertheless, 32(21.2%) of the teachers disagreed to having received training on integrating digital projectors while 23 (15.2%) were undecided. Generally, a majority of the teachers 78(51.7%) disagreed while 50(33.1%) agreed to have undergone training on integrating digital projectors and the rest 23 (15.2%) were undecided.

Additionally, a majority of the grade six teachers, 49 (32.5%) strongly disagreed to have received any training, followed by 42 (27.8%) who agreed that they had undergone training with 34(22.5%) of the teachers having disagreed while 21(13.9%) were undecided and the least 5(3.3%) strongly agreed to have undergone training on integrating laptop. Averagely, a majority of the teachers 83(55.0%) disagreed while

47(31.1%) agreed to have undergone training on integrating laptops and the rest 23 (15.2%) were undecided.

Further, it was confirmed that, a majority of grade six teachers (M=2.258; SD=1.2830) had not been trained on integrating the use of televisions in their schools teaching program. This was supported by 56(37.1%) who strongly disagreed to having undergone any training on integrating television, followed by 46(30.5%) who disagreed. Only 32 (21.2%) of the teachers agreed with 7 (4.6%) strongly agreeing but 10 (6.6%) were undecided on whether training was done on integrating television into the teaching process. In general, a majority of the teachers 102(67.5%) disagreed while 39(25.8%) agreed to have been attended training on integrating Television and the rest 10 (6.6%) were undecided.

From the findings in Table 8, a majority of grade six teachers 45 (29.8%) disagreed to having been trained to integrate speakers in teaching, followed by 41(27.2%) who strongly disagreed. Some teachers 36(23.8%) agreed while 17(11.3%) strongly agreed with the least 12 (7.9%) remaining undecided. This implies that some teachers lacked information on whether training on integrating speakers in teaching was done in their schools. From this item, it can be concluded that a majority of the teachers 86(57.0%) disagreed while 53(35.1%) agreed to have undergone training on integrating speakers and the rest 12 (7.9%) were undecided.

It was established that training on the integration of desktops had not been widely provided for the teachers (M=2.384; SD=1.3006) as a majority of grade six teachers 54 (35.8%) expressed disagreement on being trained on integrating desktops, followed by 45(29.8%) who strongly disagreed. However, 25 (16.6%) of the teachers agreed, 13 (8.6%) strongly agreed to having undergone training on integrating desktops and the

rest 14 (9.3%) were undecided. Generally, a majority of the teachers 99(65.6%) disagreed while 38(25.2%) agreed to have undergone training on integrating Desktops and the rest 14 (9.3%) were undecided.

Further, as depicted in Table 8, the researcher found out that a majority of grade six teachers 50 (33.1%) disagreed to having been trained on integrating radios in teaching, followed by 42(27.8%) who strongly disagreed. Only 34 (22.5%) of the teachers agreed, 14(9.3%) strongly agreed and the rest, 11(7.3%) were undecided on whether they had undergone training on integrating radios. Averagely, a majority of the teachers 92(60.9%) disagreed while 48(31.8%) agreed to having undergone training on integrating radios and the rest 11 (7.3%) were undecided.

Moreover, it was established that training on the use of tablet devices in primary schools was minimal (M=2.291; SD=1.1865). On this, a majority of grade six teachers 52 (34.4%) disagreed followed by 47(31.1%) who strongly disagreed that to having been trained on integrating tablet devices in teaching. However, 31(20.5%) of the teachers agreed, 4(2.6%) strongly agreed to having undergone training on integrating tablet devices with 17 (11.3%) being undecided. On average, a majority of the teachers 99(65.6%) disagreed while 35(23.2%) agreed to have undergone training on integrating tablet devices and the rest 17 (11.3%) were undecided.

Finally, Table 8 indicates the study findings with a majority of grade six teachers 59 (39.1%) who disagreed on being trained on the integration of printers in teaching, followed by 58(38.4%) who strongly disagreed. At least 19(12.6%) of the teachers agreed whereas 4 (2.6%) strongly agreed that they had been trained on integrating printer usage in teaching. Nevertheless, 11 (7.3%) were undecided on whether training on integrating printers was done. It can be concluded that, a majority of the teachers

117(77.5%) disagreed while 23(15.2%) agreed to have undergone training on the integration of printers and the rest 11 (7.3%) were undecided.

The researcher gathered more information and clarification from the head teachers using the interview guide regarding training of teachers on integrating technological tools towards implementation of CBC. Teachers' arguments were supported by a majority of the head teachers who maintained that despite the availability of technological tools in most of the public primary schools, teacher training in integrating these technological tools was not adequate to the implementation of the CBC. This has consequently left most public primary teachers stranded on how to integrate technological tools in teaching and learning process as imbued in the CBC. Thus, it could be worrying that public primary school teachers may be experiencing slow uptake of integrating technology in implementing the CBC because it is evident that most of them are illiterate on matters technology.

Considering the comments of the head teachers and the responses elicited by grade 6 teachers, the researcher found out that a majority of the teachers had not been trained in the integration of technological tools required to implement the curriculum as imbued in CBC. This suggests that one of the fundamental characteristics of the competency-based curriculum, digital literacy, was not implemented by teachers in an appropriate and competent manner. The results are consistent with a research published by K.I.C.D. (2017), which found that the majority of respondents (70%) had never used a computer, a school radio, a tablet, or a laptop.

The current study findings are in agreement with Nwana et al. (2017) who carried out a similar study in Anambra State, Nigeria and found out that technological tools for implementing the curriculum were available but were not being used due to lack of

training by the teachers. Further, the current study findings are in tandem with Enu et al. (2018) and Beri and Sharma (2019) who investigated the technological competencies of teachers in Ghana. The study found out that teachers had minimal integration of technology in their lessons due to lack of technological competencies and technical support on integrating technology in teaching and learning. Further, in these studies, the teachers were found to lack self-confidence in using technology in teaching as a result of their low level of literacy in technology which could be experienced from the current study findings. Teacher-educators were also found to lack training and therefore, most of them had some anxiety towards use of technological tools during teaching and learning process.

4.4.3 Teacher's frequency of integrating technological tools

The teachers were asked to state how frequent they integrated technological tools towards the implementation of the competency-based curriculum CBC. The results are presented in Table 9. On a likert scale of 5= always; 4 = often; 3 = sometimes; 2 = rarely; 1 = never, the responses were as recorded in Table 9.

Table 9: Teacher's frequency of integrating technological tools for implementing CBC

Tech. Tools	Teacher's Frequency of Integrating Technological Tools											
	Always		Often		Sometimes		Rarely		Never		Mean	SD
	F	%	F	%	F	%	F	%	F	%		
Digital Projectors	2	1.3	12	7.9	16	10.6	77	51.0	44	29.1	2.013	0.9164
Laptop	5	3.3	15	9.9	32	21.2	63	41.7	36	23.8	2.272	1.0388
Television	6	4.0	11	7.3	33	21.9	49	32.5	52	34.4	2.139	1.0957
Speakers	2	1.3	8	5.3	27	17.9	54	35.8	60	39.7	1.927	0.529
Desktops	1	0.7	19	12.6	43	28.5	36	23.8	52	34.4	2.212	1.0746
Radios	2	1.3	18	11.9	44	29.1	40	26.5	47	31.1	2.258	1.0675
Tablet devices	1	0.7	11	7.3	69	45.7	44	29.1	26	17.2	2.450	0.8846
Printers	2	1.3	19	12.6	46	30.5	51	33.8	33	21.9	2.377	1.0049

From Table 9 above, it was established that there was a low level of adoption or integration of various technological tools into the teaching process by the teachers as depicted by the low mean scores. On this basis, integration of tablet devices (M=2.450; SD=0.8846) took the lead followed by integration of printers (M=2.377; SD=1.0049), laptops (M=2.272; SD=1.0388) and radios (M=2.258; SD=1.0675). The least applied technological tools were speakers and digital projectors represented by (M=1.927; SD=0.529) and (M=2.013; SD=0.9164) respectively. In particular, a majority of the teachers 77(51.0%) rarely integrated digital projectors, followed by 44 (29.1%) who reported that they never integrated digital projectors into the teaching process. A few teachers 16 (10.6%) indicated that they sometimes integrated used digital projectors whereas 12 (7.9%) often integrated digital projectors. Only 2(1.3%) of the grade six teachers indicated that they always integrated the digital projectors in their lessons thus supportive of the implementation of the competency-based curriculum. Generally, a majority of the teachers 121(80.1%) less often and never integrated digital projectors while 30(19.9%) often integrated digital projectors in implementing CBC.

It was further found out that, a majority of the teachers 63(41.7%) rarely integrated laptops, followed by 36(23.8%) who never integrated use of laptops while 32(21.2%) of the teachers reported that they sometimes integrated laptops. Only 15 (9.9%) often integrated laptops while 5(3.3%) reported that they always integrated laptops into their teaching hence a process in implementing the competency-based curriculum. Averagely, a majority of the teachers 99(65.6%) rarely integrated laptops while 52(15.2%) of the teachers indicated a greater likelihood of mostly integrating laptops in teaching hence implementing CBC.

From the findings presented in Table 9, it was found out that, a majority of the teachers 52(34.4%) never integrated televisions, followed by 49(32.5%) who rarely integrated the televisions with 33 (21.9%) of the teachers having reported to sometimes integrating televisions in the teaching process. Nonetheless, 11 (7.3%) reported that they often integrated with only 6 (4.0%) indicating that they always integrated televisions in implementing the competency-based curriculum. In summary, a majority of the teachers 101(66.9%) depicted limited integration of televisions while the least 50(33.1%) often integrated televisions in implementing CBC.

From Table 9, it was established that, majority of the teachers 60(39.7%) never integrated speakers, followed by 54 (35.8%) who rarely integrated speakers with 27 (17.9%) reporting that they sometimes integrated speakers in implementing CBC. However, 8(5.3%) often integrated the use of speakers with only 2(1.3%) indicating that they always integrated the speakers in implementing the competency-based curriculum. In general, a majority of the teachers 114(75.5%) either rarely or never integrated speakers while 37(24.5%) often integrated the speakers in implementing CBC.

