EFFECT OF TEACHER CHARACTERISTICS ON IMPLEMENTATION OF MATHEMATICS CURRICULUM FOR PRE-PRIMARY SCHOOL LEARNERS IN CENTRAL DIVISION, TRANS NZOIA COUNTY

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DECLARATION AND APPROVAL

Declaration by Student

This is my original work and has not been presented for award of degree in any other university or institution.

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Approval by Supervisors

This thesis is submitted with our approval as university supervisors.

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DEDICATION

I dedicate this thesis to my husband Peter Masara and our children; Brian, Lilian, Benjamin and Milkah for supporting me in all aspects of this research.

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ABSTRACT

Curriculum implementation is the process of putting a curriculum into use. Effective curriculum implementation requires the combined effort of many stakeholders. The stakeholders required to implement a learning program effectively include learners, teachers, parents, education administrators, and faith-based organizations. Availability of learning resources and allowing adequate time for a learning program to run its course is also essential aspects in implementing a curriculum plan. This study aimed to determine the effect of teacher characteristics on the implementation of Mathematics curriculum for pre-primary learners in Central Division, Trans-Nzoia County. The study's objectives were; to determine the effect of teacher qualification, experience, motivation, and commitment on implementing pre-primary learners' Mathematics curriculum in Trans-Nzoia County. The study was anchored on Skinner and Erickson's Psychosocial Development and Needs Assessment theory. The researcher used a descriptive survey design. The sample size was drawn using the Fishers formula and constituted 112 respondents. Stratified sampling was used to get respondents from each sector as follows; 74 Early Childhood Development Education (ECDE) teachers, 36 primary headteachers. The researcher used a saturated sample to select the only three educational officers. A pilot study to test reliability and validity of research instruments and the reliability were above 0.70 Cronbatch Alphas. The apparatus for data collection were the questionnaires and interview, and observation schedules. Quantitative data were analyzed using Statistical Package for Social Sciences version 11.5, and results presented using percentages, means, frequencies, and p-values, while qualitative data were analyzed using themes. The study findings indicated a significant relationship between teacher's qualifications, experience, motivation, and commitment to implementing a pre-primary mathematics curriculum. The study concluded that the government should formulate a policy to always take into consideration teachers' qualifications, experience motivation, and commitment when recruiting and promoting ECDE teachers; this study would inform the various ECDE educational stakeholders of the fundamental factors to consider for effective implementation of mathematics curriculum for pre-primary school learners.

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LIST OF ABBREVIATIONS AND ACRONYMS

CBTE	**:**	Competence Based Teacher Education
CSO	**:**	Curriculum Support Officer
D.E.O	**:**	District Educational Officer
DICECE	**:**	District Center for Early Childhood Education
ECDE	**:**	Early Childhood Development Education
EFA	**:**	Education for All
FPE	**:**	Free Primary Education
I.R.P.S	**:**	Institute of Research and Post Graduate Studies
KICD	**:**	Kenya Institute of Curriculum Development
MDG's	**:**	Millennium Development Goals
NACOSTI	**:**	National Commission for Science, Technology and Innovation
PPMC	**:**	Pre-Primary Mathematics Curriculum
ROK	**:**	Republic Of Kenya
SPSS	**:**	Statistical Package for Social Sciences
ZPD	**:**	Zone of Proximal Development

CHAPTER ONE

INTRODUCTION

This chapter presents the following sections; background to the study, statement of the problem, the purpose of the study, study-specific objectives, research questions, significance of the study, justifications of the study, scope of the study, limitations of the study, assumptions of the research and operational definitions of terms.

1.1 Background of the Study

According to Hanushek (2010), teachers are assigned a central role in delivering high-quality education by policymakers and international organizations. Therefore, it is essential to provide teachers with initiatives that can facilitate improvement in education for the benefit of learners. Ladd (2008) indicated that educational researchers consider teacher quality a critical school factor in the student learning process. Studies from various countries such as United States, Botswana, and South Africa educational systems have addressed teacher quality and effectiveness in the learning process. Riley (2015) argues that the type of education received by kids when they are young in their initial years of education forms the foundation for furthering their education.

Providing quality education to these learners demands that the government finance the program by developing physical facilities and have skilled teachers to implement the program. Therefore, the curriculum development should involve stakeholders, which should incorporate traditional values and modern school experiences. The African indigenous education of imparting knowledge to learners was, to a large extent, a collective responsibility of the community where grandparents played a crucial role (Alhey, 2015a). This researcher sought to find the competencies, i.e., knowledge, skills,

and attitudes, that the pre-primary school teacher needs to implement the mathematics program effectively.

There are efforts globally that aimed at promoting the mathematics curriculum. In the United States, three different curricula were identified in the Second International Mathematics Study, which aimed at addressing the K-grade curriculum that was implemented by 43 states and districts within Columbia (McKnight et al., 2017). The Common Core State Standards for Mathematics (CCSSM) curriculum was developed by a group comprising state governors and chief state education officers. It was intended that the implementation of similar teaching and learning and giving similar assessments for all learners would bring about some uniformity in all learning institutions in mathematics in the whole of the U.S.A. In England, performance in mathematic has been comparatively poor for many years, and the situation has been worsening compared to other counties over the same period (Yousef, 2016).

The factors contributing to this deterioration in mathematics performance are mainly because there is very little time allocated to teaching mathematics. Those who get low marks in mathematics are comparatively too many. The type of teaching where learners are grouped according to abilities does not allow these low achievers to learn from others, so they are discouraged. Since the curriculum is not uniform, the teaching and testing of the subject are not consistent. Also, there is a weakness in the use of calculators in the solving of mathematics problems. This is the same case in Kenya, where learners at the different levels of learning do not achieve well in Mathematics because of various factors, some of which may involve characteristics of the teacher. The researcher, therefore, sought to find out the teacher factors that negatively affect learner performance in Mathematics at a pre-school level to draw conclusions that may

lead to suggestions on how to create favorable conditions to enable the pre-school teacher to perform even more competently.

In Africa, teaching mathematics aims to help as many learners as possible to be literate in mathematics. In South Africa, for example, all the learners learn mathematically and will do an evaluation exam in their senior high school grade. This is because the government has come up with a nationally standardized curriculum with policy guidelines on how teaching and learning should be done in all the schools in the country. This policy is located in the Further Education and Training (F.E.T.) band. This new standard curriculum is essential as Mathematical is treated as a compulsory subject for all learners in Grade 10 to 12. This has motivated the entire country to have keen attention towards making changes in mathematics teaching and learning. The ministry of education has been challenged to deeply look into teaching mathematics, the principles of mathematic, and how it should be taught in schools to ensure that the learners understand it.

In Ugandan, the school system was adopted from Britain in 1962 after independence when the country established self-government (Yu, Leithwood, & Jantzi, 2014). Uganda developed its curriculum based on both U.S.A. and Britain curriculum systems. The prolonged political instability and poor economic state, and the need to build the capacity of the locals with a partnership with other stakeholders resulted in very few reforms in the Ugandan school curriculum. Further, little research has been done in the field of performance by learners based on the general curriculum and to find out if the curriculum addresses the needs and aspirations of Ugandans (Nsibambi, 2016). The result has been that the country has been implementing a curriculum that reflects modern mathematics combined with traditional mathematics. The curriculum that is taught is examined based on the character of school mathematics education in Uganda.

The curriculum addresses mathematics in the context of Uganda and the globalized world.

Early childhood education provides the foundation upon which children develop; social, self-expression, communication, and mathematics skills. However, implementation of the curriculum in ECDE has faced many challenges, ranging from the availability of qualified teachers, the quality of teaching, the availability of instructional resources, and uniform and effective learning evaluation measures.

In Kenya, it is hard to gauge the delivery and the preparedness of ECDE teachers because most of them chose it as the last option after failing to secure the course of their dream and lacked a good job (the Republic of Kenya, 2014). Mwaura and Shiundu (2014) conducted a study in Kenya. They established that many challenging problems have come up based on many kinds of research and evaluations of Early Childhood Education in Kenya, ranging from curriculum implementation, teaching strategies, personnel resources, community participation, and teachers' qualifications. This research isolates teacher characteristics to determine the role they play in learner achievement in Pre-school Mathematics in Trans Nzoia County, Kenya.

Kenya Institute of Education (2008) reported that one objective of learning mathematics by children before joining class one was to help the learner develop some interest in the subject by assisting them in performing well while learning concepts in the matter. It is also aimed at assisting the pre-school children in thinking and reasoning logically as the teacher emphasizes the importance of the subject in daily life, such as counting money. Gakiria (2012) conducted a study in Dagoretti District in Nairobi County on the performance of mathematics among lower primary pupils and concluded that the consistently poor performance in mathematics among lower primary pupils in the district and the entire country could be attributed to the poor background learners

had in the lower levels of learning. Starting from pre-schools, inferior teaching methods, which are examination-oriented, puts less value on the critical objectives of making the subject part of real life, inadequate learner preparedness in the preceding levels, and children's negative attitude towards mathematics in the society all contribute to poor learner performance in mathematics. To find out the role the teacher plays in the achievement of the pre-school learner in mathematics becomes essential in this study.