Additionally, as illustrated in Table 9 integration of desktops towards implementing CBC by grade six teachers was minimal (M=2.212; SD=1.0746). This finding is supported by a majority 52(34.4%) of grade six teachers who reported that they never integrated desktops- in teaching. This was followed by 43 (28.5%) who sometimes integrated use of desktops while 36 (23.8%) of the teachers rarely as 19 (12.6%) often integrated desktops in teaching towards implementing CBC. Only 1 (0.7%) of the teachers in this case indicated that they always integrated the desktops in implementing the competency-based curriculum. From this item, it is evident that a majority of the teachers 88(58.3%) reported to have rare use or never integrated desktops in teaching

while the rest 63(41.7%) were positive on and often integrated desktops in implementing CBC.

It was also found out that, a majority of grade six teachers 47(31.1%) had never integrated radios in their teaching process while implementing CBC. Some teachers 44 (29.1%) said that they sometimes integrated radios while 40 (26.5%) of the teachers rarely integrated desktops with 18(11.9%) showing that they often integrated desktops. Unfortunately, only 2(1.3%) indicated that they always integrated radios in implementing the competency-based curriculum. Averagely, a majority of the teachers 87(57.6) depicted less integration of radios while 64(42.4%) mostly integrated radios in implementing CBC.

Further, it was noted that, a majority of the teachers 69 (45.7%) sometimes integrated tablet devices in their teaching process followed by 44 (29.1%) who rarely integrated the tablet devices. Quite a number 26(17.2%) of grade six teachers said that they never integrated tablet devices while 11(7.3%) of the teachers often integrated tablet devices. The least 1(0.7%) indicated that they always integrated the tablet devices in implementing the competency-based curriculum. To sum up, a majority of the teachers 81(53.6%) stated that they often integrated the tablet devices while 70(15.2%) did not integrate the tablet devices in implementing CBC.

Finally, Table 9 also indicate that a majority of the teachers 51 (33.8%) rarely used printers in teaching, followed by 46 (30.5%) who sometimes reportedly used printers with 33(21.9%) indicating that they never integrated printers as 19(12.6%) often integrated the printers in the teaching process. The least however 2(1.3%) indicated that they always used printers in implementing the Competency Based Curriculum.

Ultimately, a majority of the teachers 84(55.6%) showed limited integration of printers in the teaching process while 67(44.4%) often used the printers in implementing CBC.

Grade six teachers' arguments on integrating technological tools in implementing the CBC were supported by a majority of the head teachers during the interview with the researcher. Majority of the head teachers just like grade 6 teachers maintained that they the teachers in their schools rarely integrated technological tools for implementing the curriculum in their respective schools. They cited that their teachers had never undergone any training on digital literacy hence lacked the requisite technological knowledge for implementing the CBC.

During the interview with the head teachers, one head teacher had the following to say;

> In this school, there are only 2 laptops and one projector and 10 tablet devices which are being stored in the strong room. The integration of technological tools in my school is still in its infancy stages and teachers rarely integrate them to facilitate teaching and learning in class. The big challenge in our school is that teachers do not integrate them in teaching because they lack knowledge in operating the laptops and the projector (Personal Communication, 2024, Head teacher 2).

It was evident from the sentiments as expressed by grade six teachers and the head teachers that despite the adequate availability of technological tools in most of their schools, the level of their integration in the teaching/learning process was not proportionate.

Therefore, the results on Table 9 imply that most teachers less likely integrated technological tools to facilitate delivery of the competency-based curriculum. This demonstrates that teachers have not been adequately trained on their use to become more efficient in their integration in the teaching/learning process. As a result, teacher's lack of competence in integrating technological tools, hindered their competence, creativity and confidence in incorporating them in teaching process. The current study findings

are congruent to a study carried out by Nihuka and Peter (2014) who found out that more than half of the teachers (53.6%) never integrated technology for implementing the curriculum citing lack of training. Cognate to the current study findings, Nzwili (2017) found out that despite the availability of technological tools, 80.1% of the teachers in Kitui County did not utilize them in the classroom setting for lack of experience in using them during instruction. Additionally, Mwila (2018) conducted a study to evaluate secondary school teachers' attitudes on using technology into the classroom in Kilimanjaro. According to the study's findings, educators still required more specialized in-service training because they had not effectively integrated technology into the classroom.

4.4.4 Teacher's competency in Basic Computer Operations and Usage in the Classroom

Grade six teachers were asked to state their competence in basic computer operations and use in the classroom. The results are presented in Table 10.

Table 10: Teachers' Self-Rating on Computer Operations and Usage in the classroom

Teacher's Competency in Basic Computer Operations and Usage in the Classroom.												
Statement	Strongly agree		Agree		Undecided		Disagree		Strongly disagree		Mean	SD
	F	%	F	%	F	%	F	%	F	%		
I can locate and use word application program	3	2.0	14	9.3	56	37.1	49	32.5	29	19.2	2.424	0.9691
I can download files for learning	5	3.3	16	10.6	53	35.1	50	33.1	27	17.9	2.483	1.0123
I can search for files in a computer system	9	6.0	28	18.5	34	22.5	50	33.1	30	19.9	2.576	1.1744
I can save texts and images from web pages	6	4.0	29	19.2	45	29.8	50	33.1	21	13.9	2.662	1.0639
I can't connect the projector with a computer	4	2.6	31	20.5	45	29.8	51	33.8	20	13.2	2.656	1.0331
I can't search for a lesson song on the internet using a computer	29	19.2	38	25.2	40	26.5	22	14.6	22	14.6	3.199	1.3116

Table 10, shows that most teachers lacked the proficiency in use of computer technology as illustrated by low means recorded across all items. First, on their ability to locate and use word application program (M=2.424; SD=0.9691), a majority of the teachers 56 (37.1%) were undecided and seemingly not sure whether they could locate and use the word program on a computer. This was followed by 49(32.5%) who disagreed and 29 (19.2%) who strongly disagreed that they can locate and use word application program in a computer. At least 14 (9.3%) agreed and the least 3 (2.0%) strongly agreed that they were competent thus able to locate and use word application program in a computer. On this aspect therefore, a majority of the teachers 78(51.6%) disagreed while 17(11.3%) agreed that they were competent in locating and using word application program in a computer. The large number 56 (37.1%) of those who were undecided implies that

teachers may have had no exposure to computers and therefore were not even sure whether they could operate a computer or not.

The findings further indicate that very few (M=2.483; SD=1.012) of the respondents were conversant with downloading files for use in classroom. This is supported by a majority of grade six teachers 53(35.1%) who were undecided thus uncertain of their capability to do so, followed by 50(33.1%) who disagreed on being competent to download files for learning. Additionally, 27(17.9%) strongly disagreed, while 16(10.6%) of the teachers agreed and the least 5(3.3%) strongly agreed to being competent in downloading files for learning. In general, a majority of the teachers 77(51%) disagreed while 21(13.9%) agreed to being able to download files for use from a computer as most of them remained clueless 53(35.1%). This implies that most of the grade 6 teachers were neither competent nor incompetent in downloading files for learning from the internet in implementing the CBC.

As further illustrated in the findings in Table 10, a majority of the teachers 50(33.1%) disagreed, while 34(22.5%) were undecided on being competent in searching for files in a computer system. Quite a number 30(19.9%) of the teachers strongly disagreed, 28 (18.5%) of the teachers agreed and the rest 9 (6.0%) strongly agreed to being competent in searching for files on a computer. Overall, a majority of the teachers 80(53%) disagreed while 37(24.5%) agreed that they were competent in searching for files on a computer system and the rest 34(22.5%) were undecided. From this item, the researcher found out that grade 6 teachers had difficulties in searching for files in a computer system for implementing the CBC. This meant that the teachers were not competent in navigating the computer system particularly file explorer in order to search for the files that would be a relevant component for implementing the CBC.

In addition, it was also found out that a majority of the teachers 50 (33.1%) disagreed, 45 (29.8%) were undecided as far as being competent in saving texts and images from web pages is concerned. 29(19.2%) agreed, 21(13.9%) of the teachers strongly disagreed and the rest 6(4.0%) strongly agreed to be competent in saving texts and images from web pages. In summary, a majority of the teachers 71(47%) disagreed while 35(23.2%) agreed to be competent in saving texts and images from web pages and the rest 45 (29.8%) were undecided. From this item, the researcher found out that a majority of the teachers were not competent in saving texts and images from web pages for implementing the CBC.

The results in Table 10 also indicate that a majority of the teachers 51 (33.8%) disagreed, 45 (29.8%) were undecided as 20(13.2%) of the teachers strongly disagreed that they can't connect the projector with a computer. This implies that most of them were able to connect the projector to a computer. At least 31 (20.5%) agreed while 4(2.6%) strongly agreed that they are not able to connect the projector with a computer. Generally, a majority of the teachers 71(47%) disagreed and therefore could connect the projector to a computer while 35(23.2%) agreed that they were not able to connect the projector with a computer and the rest 45 (29.8%) were undecided. This implies that a majority of the teachers were competent enough in connecting the projector with a computer during the teaching and learning process.

From Table 10, the researcher also established that a majority of the teachers 40 (26.5%) were undecided, 38 (25.2%) agreed that they were not able to search for a lesson song on the internet using a computer. 29(19.2%) strongly agreed, 22 (14.6%) of the teachers disagreed similarly, 22 (14.6%) of the teachers strongly disagreed that they were not able to search for a lesson song on the internet using a computer. In conclusion, a majority of the teachers 67(44.4%) agreed while 44(29.1%) disagreed that they were not able to search for a lesson song from the internet using a computer and the rest 40 (26.5%) were

undecided. This was an indication that teachers were incompetent in searching for a lesson song on the internet using a computer during the teaching and learning process.

Further, it is very clear that a majority of the teachers had not been exposed to basic computer operations. Thus, most of the teachers were incompetent in computer operations and internet usage in the classroom. This implies that public primary school teachers may not adequately implement the digital literacy which is one of the core competencies of the competency-based curriculum.

In agreement with these findings are Singh and Chan (2014) who carried out a similar study to establish the level of teacher competence towards basic technological operation and integration in learning by secondary school teachers in Malaysia. Singh and Chan found out that only 20% of the teachers could use the internet effectively and efficiently to search for the information during the teaching and learning process. Similar sentiments are echoed by Oulo (2013) who found out that 75% of the teachers in Bondo district were computer semi-illiterate to perform basic computer operations to enhance teaching and learning process. Further, in agreement with this, a study by Uriah et al. (2016) on the availability and utilization of technological facilities and materials in teaching and learning, found out that teachers were ill trained in performing basic computer operations to promote digital literacy in teaching and learning.

4.4.5 Challenges that Hinder Integration of Technological Tools in Teaching Grade 6 Learners

Teachers were asked to state the challenges that hinder integration of technological tools in teaching grade 6 learners. The various common challenges cited by the teachers were three folds.

First, a majority of the teachers complained on limited internet connectivity to access the internet resources for implementing the CBC.

On limited internet connectivity, one teacher had the following to say;

> One of the things we can notice is the lack of Internet access even today. Many schools do not have the network infrastructure to support educational technology for implementing the CBC. The lack of internet connection is a significant barrier for teachers to competently adopt these new technologies for implementing the Competency Based Curriculum (Teacher, 2024).

On being interviewed, a majority of the head teachers' responses matched with the responses elicited by most of grade 6 teachers. Many of the head teachers cited poor internet connectivity. This suggests that because of the poor internet access, the extent of ICT integration in teaching and learning in the majority of public elementary schools is still unknown. As a result, teachers were unable to use online resources to apply the CBC due to inadequate internet availability.

The study's conclusions align with those of Kamau (2012), who investigated the barriers to ICT use in secondary education's teaching and learning process. According to Kamau's (2012) findings, 76.4% of the participants believed that their school had extremely inadequate internet access.

Secondly, most of the teachers cited limited rural electrification and frequent power disruptions. A majority of them pointed out lack of electricity in their respective schools which has never been installed. Others said their transformer had been tampered with causing power outage in their regions regularly. After being interviewed, a majority of the head teachers' responses were similar with the responses elicited by a majority of grade 6 teachers on lack of electricity as a major challenge hindering integration of technological tools for implementing the CBC.

This is an indication that teachers never embraced the benefits of integrating technology in teaching and learning process in a classroom setting due to inaccessibility to the source of power. Similar challenge was echoed by Boit and Menjo (2005) on challenges that hinder the integration of technology in secondary schools' administration and which revealed that lack of electricity connection to the schools made it difficult to use technology in school administration and curriculum implementation.

Finally, a majority of the teachers indicated lack of specialized course of training and limited in-service training in integrating technological tools for the implementation of competency-based curriculum. Equally, a majority of the head teachers' responses were similar to that of a majority of their teachers wherein incompetence in digital literacy was the major challenge hindering integration of technological tools for implementing the CBC.

During the interview, one head teacher cited the following on inadequate training.

> Lack of proper training skills on how to handle technological tools has been a great challenge to integrate technology during teaching and learning processes (Teacher V, 2024).

This implies that, the slow uptake of technological integration by teachers is likely to jeopardize the effective implementation of the CBC to provide the learners with quality education as imbued in the CBC.

This challenge corroborates K.I.C.D (2017) report which revealed that 67% of the teachers had not been trained on technological integration in teaching. This was not a good reflection since the competency-based curriculum is technology driven curriculum. In support of the current study, Sutter and Kihara (2019) opine that there has been a slow uptake of technology in developing countries despite the introduction of technology in education. Sutter and Kihara (2019) established that technological

penetration rate in the education system in Kenya remains well below the 50% global threshold. The slow uptake of technology by teachers was attributed to the limited knowledge and skills on technology integration by the teachers in the teaching and learning process. Further, the study finding corresponds to Sibanda et al. (2016) who carried out a study to examine the use of technological resources and factors that hinder maximum utilization of available technological resources in Kwekwe, Zimbabwe. The research established that several factors such as fear of technology, technological skills deficiency, lack of power supply, lack of interest, and poor physical infrastructure were identified as hindrances to technology utilization in schools.

4.4.6 Suggestions on Ways of Overcoming Challenges hindering technological tools integration

Teachers were asked to state ways of overcoming the challenges of technological tools integration for implementing CBC.

First, to solve the problem of poor internet connectivity, the respondents suggested that the government should establish standard Local Area Networks in public primary schools. This implies that improved network connectivity will enhance teacher's competency to share and obtain information and learning resources online in the implementation of the CBC.

Second, to solve the problem of limited electricity, a majority of the teachers suggested that the government should supply power to the affected schools.

One teacher had the following to say

> In order to keep on improving teachers' strategies and technological competencies, the school should try to advance some infrastructures like installing electricity to the classrooms so that integrating technology could be done smoothly for implementing the Competency Based Curriculum (Teacher N, 2024).

This suggests that the provision of electricity would also enable the use of technological instruments to support the efficient execution of the CBC.

Finally, a majority of the teachers suggested that the government should organize more in-service training on integrating of technology in the teaching and learning process. This implies that, after the training of teachers on technological integration, their competencies will be enhanced to effectively integrate technological tools in their instruction. They will also remain equipped with technological competencies for effective curriculum implementation.

Integration of technology in teaching and learning is considered crucial as it influences how teachers engage learners during instruction. This resonates with the findings by Chege (2014) who found out that, teachers were very confident about their ability to integrate technology in teaching and therefore recommended training of teachers to make them more knowledgeable on digital literacy.

4.5 Teachers' Pedagogical Knowledge for Implementing the Competency Based Curriculum

The second objective sought to determine the pedagogical knowledge portrayed by teacher towards implementation of the Competency based curriculum. Several items were used to address this research objective as outlines in the following sections.

4.5.1 Frequency of use of instructional methods by grade 6 teachers in implementing the CBC

Teacher's Pedagogical methods are the broader techniques used to help students achieve learning outcomes and learn how to apply the content in a particular context. Pedagogical methods help teachers to competently practice teaching effectively by setting lessons that are competency oriented and based on student's knowledge and

ability to understand the content during the implementation of the CBC. Teachers were therefore asked to state their frequency of use for the provided instructional methods for implementing the CBC. The results are presented in Table 11.

Table 11: Analyzed Responses on Pedagogical Methods Used for Implementing CBC

Teaching method	Always		Often		Sometimes		Rarely		Never		Mean	SD
	F	%	F	%	F	%	F	%	F	%		
Collaborative learning	29	19.2	24	15.9	29	19.2	36	23.8	33	21.9	2.868	1.4268
Role play and Simulation	28	18.5	37	24.5	20	13.2	51	33.8	15	9.9	3.079	1.3141
project-based learning	4	2.6	45	29.8	34	22.5	62	41.1	6	4.0	2.861	0.9801
Class discussions	37	24.5	79	52.3	12	7.9	12	7.9	11	7.3	3.788	1.1231
Modeling	27	17.9	46	30.5	17	11.3	45	29.8	16	10.6	3.152	1.3153
Experiential learning	10	6.6	65	43.0	24	15.9	40	26.5	12	7.9	3.139	1.1257
Problem-based learning	11	7.3	39	25.8	23	15.2	66	43.7	12	7.9	2.808	1.1297
Lecture method	35	23.2	34	22.5	14	9.3	52	34.4	16	10.6	3.166	1.3925
Fieldwork	48	31.8	37	24.5	12	7.9	44	29.1	10	6.6	3.457	1.3698
Individualized instruction	44	29.1	65	43.0	20	13.2	21	13.9	1	0.7	3.861	1.0135

On pedagogical methods used in implementing CBC by the teachers, average mean scores were recorded on all items with the results as illustrated in Table 11. A majority of the teachers, 36(23.8%) rarely used collaborative instructional learning method (M=2.868, SD=1.4268). Another 33(21.9%) of the teachers never used the collaborative instructional learning method while 29(19.2%) of the teachers reported to having used the method sometimes. Similarly, 29(19.2%) of the teachers always used collaborative instructional learning method and the least 24 (15.9%) often used collaborative learning. Overall, a majority of the teachers 82(54.3%) most likely used collaborative

instructional learning method while 69(45.7%) less likely and never used collaborative instructional learning method.

It was established that, a majority of the teachers, 51(33.8%) rarely used role play and simulation instructional method (M=3.079; SD=1.3141). On the same note, 37 (24.5%) of the teachers often used the methods with 28(18.5%) of the teachers reporting to have always used role play and simulation instructional method. Nevertheless, 20(13.2%) of the teachers indicated that they sometimes used the methods as 15(9.9%) said they never used role play and simulation instructional method. From these findings, role play and simulation instructional method was largely used by majority of the teachers 85(56.3%) while 66(43.7%) depicted limited use or none at all.

The findings in Table 11 also indicate that, a majority of the teachers 62(41.1%) rarely used project-based instructional learning method represented by (M=2.861; SD=0.9801). This was by followed by 45 (29.8%) of the teachers who reported to have used this method often while 34 (22.5%) of the teachers used the project-based method sometimes. Only 6(4.0%) of the teachers reportedly never used the method while a small number 4(2.6%) said they always used project-based instructional learning method**.** From this item, a majority of the teachers 83(55.0%) most likely used project-based instructional learning method while 68(45.0%) less likely and never used project-based instructional learning method.

The research study found out that, a majority of the teachers, 79(52.3%) used class discussions often followed by 37(24.5%) of the teachers who always used it all the time, and another 12 (7.9%) of the teachers used the method sometimes. Similarly, 12 (7.9%) of the teachers rarely used the class discussions methods and the least 11(7.3%) indicated never using class discussion method. These findings are portrayed (M=3.788;

SD=1.1231). From these findings, a majority of the teachers 128(84.8%) often used class discussions while 23(15.2%) barely used class discussions.

From the above Table 11, a majority of the teachers, 46(30.5%) reported that they had used modeling instructional learning method frequently (M=3.152; SD=1.3153), another, 46(30.5%) of the teachers rarely used the method as 27 (17.9%) of the teachers reported that they always used modeling instructional learning. At least 17 (11.3%) of the teachers used the method occasionally and the rest 16(10.6%) never used it. From these findings, a majority of the teachers 90(59.6%) often used modeling instructional learning method while 61(40.4%) reported rare occasions of having used modeling instructional learning method.