A study conducted by Kamau (2010) on the impact of the pre-school program on mathematics performance in lower primary schools of Makuyu Zone, Murang'a South District, indicated that all teachers agreed that it was important for all kids in lower primary schools should learn mathematics. The study also established that kids in lower primary had varied attitudes to pre-school mathematics. It further indicated that a significant percentage of the respondents (15.4%) considered pre-school mathematics as not very important; most of the children stated that they had attended pre-school, indicating that pupil weakness in mathematics could be due to an insufficient level of teaching at pre-school. While Kamau's (2010) study focused on learner characteristics in influencing their performance, the present research focuses on teacher characteristics in influencing learners achievement in Mathematics. The teacher is an essential factor in influencing learner achievement in any learning atmosphere. To create better conditions under which the teacher should operate to teach mathematics is important competently.

Curriculum implementation refers to all the actions deliberately undertaken by education stakeholders to action a learning program. It focuses on how teachers teach and assess learning by using specified resources provided in a curriculum. For effective curriculum implementation, certain factors need to be taken into consideration. The

factors include teachers, learners, availability of teaching/ learning materials, administrative support, school environment, and allowing adequate time for the learning program to take place.

In terms of the teacher's involvement in curriculum implementation, Whitaker (1979) claims that instructors see their position as independent. From the specified curriculum, they choose and determine what to teach. Implementation occurs as a result of the learner's engagement with the intended learning opportunities. The teacher's job is to connect the student with the appropriate learning opportunities. According to Wolfson (1997), teachers should have a greater voice in curriculum development. Teachers must participate in curriculum design and development, as well as implementation and modification, for the benefit of their students.

In a standards-based curriculum, learning occurs when learners understand the relationships between real life and mathematics concepts (Hiebert & Weam, 1993). This means that the learner should learn math facts and learn how to solve mathematical problems occurring in real life. Such activities characterize this as looking for and exploring patterns in mathematical concepts. It also involves using available resources effectively and appropriately to solve problems and make sense of mathematical ideas, thinking, and reasoning flexibly. In all these cases, the teachers' decisions while implementing the curriculum actually influence learner's activities and how they solve mathematical problems. For this reason, this researcher sought to find out the varied factors under the teachers' control that influence learner achievement and then decide how best to reorganize such elements to realize optimum learning and consequent higher learner achievement in mathematics at the pre-primary school level.

1.2 Statement of the problem

Mwaura and Shiundu (2014), in their evaluation research raised a variety of issues that were of concern in promoting quality learning in Pre-primary Education. The priority areas included curriculum implementation, teaching strategies, personnel, community participation, and teacher qualifications. Although there are policies guiding the entire process of teaching and learning in the country with a formidable framework, the feasibility of the same is questionable. (Hanushek, 2010).

Recent studies contacted by Kamau (2020) decries on poor performance of Mathematics in secondary schools across the country. M'kiambi (2013) concurs with the same sentiments by alleging that performance in Mathematics had turned into a national phenomenon which necessitated the government to train all Mathematics teachers under what they termed as Strengthening of Mathematics and Science Education (SMASE) programme in Secondary Schools. A similar move was also done in Primary where Key Resource Teachers (KRT's) were trained and equipped with skills to handle subjects that were underperformed including Mathematics(Chege, 2011).

Even with all these efforts in place, the general performance of Mathematics countrywide was still low. Transnzoia County has been registering a very dismal performance in Mathematics during National Examinations compared to other subjects. According to the analysis of results for the last five years as provided by the County Education Office (Table 1.1), challenges facing performance of Mathematics seem to be escalating.

Table 1: Performance in Mathematics, English and Kiswahili in Trans Nzoia County

YEAR	MATHEMATICS	ENGLISH	KISWAHILI
2015	40.35%	41.08%	45.01%
2016	43.03%	44.38%	48.30%
2017	39.01%	49.01%	47.87%
2018	40.00%	45.61%	50.80%

Source: Trans Nzoia County Education Office (2020)

Related research done by UWEZO (2015) indicated that 8 out of 100 class 8 pupils in public schools could not effectively handle class 2 work in Mathematics. The same study also tested class 3 pupils on class 2 Mathematics and found out that urban schools performed better than those from rural schools. The following table illustrates this information.

Table 2: Percentage of class 3 pupils who can handle class 2 work

	Percentage	Rural schools	Urban schools
Trans Nzoia	26.8%	24.2%	36.2%
Bomet	19.1%	24.1%	38.7%
Narok	21.2%	16.5%	38.2%
Busia	25.9%	22.4%	33.6%
Nyeri	51.8	47.2	68.2

Source: Uwezo, (2015).