This study further noted that, a majority of the teachers 65(43.0%) often used experiential instructional learning method (M=3.139; SD=1.1257). This was followed by 40 (26.5%) of the teachers who reported that they rarely used the methods as 24(15.9%) of the teachers used the method occasionally. Nevertheless, 12(7.9%) of the teachers never used it and the least 10(6.6%) of them reported that they always used experiential instructional learning method. From these findings, a majority of the teachers 99(65.6%) often used experiential instructional learning method while 52(34.4%) showed limited use of experiential instructional learning method.

From the Table 11, a majority of the teachers, 66 (43.7%) rarely used problem-based learning (M=2.808; SD=1.1297). At least 39(25.8%) of the teachers used the problem-based learning methods frequently, while 23(15.2%) of the teachers sometimes used problem-based learning. 12(7.9%) of the teachers never used the method and the remaining 11 (7.3%) always used problem-based learning. From this item a majority of

the teachers 78(51.7%) reported less use of problem-based learning while 73(48.3%) most likely used problem-based learning method.

The study further found out that, a majority of grade six teachers, 52 (34.4%) rarely used lecture method (M=3.166; SD=1.3925). Another 35(23.2%) of the teachers always used it while 34(22.5%) of the teachers used lecture method often. However, 16(10.6%) of the teachers never used the method and the rest 14(9.3%) used lecture method sometimes. From this finding, a majority of the teachers 83(55.0%) often used lecture method while 68(35.0%) less likely or never used lecture method.

It was further established that, a majority of the teachers, 48(31.8%) always used fieldwork method depicted by (M=3.457; SD=1.3698). Another 44(29.1%) of the teachers rarely used field work method, while 37 (24.5%) of the teachers often used fieldwork method. At least 12(7.9 %) of the teachers sometimes used the method while 10(6.6 %) never used fieldwork method. Based on these findings, a majority of the teachers 97(64.2%) most likely used fieldwork method while 54(35.8%) less likely and never used fieldwork method.

Finally, it was found out that, a majority of the teachers, 65(43.0%) often used individualized instruction method M= 3.861; SD=1.0135) followed by 44(29.1%) of the teachers who always used the method. Another 21(13.9 %) of the teachers rarely used the method with 20(13.2 %) of the teachers having reported to have used individualized instruction sometimes. The least 1(0.7%) number of teachers said they never used individualized instruction method. From the above findings, a majority of the teachers 129(85.4%) most likely used individualized instruction method while 22(14.6%) less likely and never used individualized instruction method.

From Table 11, it can be concluded that, a majority of the teachers often used collaborative learning, role play and simulation method, project-based learning, class discussion, modeling, experiential learning, lecture method, fieldwork learning method and individualized instructional method in implementing the CBC.

The teachers' responses were supported by a majority of the head teachers who said that they had no doubts that their teachers would effectively implement the new curriculum by using child-centered teaching approaches like collaborative learning, role play and simulation method, project-based learning, class discussion, modeling, experiential learning, lecture method, fieldwork learning method and individualized instructional method. Further, most of the head teachers agreed that their teachers were well equipped with CBC pedagogical knowledge which influenced how well they used instructional methods in implementing the CBC.

This revealed that, a majority of grade six teachers mostly used child-centered teaching approaches to increase student engagement, improve their academic performance and attitude towards learning. Child-centered teaching approaches help the child to achieve holistic development which includes the development of social skills, physical capabilities along with intellectual, cognitive and emotional abilities. However, it was found out from Table 11 that most of the teachers less likely and never used problem-based learning in implementing the CBC.

The current study findings corroborate a similar study carried out by Silas (2020) on teacher related factors influencing implementation of the competency-based curriculum at lower primary in Luanda Sub-County, Vihiga County Kenya. Silas found out that, a majority of the teachers (80.71%) were of the view that they were well equipped with pedagogical skills required to facilitate implementation of the CBC and they could use

different CBC teaching and learning methods. Similarly, a study carried out by Tilya and Paulo (2021) found out that learner centered practical approaches were vital for making the learners to see the natural objects and materials to improve their performance during the curriculum implementation process.

However, it was surprising that some teachers were still using the traditional instruction method for implementing the CBC like the lecture method as opposed to child-centered teaching approaches. This was an indication that some teachers had not been adequately acquainted with the requisite CBC pedagogical knowledge. Therefore, this was most likely an impediment to effective implementation of the CBC. Cognate to the study findings, Esther (2014) carried out a study on Teacher Preparedness in Curriculum Delivery Processes for Effective Christian Religious Education Instruction in Public secondary Schools in Baringo County, Kenya. The findings showed that, a majority of the teachers believed that the teaching methods/ learning activities depended on the work load, the more the work, the more use of teacher centered activities like lecture method to hasten the syllabus coverage. Such a method does not make learning possible.

However, it was found out from Table 11 that most of the teachers less likely and never used problem-based learning in implementing the CBC. On being interviewed, a majority of the head teachers recommended training of teachers in using problem-based learning in implementing the CBC. Cognate to the study finding, Makunja (2016) carried out research on challenges facing teachers in implementing the CBC. Makunja (2016) found out that (27.45%) of the teachers indicated that they were not able to apply the competency-based teaching approaches like the problem-based learning due to lack of in-service training.

4.6 Teacher's Attitude towards Implementing the CBC

On the objective that sought to assess teachers' attitudes towards the implementation of CBC, the findings are as shown in Table 12.

Table 12: Teacher's Attitude towards Implementing CBC

Attitude related factors	Strongly agree		Agree		Undecided		Disagree		Strongly disagree		Mean	SD
	F	%	F	%	F	%	F	%	F	%		
The competence-based curriculum is a difficult curriculum to implement	41	27.2	20	13.2	11	7.3	57	37.7	22	14.6	2.609	1.1134
Teaching grade 6 learners in line with CBC is a difficult task.	10	6.6	44	29.1	10	6.6	27	17.9	60	39.7	2.225	1.2284
I feel motivated when teaching grade 6 learners	58	38.4	24	15.9	15	9.9	37	24.5	17	11.3	3.603	1.3764
I enjoy evaluating grade 6 learners in line with CBC	35	23.2	58	38.4	7	4.6	16	10.6	35	23.2	3.649	1.0906
I don't like teaching grade 6 learners in line with CBC	29	19.2	15	9.9	7	4.6	69	45.7	31	20.5	2.325	1.0555
I feel confident teaching grade 6 learners	49	32.5	41	27.2	14	9.3	21	13.9	26	17.2	3.291	1.1809
Teaching grade 6 learners in line with CBC is boring	11	7.3	26	17.2	14	9.3	39	25.8	61	40.4	2.874	1.0412

Attitude of teachers includes the beliefs, feelings and behavior in connection to implementing the competency-based Curriculum.

From Table 12, a majority of the teachers 57(37.7%) disagreed that the competence-based curriculum was a difficult curriculum to implement (M=2.609; SD=1.1134). From the findings, 41(27.2%) who strongly agreed while 22 (14.6%) strongly disagreed. Another, 20(13.2%) of the teachers agreed and the least 11 (7.3%) were undecided that the competence-based curriculum was a difficult curriculum to implement. From this

finding, a majority of the teachers 79(52.3%) disagreed as 61(40.4%) agreed while 11 (7.3%) were undecided that the competence-based curriculum was a difficult curriculum to implement. This means that the competence-based curriculum was not a difficult curriculum to implement according to a majority of grade six teachers implying that they had a positive attitude towards implementing the CBC.

Further, it was established that a majority of the teachers, 60 (39.7%) M=2.225; SD=1.2284) strongly disagreed that teaching grade 6 learners in line with CBC was a difficult task. This was followed by 44(29.1%) of the teachers who agreed, 27(17.9%) of the teachers disagreed and 10(6.6%) were undecided. On the other hand, 10(6.6%) of the teachers strongly agreed that teaching grade 6 learners in line with CBC was a difficult task. From the above findings, a majority of the teachers 87(57.6%) disagreed and another 54(35.8%) agreed while 10(6.6%) were undecided that teaching grade 6 learners in line with CBC was a difficult task. This was a clear indication that a majority of the teachers had a positive perception towards implementing CBC since most of them maintained that teaching grade six learners in line with CBC was not a difficult task.

Additionally, it was found out that, a majority of the teachers 58(38.4%) M=3.603; SD=1.3764) strongly agreed to be motivated when teaching grade 6 learners followed by 37 (24.5%) who disagreed. 24 (15.9%) agreed and 17(11.3%) strongly disagreed while 15(9.9%) of the teachers were undecided on being motivated when teaching grade 6 learners. In general, a majority of the teachers 82(54.3 %) agreed while 54(35.8%) disagreed while 15(9.9%) were undecided to be motivated when teaching grade 6 learners. This implies that, most of the teachers were motivated to teach grade six learners and this showed that a majority of them had a positive attitude towards implementing the CBC.

Further, a majority of the teachers 58(38.4%) agreed that they enjoyed evaluating grade 6 learners in line with CBC. 35(23.2%) of the teachers strongly agreed that they enjoyed evaluating grade 6 learners in line with CBC, 35 (23.2%) of the teachers strongly disagreed while 16 (10.6%) disagreed while 7(4.6%) of the teachers were undecided that they enjoyed evaluating grade 6 learners in line with CBC. In general, a majority of the teachers 93(61.6%) agreed whereas 51(33.8%) disagreed while 7(4.6%) were undecided that they enjoyed evaluating grade 6 learners in line with CBC. This implies that a majority of the teachers enjoyed evaluating grade 6 learners in line with CBC an indication of their positive attitude towards implementing the CBC.

It was established that a majority of the teachers, 69 (45.7%) disagreed that they didn't like teaching grade 6 learners in line with CBC. At least 31(20.5%) of the teachers strongly disagreed that they didn't like teaching grade 6 learners in line with CBC. 29(19.2%) strongly agreed and another 15 (9.9%) agreed while 7(4.6%) of the teachers were undecided that they didn't like teaching grade 6 learners in line with CBC. From the above findings, a majority of the teachers 100(66.2%) disagreed while 44(29.1%) agreed and the rest 7(4.6%) were undecided that they didn't like teaching grade 6 learners in line with CBC. The researcher established from the above item that teachers liked teaching grade 6 learners in line with CBC which showed their positive attitude towards implementing the CBC.

Further, it was found out that, a majority of the teachers, 49(32.5 %) strongly agreed that they felt confident teaching grade 6 learners (M=3.291; SD=1.1809). Of these, 41(27.2 %) of the teachers agreed that they feel confident teaching grade 6 learners while 26 (17.2 %) strongly disagreed and another 21(13.9%) disagreed. Those who were undecided on their confidence level in teaching grade 6 learners accounted for 14(9.3%) of the teachers. Overall, a majority of the teachers 90(59.6%) agreed and another 47(31.1%)

disagreed while 14(9.3%) were undecided that they felt confident teaching grade 6 learners. From the findings in Table 12 the researcher established that a majority of the teachers felt confident teaching grade 6 learners which explain their positive attitude towards implementing the CBC.

Further, from the findings in Table 12, a majority of the teachers 61(40.4%) strongly disagreed that teaching grade 6 learners in line with CBC was boring (M=2.874; SD=1.0412). Some 39(25.8%) of the teachers disagreed that teaching grade 6 learners in line with CBC is boring. 26 (17.2%) of the teachers agreed and another 14(9.3%) of the teachers were undecided while 11(7.3%) of the teachers strongly agreed that teaching grade 6 learners in line with CBC was boring. From this finding, a majority of the teachers 100(66.2%) disagreed and another 37(24.5%) agreed while 14(9.3%) were undecided that teaching grade 6 learners in line with CBC was boring. This means that, most of the teachers had developed a positive attitude towards implementing the CBC since a majority of them maintained that teaching grade 6 learners in line with CBC was not boring.

In summary, a majority of the teachers 79(52.3%) maintained that CBC was not a difficult curriculum to implement. Further, teaching grade 6 learners in line with CBC was not a difficult task according to a majority 87(57.6%) of the teachers. More so, a majority of the teachers 82(54.3%) felt motivated when teaching grade 6 learners and most of them 93(61.6%) enjoyed evaluating grade 6 learners in line with CBC. A further majority of the teachers 100(66.2%) liked teaching grade 6 learners in line with CBC. The result also indicated that a majority of the teachers 90(59.6%) felt confident teaching grade 6 learners. On the other hand, a majority of the teachers 100(66.2%) argued that teaching grade 6 learners in line with CBC was not boring. In general, this was clear evidence that a majority of the teachers had developed a positive attitude

towards implementing the CBC notwithstanding the fact that a few of them had a negative attitude.

The researcher found it wise to interview the head teachers of the sampled schools to establish the teachers' attitude towards the implementation of CBC. During the interviews, just like a majority of grade six teachers, a majority of the head teachers maintained that teachers' attitude had improved as majority of the teachers had become more confident in implementation of the CBC. A number of them in their opinion agreed that there is a relationship between the attitude of teachers and the process of implementing CBC. According to the head teachers interviewed, some of the reasons why some teachers had a positive attitude were because they had attended in service training and could understand what is expected of them in implementing the CBC.

One of the head teachers noted the following during the interview conducted in this study;

> The younger teachers in my school are a bit more positive and willing to implement the CBC as opposed to the elderly teachers. The younger ones have the urge to attend more and more training to gain more knowledge in the system but those who are about to retire are still resistant to the new changes hence their negative attitude towards the new curriculum. (Personal Communication, 2024, Headteacher 4)

Another head teacher reported the following;

> When the CBC was introduced, I could get a lot of complains from the teachers about what was not working, there was a lot of work, which they never fully understood. However, with time, they have adjusted to changes and I get less or no complaint and through instructional supervision I can tell that the guideline for implementing the Competence Based Curriculum is being followed in my school. (Personal Communication, 2024, Headteacher 12)

Further on being interviewed, a majority of the head teachers just like grade six teachers confirmed that teachers had a positive attitude towards implementing the Competence Based Curriculum. They further stated that a majority of the teachers felt motivated to implement CBC and this increased their teaching morale. This issue was evident

through the head teacher's interview schedule as one of the head teachers had the following to say.

> At the school level, the head teachers appreciate the efforts made by teachers thereby promoting their teaching proficiency. So, this spirited their teaching occupation towards implementing the CBC. This is usually done through issuing a certificate of appreciation under the school leadership and monetary appreciations. (Personal Communication, 2024, Headteacher 16)

This implies that, teacher's attitude had an impact on the implementation of the CBC and a majority of the teachers had a positive attitude towards the implementation of the curriculum.

Similar sentiments were echoed by Ngeno and Mweru (2021) who carried out research on Teachers' attitude in implementation of the Competence based Curriculum in Primary Schools in Kericho County. Ngeno and Mweru (2021) found out that a majority of the teachers had a positive attitude towards the CBC for they had received the training about the new system of education. Moreover, the current findings concur with that of Obuhatsa (2020) who conducted a study to find out the effects of teachers' perception on implementing CBC in Kenya. Outcomes of the survey indicated that those educators who were competent to teach and adopt the new system of education had a positive attitude towards the implementation process. They, therefore, perceived CBC as the best education system.

However, the current study finding disagrees with the findings carried out by Ngeno, et al. (2021) in South Africa Limpopo province. Ngeno, et al. (2021) found out that CBE implementation and adoption failed in South Africa due to the attitude of teachers that was negative.

4.7 Evaluation Techniques Used by Teachers for Implementing CBC

The competency-based curriculum entails daily instruction which is guided by formative evaluation by teachers in order to allow learners reflect, regulate and monitor their learning progress. The teachers were therefore asked to state how frequently they used various evaluation techniques for implementing the CBC. The responses are as shown in Table 13.

Table 13: Teachers' Responses on Evaluation Techniques in Implementing the CBC

TASK	Always		Often		Sometimes		Rarely		Never		Mean	SD
	F	%	F	%	F	%	F	%	F	%		
Designing project work	11	7.3	9	6.0	73	48.3	45	29.8	13	8.6	2.735	0.9640
Designing assessment criterion	12	7.9	12	7.9	81	53.6	21	13.9	25	16.6	2.768	1.0736
Constructing evaluation rubric	4	2.6	6	4.0	63	41.7	49	32.5	29	19.2	2.384	0.9300
Designing class test	1	0.7	9	6.0	89	58.9	25	16.6	27	17.9	2.550	0.8770
Designing oral questions	63	41.7	29	19.2	23	15.2	22	14.6	14	9.3	3.695	1.3808

The results in Table 13 indicates that, a majority of the teachers, 73 (48.3%) reported to sometimes design project work for implementing the CBC, 45(29.8%) of the teachers rarely designed project work and another 13(8.6%) of the teachers never designed project work. At least 11(7.3%) of the teachers said they always designed and the least 9(6.0%) frequently designed project work for implementing the CBC. Overall, a majority of the teachers 93(61.6%) often designed project work while 58(38.4%) less often and never designed project work for implementing the CBC (M=2.735 SD=0.9640). This implies that, a majority of the teachers 93(61.6%) most likely designed the project work for implementing the CBC.

Further, a majority of the teachers 81(53.6%) reported that they sometimes designed assessment criterion (M=2.768; SD=1.0736). This was followed by 25(16.6%) who never designed assessment criterion, while 21(13.9%) of the teachers rarely designed assessment criterion. 12(7.9%) of the teachers often designed and on the same note, 12(7.9%) of the teachers always designed the assessment criterion for evaluating the CBC. From this finding, a majority of the teachers 105(69.5%) designed most of the time while 46(30.5%) less likely and never designed assessment criterion in implementing the CBC. This indicates that, a majority of the teachers 105(69.5%) often designed the assessment criterion for evaluating the learners during the implementation of the CBC.

It was established that a majority of the teachers 63 (41.7%) followed by 49(32.5%) who rarely constructed evaluation rubrics, while 29(19.2%) of the teachers never constructed evaluation rubrics. 6(4.0%) constructed frequently while the least 4(2.6%) always constructed the evaluation rubrics for implementing the CBC. From this item, a majority of the teachers 78(51.7%) less often and never constructed while 73(48.3%) often constructed evaluation rubrics for implementing the CBC. This implies that, most of the teachers 78(51.7%) did not construct evaluation rubrics for implementing the CBC. However, a big number of the teachers also seemed to have been constructing evaluation rubrics meaning there was a balance in this item (M=2.384; SD=0.9300).

It was found out that a majority of the teachers 89(58.9%) occasionally designed class test (M=2.550; SD=0.8770) while 27(17.9%) of the teachers never designed class test followed by 25 (16.6%) of the teachers who rarely designed class test followed by 9(6.0%) who frequently designed, while the least 1(0.7%) of the teachers always designed class test. From this finding, a majority of the teachers 99(65.6%) most likely designed class test while 52(34.4%) less likely and never designed class test for

implementing the CBC. This implies that, a majority of the teachers 99(65.6%) often designed class test for implementing the CBC.

From Table 13 above, it was established that a majority of the teachers 63 (41.7%) always designed oral questions followed by 29(19.2%) who frequently designed oral questions, while 23 (15.2%) of the teachers designed oral questions occasionally and another 22(14.6%) of the teachers, rarely designed oral questions and the least 14(9.3%) of the teachers never designed oral questions for evaluating the CBC. In general, a majority of the teachers 115(76.2%) often designed while 36(23.8%) less often and never designed oral questions for evaluating the CBC. This implies that, oral questions were designed most of the time by a majority 115(76.2%) of the teachers.

From the above finding, the researcher found out that, a majority of the teachers 93(61.6%) most likely designed the project work for implementing the CBC. Further, a majority of the teachers 105(69.5%) often designed the assessment criterion for evaluating the learners during the implementation of the CBC. However, most of the teachers 78(51.7%) less often and never constructed evaluation rubrics for implementing the CBC. Moreover, a majority of the teachers 99(65.6%) often designed class test for implementing the CBC. Finally, the researcher established that oral questions were designed most of the time by a majority 115(76.2%) of the teachers. This implies that, a majority of the teachers were competent in using different evaluation methods in implementing the Competency Based Curriculum. Teachers' responses were supported by a majority of the head teachers.

During the interview with the head teachers, it was revealed that just like grade six teachers' responses, the head teachers understood the evaluation process in implementing the competency-based curriculum. This showed that, teachers were well

prepared to steer the implementation of the competency-based curriculum and monitor the achievement of the curriculum evaluation processes.

This finding corresponded with that of Mosha (2012) who carried out research on a case study of learning materials used to deliver knowledge and skills in the competency-based curriculum. Mosha (2012) found out that the evaluation process should be done in accordance with the requirements of the new suggested curriculum.

However, the current study findings disagree with Greller et al. (2018) who carried out a qualitative case study in the United States of America describing how three districts in New Hampshire implemented competency education reform in secondary schools. Findings revealed that despite over 6 years of progress at each site, the reform had not been fully implemented due to inertial, technical, normative, and political challenges. Further, changes to grading and evaluation were particularly difficult to implement.

Nevertheless, a majority of the teachers 78(51.7%) less often and never constructed evaluation rubrics for implementing the CBC. During the interview, a majority of the head teachers just like grade 6 teachers argued that their teachers had a challenge in constructing evaluation rubrics for evaluating the CBC.

On the above statement, one head teacher had the following to say during the interview;

> ‘Teachers had not quite internalized how to design evaluation rubrics for implementing the CBC, since assessment rubrics could vary depending on the task and the respective activity area’.

This implies that, the CBC knowledge, skills, values and attitude to be measured through evaluation rubrics cannot be achieved. This is an indication that teachers needed more in-service training in constructing the evaluation rubric for implementing the CBC.

4.8 Chapter Summary

This chapter focused mainly on response rates of the research instruments, demographic characteristics of the participants followed by data presentation, analysis, interpretation and discussion of the findings from the respondents in regard with the four specific objectives of the study. The themes discussed to determine teachers' competencies in the implementation of the CBC were; To determine teachers' technological knowledge for implementing the competency-based curriculum, to evaluate teachers' pedagogical knowledge for implementing the competency-based curriculum, to assess teachers' attitude towards the implementation of the competency-based curriculum and to assess teachers' evaluation techniques for implementing the competency-based curriculum in public primary schools. Data collection instruments used to gather the information were the questionnaires for grade six teachers, interviews for the selected head teachers and observation made by the researcher. Data presentation was done using tables. Data analysis was in form of percentages, mean and standard deviation which helped in descriptions that went along with interpreting the data.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter gives a summary of the findings, conclusion, recommendations and suggestions for further research. The summary of the study highlights the findings on teachers' competencies in the implementation of the Competency Based Curriculum (CBC) in public primary schools in Nyamira South Sub-County, Nyamira County, Kenya. Four objectives were formulated to guide data collection and analysis. These were: to examine teachers' technological knowledge for implementing the competency-based curriculum in public primary schools; to determine teachers' pedagogical knowledge for implementing the competency-based curriculum in public primary schools; to assess teachers' attitude towards the implementation of the competency-based curriculum in public primary schools and to assess teachers' evaluation techniques for implementing the competency-based curriculum in public primary schools.

5.2 Summary of the Study Findings

The study sought to establish teachers' competencies in the implementation of the Competency Based Curriculum. The needs of a knowledge-based society have necessitated the alignment of the education system in Kenya towards competency-based approach to teaching and learning. The aim is to guarantee every learner the achievement of new key competencies in order to become relevant both in their personal, social and economic spheres of life and the society in order to achieve the 21st century skills needed for the national and global development.

5.2.1 Teachers' Technological Knowledge for Implementing the Competency Based Curriculum

The focus of the first objective was to examine teachers' technological knowledge for implementing the competency-based curriculum in public primary schools. The following is the summary of the findings on the availability of technological tools, training of teachers on technological knowledge, how frequently teachers integrated technological tools in implementing the CBC, teacher's competency on basic computer operations and internet usage, challenges that hinder integration of technological tools and suggestions on ways to overcome the challenges that hinder integration of technological tools in implementing the CBC.

On the availability of technological tools for implementing the CBC, the researcher found out that a majority of the teachers 109(72.2%) agreed that digital projectors were available. Further, most of the teachers 116 (76.8%) agreed that laptops were available as 84 (55.6%) of the teachers agreed that the speakers were available.

Moreover, many of them 91 (60.3%) agreed that the desktops were available for implementing the CBC. Additionally, a majority of the teachers 87 (57.6%) agreed that the radios were available. Finally, 95 (62.9%) of the teachers agreed that the tablet devices were available. However, a majority of the teachers 107 (70.9%) maintained that Televisions were not adequate. Many of them 86 (57%) indicated that the printers were similarly not adequate. A majority of the head teachers' responses through the interview were congruent to grade 6 teachers on the availability of technological tools. The responses elicited by the head teachers on the availability of technological tools corroborates with the researcher's findings on using the observation guide.

On finding out whether teachers had been trained to integrate technological knowledge for implementing CBC, it was found out that, a majority of the teachers 78(51.7%) disagreed to have undergone training on integrating digital projectors. Further, many of them 83(55.0%) disagreed that they were trained to integrate laptops for implementing the CBC. Moreover, a majority of the teachers 102(67.5%) disagreed to have undergone training on integrating television. A majority of the teachers 86(57.0%) disagreed to have undergone training on integrating speakers. Further, 99(65.6%) of the teachers disagreed to have received any training on integrating desktops. Many of them 92(60.9%) disagreed to have undergone training on integrating radios. Moreover, 99(65.6%) of the teachers disagreed to have undergone training on integrating tablet devices. Further, a majority of the teachers 117(77.5%) disagreed that they were trained to integrate printers for implementing the CBC. Likewise, the head teachers maintained that teacher training in integrating technological tools for implementing CBC was not commensurate.

On establishing how frequently teachers integrated technological tools in implementing the CBC, the researcher found out that, a majority of the teachers, 121(80.1%) disagreed on frequently integrating digital projectors for implementing CBC. Again, a majority of the teachers 99(65.6%) disagreed on integrating laptops frequently for implementing CBC. Further, a majority of the teachers 101(66.9%) disagreed on frequently integrating Televisions for implementing CBC. Most of them 114(75.5%) disagreed on frequently integrating speakers for implementing CBC. Moreover, a majority of the teachers 88(58.3%) disagreed while the rest 63(41.7%) agreed on integrating frequently desktops for implementing CBC. further, a majority of the teachers 87(57.6%) disagreed while 64(42.4%) agreed on integrating radios for implementing CBC. form the findings, it was found out that, a majority of the teachers 81(53.6%) agreed while 70(15.2%) disagreed

on integrating frequently tablet devices for implementing CBC. The study findings showed that, a majority of the teachers 84(55.6%) disagreed while 67(44.4%) agreed on integrating Printers frequently for implementing CBC. This implies that, many of them rarely integrated technological tools likely to facilitate delivery of the competency-based curriculum. Equally, a majority of the head teachers just like grade 6 teachers maintained that teachers less often and never integrated technological tools for implementing the CBC. This was a clear indication that teachers had not been competently trained on the use of technology for implementing the CBC.

Upon assessing instructors' proficiency in fundamental computer functions and internet usage, it was discovered that most of them lacked basic computer training. As a result, the majority of teachers lacked the skills necessary to use computers and the internet in the classroom. This suggests that one of the fundamental characteristics of the competency-based curriculum, digital literacy, may not be implemented by public primary school teachers in an effective manner.

5.2.2 Teachers' Pedagogical Knowledge for Implementing the Competency Based Curriculum in Public Primary Schools

The focus of the second objective was to determine teachers' pedagogical knowledge for implementing the competency-based curriculum in public primary schools. The research study found out that, a majority of the teachers 82(54.3%) collaborative instructional learning method most of the time while 69(45.7%) less likely and never used collaborative instructional learning method. further, a majority of the teachers 85(56.3%) often used role play and simulation instructional method while 66(43.7%) rarely and never used role play and simulation instructional method. Many of them 83(55.0%) opined that they most likely used project-based instructional learning method while 68(45.0%) less likely and never used project-based instructional learning method.

The finding indicated that, a majority of the teachers 128(84.8%) maintained that they used Class discussions all the time while 23(15.2%) less often and never used class discussions.

Moreover, the findings indicated that a majority of the teachers 90(59.6%) often used modeling instructional learning method while 61(40.4%) rarely and never used modeling instructional learning method. Additionally, the researcher established that most teachers 99(65.6%) most likely used experiential instructional learning method while 52(34.4%) less likely and never used experiential instructional learning method. further, a majority of the teachers 78(51.7%) less likely and never used problem-based learning while 73(48.3%) most likely used problem-based learning method. From the findings, the researcher established that, many of them 83(55.0%) often used lecture method while 68(35.0%) less likely and never used lecture method. From the findings, a majority of the teachers 97(64.2%) most likely used fieldwork method while 54(35.8%) less likely and never used fieldwork method. Finally, many of the teachers who participated in the study 129(85.4%) most likely used individualized instruction method while 22(14.6%) less likely and never used individualized instruction method. The teachers' responses were supported by a majority of the head teachers who maintained that teachers would effectively implement CBC using child-centered teaching approaches.

5.2.3 Teachers' Attitude towards the Implementation of the Competency Based Curriculum in Public Primary Schools

The focus of the third objective was to assess teachers' attitude towards the implementation of the competency-based Curriculum in public primary schools.

On assessing teacher's attitude for implementing the CBC, the researcher found out that most teachers 79(52.3%) maintained that CBC was not a difficult curriculum to implement. Further, teaching grade 6 learners in line with CBC was not a difficult task according to a majority 87(57.6%) of the teachers. Again, a majority of the teachers 82(54.3 felt motivated when teaching grade 6 learners and most of them 93(61.6%) enjoyed evaluating grade 6 learners in line with CBC. A further majority of the teachers 100(66.2%) liked teaching grade 6 learners in line with CBC. The result also found out that, a majority of the teachers 90(59.6%) felt confident teaching grade 6 learners. On the other hand, a majority of the teachers 100(66.2%) argued that teaching grade 6 learners in line with CBC was not boring. A majority of the head teachers who participated in the study remarked that teachers in their schools were not complaining about CBC implementation. Implying that, a majority of the teachers had a positive attitude towards implementing the CBC.

5.2.4 Teachers' Evaluation Techniques for Implementing the Competency Based Curriculum in Public Primary Schools

The focus of the fourth objective was to assess teachers' evaluation techniques for implementing the competency-based Curriculum in public primary schools. On assessing the evaluation techniques used for implementing the CBC, the researcher found out that, a majority of the teachers 93(61.6%) most likely designed the project work for implementing the CBC. Further, a majority of the teachers 105(69.5%) often designed the assessment criterion for evaluating the learners during the implementation of the CBC. However, most of the teachers 78(51.7%) less often and never constructed evaluation rubrics for implementing the CBC. Moreover, a majority of the teachers 99(65.6%) often designed class test for implementing the CBC. Lastly, the researcher established that oral questions were designed most of the time by a majority 115(76.2%)

of the teachers. However, 78(51.7%) of the teachers less often and never constructed evaluation rubrics for implementing the CBC.

Teachers' responses were supported by a majority of the head teachers. During the interview with the head teachers, it was revealed that, a majority of the teachers clearly understood the evaluation process in implementing the competency-based curriculum.

5.3 Conclusion

From the study findings, the researcher concluded the following based on research objectives. On objective one, it was concluded that, basic technological tools such as digital projectors, laptops, speakers, desktops, radios and tablet devices were available in most public primary schools in Nyamira South Sub-County, Nyamira County. This was possibly because the government of Kenya prioritized investment in technological tools which were distributed to public primary schools for implementing the CBC. However, it was concluded that televisions and printers were not available for implementing the CBC.

Further, the researcher concluded that, despite the adequacy of technological tools in most of the public primary schools, teacher training in integrating these technological tools for implementing the CBC was not commensurate. Thus, teachers less often integrated technological tools for implementing the curriculum in their respective schools. It was also concluded that, a majority of the teachers had not been exposed to basic computer operation and most of them did not have adequate knowledge in computer operations and internet usage in the classroom.

It was also concluded that, poor internet connectivity in public primary schools, lack of electricity and incompetency of teachers in digital literacy were the challenges hindering integration of technological tools for implementing the CBC.

On the second objective, it was concluded that, a majority of the teachers mostly used child-centered teaching approaches for implementing the CBC. These included; collaborative learning, role play and simulation method, project-based learning, class discussion, modeling, experiential learning, fieldwork instructional learning method and individualized instructional method. However, some of them admitted that they use lecture method as opposed to child-centered teaching approaches. Further, the study concluded that most of the teachers less likely used problem-based learning in implementing the CBC.

On the third objective, the findings disclosed that, a majority of the teachers had a positive attitude towards implementing CBC. Nevertheless, a few of the teachers had a negative attitude towards implementing the CBC.

On the fourth objective, it was concluded that, a majority of the teachers were competent in using CBC evaluation techniques except for a few who rarely constructed evaluation rubrics.

5.4 Recommendations

Based on the study findings, the following recommendations emerged;

i. The study recommends that all technological tools required for implementing the CBC and human resource should be distributed equitably by the government to enhance digital literacy for teachers. On this aspect, the researcher recommends that, the Teachers' Service Commission should deploy computer teachers and experts to train teachers on technological skills. Further, teachers should develop initiatives at personal level to improve their technological knowledge skills by enrolling for computer classes privately. Moreover, relevant infrastructures like electricity and internet connectivity should be provided by the government to

enhance effective implementation of the CBC.

ii. The Ministry of Education should ensure that teachers have undergone capacity building process through retooling in order for them to be orientated on CBC pedagogical knowledge. This will enable teachers to cope with the adoption of learner-centered pedagogies that are practically oriented with an aim of bolstering the effective implementation of the Competency Based Curriculum.

iii. The researcher recommends that, awareness should be created for teachers on the benefits of the Competency Based Curriculum. The curriculum review and change process should also go hand in hand with the inclusion of teachers. By so doing, teachers will own the curriculum and develop a positive attitude for inevitable effective implementation of the CBC.

iv. Teacher's evaluation technique plays a crucial role in determining whether or not the newly adopted curriculum is producing the intended results and meeting the objectives that it has set forth. In line with this position, the researcher recommended that, before placing some directives to be followed, teachers should be fully trained and in-serviced on the paradigm shift for them to grasp the various components of CBC evaluation techniques. By so doing, the attainment of effective implementation of CBC could be possible.

5.5 Suggestions for Further Research

The following areas are recommended for further research in line with the implementation of the competency-based curriculum;

i. Given that this study was conducted in public primary schools, a similar study should be conducted in private primary schools in Nyamira County.

ii. A study to assess influence of pupil related factors on the implementation of the competency-based curriculum should be carried out.

iii. The current study was conducted in one county (Nyamira). This kind of research study needs to be extended to semi-arid counties in Kenya especially Garissa, Mandera, Isiolo, Turkana, Tana River and Wajir County.

iv. Since parents are stakeholders in the CBC, a study should be conducted on the influence of parents' related factors in implementing the CBC.

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APPENDICES

Appendix I: Letter of Introduction

Bundi David Ogero,
Moi University,
P.O Box 3900,
Eldoret.

The Head teacher,

Dear Sir/Madam,

RE: REQUEST TO CONDUCT RESEARCH IN YOUR SCHOOL

I am a postgraduate student at Moi University pursuing a Master of Education Degree in Curriculum Studies. I am writing to solicit your support in Carrying out research on the topic: Teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya.

Kindly allow me to undertake the study in your school. The responses obtained will be used for the purpose of the study only. The identity of the respondents will remain confidential.

Thank you in advance.

Yours faithfully,

Ogero David

Appendix II: Questionnaire for Teachers

Dear Respondent,

I am a student undertaking a Master of Education degree in the School of Education, Department of Curriculum, Instruction and Educational Media at Moi University. I am carrying out a research to examine teachers' competencies in the implementation of the Competency Based Curriculum in Public Primary Schools in Kenya. Teacher's adequate knowledge on the Competency Based Curriculum plays a major role in the process of teaching and learning through the use of digital literacy, learner centered pedagogies, through their attitude and the general Competency Based Curriculum evaluation techniques. Therefore, you have been selected as one of the participants in this study. Your input in this study is very significant as the findings will be useful in exploring the gaps and provide possible recommendations that could help mitigate the challenges that the implementation of the new Curriculum may be facing. Please respond to each of the items as truthfully as possible. The answers you give are only for research purposes and will be treated with utmost confidentiality.

INSTRUCTIONS: Please tick (√) or fill information as appropriate and do not write your name anywhere in this paper.

SECTION A: Demographic information

1. Kindly indicate your gender

A) Male { } B) Female { }

2. What is your age bracket?
(a) 20-29 { } b) 30-39 { } c) 40-49 { } d) 50 and above { }

3. What is your highest academic qualification?

(a) Certificate { } (b) Diploma { } (c) Degree { } (d) master { } (e) PhD { } (f) Any other
Specify.....

4. Indicate your teaching experience.

(a) 1-5 years { } (b) 6-10 years { } (c) 11-15 years { } (d) 16-20 years { } (e) 21 and above years { }

SECTION B: TEACHER'S TECHNOLOGICAL KNOWLEDGE FOR IMPLEMENTING CBC.

1. To what extent do you agree or disagree with the availability of the following technological tools in your school? Use the scale: 5 = strongly agree; 4 = Agree; 3 = Undecided; 2 = Disagree; 1 = strongly disagree

Technological tools	3	2	1
1. Digital Projectors			
2. Laptop			
3. Television			
4. Speaker			
5. Desktops			
6. Radio			
7. Tablet devices			
8. Printers			

2. Teachers have been trained to integrate the following technological tools in teaching. Kindly indicate to what extent you agree or disagree with the following statement: 5= Strongly Agree, 4= Agree, 3= Undecided, 2=Disagree, 1 =Strongly Disagree.

Technological tools	5	4	3	2	1
1. Digital Projectors					
2. Laptop					
3. Television					
4. Speaker					
5. Desktops					
6. Radio					
7. Tablet devices					
8. Printers					

3. How often do you integrate the following technological tools in teaching? Use the following scale: 5= always; 4 = often; 3 = sometimes; 2 = rarely; 1 = never

Technological tools	5	4	3	2	1
1. Digital Projectors					
2. Laptop					
3. Television					
4. Speaker					
5. Desktops					
6. Radio					
7. Tablet devices					
8. Printers					

4. **To what extent do you agree with the following statements relating to your competency in basic computer operations and internet usage in the classroom? Use the following scale: 5 = strongly agree; 4 = Agree; 3 = Undecided; 2 = Disagree; 1 = strongly disagree**

STATEMENT	5	4	3	2	1
1. I can locate and use word application program					
2. I can download files for learning from the internet.					
3. I can search for files on a computer system					
4. I can save texts and images from web pages					
5. I can't connect the computer with the projector to facilitate learning					
6. I can't search for a lesson song on the internet using a computer.					

5. **In your view, what challenges may hinder the integration of technological tools in teaching grade 6 learners?**

……

……

……

……

……

6. **How can you overcome the challenges mentioned in 6 above?**

……

……

……

……

……

4.5 TEACHER'S PEDAGOGICAL KNOWLEDGE FOR IMPLEMENTING THE CBC

1. Kindly indicate how often you use the following instructional methods in the teaching process; use the scale: 5 = always; 4= often; 3 = sometimes; 2 = rarely; 1 = never

TEACHING METHOD	**5**	**4**	**3**	**2**	**1**
Collaborative learning					
Role play and Simulation					
project-based learning					
Class discussions					
Modeling					
Experiential learning					
Problem-based learning					
Lecture method					
Fieldwork					
Individualized instruction					

SECTION D: TEACHERS' ATTITUDE TOWARDS IMPLEMENTING THE COMPETENCY

1. **Teachers' attitude towards the implementation of the Competence Based Curriculum. Kindly indicate to what extent you agree or disagree with the following statement: 5= Strongly Agree, 4= Agree, 3= Undecided, 2=Disagree, 1 =Strongly Disagree.**

TEACHER'S ATTITUDE RELATED FACTORS	5	4	3	2	1
i. The competence-based curriculum is a difficult curriculum to implement					
ii. Teaching grade 6 learners in line with CBC is a difficult task.					
iii. I feel motivated when teaching grade 6 learners.					
iv. I enjoy evaluating grade 6 learners in line with CBC					

v. I don't like teaching grade 6 learners in line with CBC					
vi. I feel confident teaching grade 6 learners					
vii. Teaching grade 6 learners in line with CBC is boring.					

SECTION E: TEACHERS' EVALUATION TECHNIQUES FOR IMPLEMENTING THE COMPETENCY BASED CURRICULUM

1. **Kindly indicate by the use of a tick in the relevant columns to what extent you agree or disagree in performing the stated tasks in evaluating learners in line with the CBC.**

Task	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**
I. Designing project work					
II. Designing assessment criterion					
III. Constructing evaluation rubric					
IV. Designing class test					
V. Designing oral questions					

Appendix III: Interview Guide for Head Teachers

The purpose of the interview was to gather information regarding teachers' competencies in the implementation of the Competency Based Curriculum in public primary schools, in Nyamira South Sub-County, Nyamira County, Kenya. The information provided was kept confidential.

Section A: Demographic Data

1. Gender

Male ☐ Female ☐

2. Age

20 - 29 years ☐ 40 - 49 years ☐

30-39 years ☐ 50 years and above ☐

3. Professional Qualifications

Diploma ☐ Master's Degree ☐

Bachelor's Degree ☐ PhD ☐

Others specify……

4. Teaching experience.

(a) 1-5 years { } (b) 6-10 years { } (c) 11-15 years { } (d) 16-20 years { } (e) 20 years and above { }

SECTION B: TEACHER'S TECHNOLOGICAL KNOWLEDGE FOR IMPLEMENTING CBC.

1. **Comment on the availability of the following technological tools in your school.**

i. Digital projectors……..

ii. Laptops …….

iii. Television……..

iv. Speaker ……

v. Desktops ……..

vi. Radio ……..

vii. Tablet devices…….

viii. Printers…….

2. **Explain whether teachers in your school have been trained on the integration of the following technological tools in teaching.**

i. Digital projectors……

ii. Laptops ……..

iii. Television……...

iv. Speaker ……..

v. Desktops ……

vi. Radio …….

vii. Tablet devices…….

viii. Printers……...

3. Comment on teacher's integration of the following tech tools in teaching grade 6 learners

i. Digital projectors
……
……

ii. Laptops
……
……

iii. Television……
……..

iv. Speaker
……
……

v. Desktops
……
……

vi. Radio
……
……

vii. Tablet devices
……
……

viii. Printers……
……...

4. **Mention the challenges that hinder integration of technological tools in your school**

……

……

……

……....

SECTION C: TEACHER'S PEDAGOGICAL KNOWLEDGE FOR IMPLEMENTING THE CBC.

1. **Mention some of the teaching methods used by teachers in your school in teaching grade 6 learners.**

……
……
……
……

2. **Do teachers in your school well equipped with adequate CBC instruction methods?**

I) if yes explain

……
……
……
…..

II) if no explain……
……
……
……

1 Which teaching methods do you think teachers in your school need more training in?

……
……
……
……

SECTION D: TEACHERS' ATTITUDE TOWARDS IMPLEMENTING THE COMPETENCY BASED CURRICULUM.

1. **Comment on teacher's attitude towards teaching grade 6 learners in line with CBC.……**
……
……

2. **What should be done to improve teachers' attitude towards teaching grade 6 learners in line with CBC?……**
   ……
   ……

3. **How do you motivate teachers in your school to effectively teach grade 6 learners?……**
   ……
   ……
   ……

SECTION E: TEACHERS' EVALUATION TECHNIQUES FOR IMPLEMENTING THE COMPETENCY BASED CURRICULUM.

1. Explain how often teachers evaluate grade 6 learners in a term to determine their academic progress?

……
……
……..

2. Which evaluation techniques do your teachers use to evaluate grade 6 learners?

……
……
……
……

3. What challenges do your teachers encounter while evaluating grade 6 learners?

……
……
……

Appendix IV: Observation Guide on the Availability of Technological Tools.

Area of observation (Technological Tools)	**Available**	**Not Available**	**Remarks**
Digital Projectors			
Laptops			
Televisions			
Speakers			
Desktops			
Radios			
Tablet devices			
Printers			

Appendix V: Research Authorization letters

MOI UNIVERSITY
Office of the Dean School of Education

Tel. Eldoret (053) 43001-8/43620
Fax No. (053) 43047

P.O. Box 3900
Eldoret, Kenya

REF: EDU/PGCM/1006/19 **DATE** 15th May, 2023

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: RESEARCH PERMIT IN RESPECT OF BUNDI DAVID OGERO – EDU/PGCM/1006/19

The above named is a second year, a Master of Education student at Moi University, School of Education, Department of Curriculum Instruction & Educational Media.

It is required of his studies to conduct a research project and produce a research report. His research topic is entitled:

"Influence of Teachers' Preparedness on the Implementation of the Competency Based Curriculum in Public Primary Schools, in West Mugirango Constituency, Nyamira County, Kenya."

Any assistance given to enable him conduct research successfully will be highly appreciated.

MOI UNIVERSITY
SCHOOL OF EDUCATION
DEAN
15 MAY 2023
Sign.....
P. O. Box 3900 - 30100, ELDORET

Yours faithfully,

FOR: PROF. ANNE S. KISILU
DEAN, SCHOOL OF EDUCATION

TEACHERS SERVICE COMMISSION

Telephone:
Email: cdirnyamira@tsc.go.ke
Web: www.tsc.go.ke

When replying please quote

Ref.N°:TSC/778796/5

TSC-NYAMIRA COUNTY
P.O. BOX 981 - 40500
NYAMIRA

Date: 2nd June, 2023

TO
ALL HEAD TEACHERS
WESTMUGIRANGO
CONSTITUENCY
NYAMIRA COUNTY

RE: AUTHORITY TO CONDUCT RESEARCH

BUNDI DAVID OGERO TS/778796

The above named is a student at Moi university, school of Education, department of curriculum instruction& Educational media.

He is hereby authorized to carry out research on his topic
"Influence of Teachers preparedness on the Implementation of the Competence Based Curriculum in Public primary School, in West Mugirango constituency,Nyamira County, Kenya."

Kindly accord him the necessary support he may require.

02 JUN 2023

MARY S. OMBISI
FOR: TSC COUNTY DIRECTOR
NYAMIRA COUNTY.

Copy to: County Director of Education-Nyamira County.

REPUBLIC OF KENYA

MINISTRY OF EDUCATION

STATE DEPARTMENT of Early Learning and Basic Education

Telegram: "EDUCATION", Nyamira
Telephone: (058) 6144224
E-Mail. cdenyamiracounty@gmail.com
When replying please quote

COUNTY DIRECTOR OF EDUCATION
NYAMIRA COUNTY
P.O.BOX 745-40500
NYAMIRA

REF: NCEO/1/25/VOLIII/100 **DATE:** 5TH JUNE, 2023

TO WHOM IT MAY CONCERN

RE: AUTHORITY TO CONDUCT RESEARCH BY –BUNDI DAVID OGERO

Reference is made to the letter Ref. No. NACOSTI/P/23/26297 dated 31st May 2023 on the above mentioned subject matter. He has been given authority by the National Commission for Science, Technology and Innovation to carry out research on ***'Influence of teachers preparedness on the implementation of the competency based curriculum in public primary schools in West Mugirango constituency, Nyamira County, Kenya"***

The planned research will be conducted in your Sub-County for the period ending 31st May, 2023

Kindly accord him necessary assistance he may require.

COUNTY DIRECTOR OF EDUCATION-NYAMIRA P. O. Box 745 - 40500, NYAMIRA DATE:..... SIGN:.....

Zachary Mutuiri
COUNTY DIRECTOR OF EDUCATION
NYAMIRA COUNTY

ISO 9001 SGS

REPUBLIC OF KENYA

OFFICE OF THE PRESIDENT

Ministry of Interior and National Administration

Telephone: 020-2012491
Fax: 058-6144446
Email: ccnyamira@yahoo.com.
ccnyamira2012@gmail.com.
NYAMIRA
When replying please quote our

COUNTY COMMISSIONER
NYAMIRA COUNTY
P.O. BOX 2 - 40500

RE.NYRC/ED.2/VOL.III/105 **Date: 5th June,2023**

DEPUTY COUNTY COMMISSIONER,
NYAMIRA SOUTH.

RE: RESEARCH AUTHORIZATION – BUNDI DAVID OGERO – MOI UNIVERSITY

Reference is made to a letter Ref. No. NACOST/P/23/26297 from Director General NACOSTI dated 31st May,2023 authorizing BUNDI DAVID OGERO *to carry out research on "INFLUENCE OF TEACHERS PREPAREDNESS ON THE IMPLEMENTATION OF THE COMPETENCY BASED CURRICULUM IN PUBLIC PRIMARY SCHOOLS IN WEST MUGIRANGO CONSTITUENCY, NYAMIRA COUNTY, KENYA".*

The planned research will be conducted in your sub-county for the period ending 31st May,2024.

Kindly accord him the necessary assistance he may require.

MILLICENT GATIMU
FOR: COUNTY COMMISSIONER
NYAMIRA

Copy to:

The County Director of Education,
NYAMIRA.

Appendix VI: Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **333346**

Date of Issue: **31/May/2023**

RESEARCH LICENSE

This is to Certify that Mr.. BUNDI DAVID OGERO of Moi University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nyamira on the topic: INFLUENCE OF TEACHERS' PREPAREDNESS ON THE IMPLEMENTATION OF THE COMPETENCY BASED CURRICULUM IN PUBLIC PRIMARY SCHOOLS, IN WEST MUGIRANGO CONSTITUENCY, NYAMIRA COUNTY, KENYA. for the period ending : 31/May/2024.

License No: **NACOSTI/P/23/26297**

333346

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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See overleaf for conditions

Appendix VII: Study Area Map-Nyamira County