Education is like a skyscraper-the strength of its foundation determines how high and sturdy the building can become. According to Duncan et al(2007), early Maths is key to later academic achievement. The greatest indicators of subsequent success, according to this research, are school-entry math readiness, reading, and attention abilities. Math is said to be the "most accurate predictor of future success outcomes." The implied connotation here is that the mitigation measures to address the countrywide challenges affecting performance of Mathematics across different levels are not at the higher level but rather lie within the foundation. Although there several studies that have been done on the teaching of Mathematics at the foundation level, no single study has ever been done on teacher characterictics and particularly in Trans Nzoia County. It is therefore on this precinct that this study focused on teacher characteristics and its effectiveness in implementation of Mathematics curriculum among pre-primary learners in Trans Nzoia County.

1.3 Purpose of the Study

The purpose of the study was to determine the effect of teacher characteristics on the implementation of the Pre-primary Mathematics Curriculum in Trans-Nzoia County.

1.4 Objectives of the Study

The following specific objectives guided the Study:

1) To establish the effect of teacher qualification on implementation of Pre-primary Mathematics Curriculum in Central Division, Trans-Nzoia County.
2) To establish the effect of teacher experience on implementation of Pre-Primary Mathematics Curriculum in Central Division, Trans-Nzoia County.

3) To determine the effect of teacher motivation on implementation of Pre-Primary Mathematics Curriculum in Trans-Nzoia County.
4) To examine the influence of teacher commitment on implementing the Pre-Primary Mathematics Curriculum in Trans-Nzoia County.

1.5 Research questions

The following research questions guided this Study:

1) What is the effect of teacher qualification on implementation of Pre-primary Mathematics Curriculum in Central Division of Trans-Nzoia County?
2) What is the effect of teacher experience on implementation of Pre-primary Mathematics Curriculum in Central Division, Trans-Nzoia County?
3) What is the effect of teacher motivation on implementing the Pre-primary Mathematics Curriculum in Trans-Nzoia County?
4) What is the influence of teacher commitment on implementing the Pre-primary Mathematics Curriculum in Trans-Nzoia County?

1.6 Significance of the Study.

The findings of the study are of significance to the following parties:

ECDE mathematics teachers

The study is of great significance to ECDE mathematics teachers as it informs them of new techniques for improving mathematical knowledge among lower primary school learners. This is because it makes teachers inquire about the weak points in mathematics among their graduates to develop strategies to improve mathematics teaching in lower primary schools.

ECDE Supervisors

The study is of great significance to ECDE supervisors because it enables them to introduce basic mathematical concepts in the ECDE curriculum. The supervisors would recognize the importance of introducing basic mathematical concepts in pre-primary schools. It informs ECDE supervisors on the challenges in teaching mathematics to pre-primary school learners and how best to address them.

Headteachers

The study would inform primary school headteachers of the problems undermining lower primary teachers in teaching mathematics caused by effects of teacher characteristics at pre-primary teaching and learning level and to derive strategies to encourage pre-primary teachers to introduce, develop and encourage appropriate mathematical skills among pre-primary school learners since what happens at that level affects learner performance in primary schools. Therefore, it will enable headteachers to understand the causes of poor mathematics knowledge among class one pupils, possibly as an effect of teacher characteristics at pre-primary schools, and how to derive effective policies to deal with such a challenge. The following guidelines would help improve mathematics performance at the pre-school level, and primary schools as a solid mathematical foundation would have been laid at the pre-school level.

Management of ECDE

The ECDE center managers would benefit significantly from the findings of this study since it would inform them on how the characteristics of their teachers affect the implementation of the Pre-primary Mathematics Curriculum in their schools. This would advise them on the best attributes of teachers to hire for their institutions and

what traits to cultivate in their teachers to make them competent in implementing the Pre-primary Mathematics Curriculum in their schools.

Ministry of Education

The Ministry of Education would access valuable information from the findings of this study to inform on desirable teacher characteristics for the training of Pre-primary school teachers. This study also sheds light on how the various aspects of teachers in ECDE centers affect the mathematical skills of their pupils. Therefore, the findings of this study are helpful to the ministry since they would help them in the preparation of ECDE teachers to ensure that these teachers have the characteristics required to perform their jobs effectively to influence the performance of mathematics among their pupils positively.

Future scholars

Future scholars interested in relooking similar issues can use these findings as to the basis for their studies. This study, therefore, forms a body of literature that other scholars can refer to while conducting their research.

1.7 Justification for the study

The fact that there is a desire by all relevant stakeholders to ensure that there is a good teaching and learning environment for the effective delivery of content in ECDE justifies the need for the study. For this to happen, all relevant stakeholders need to be facilitated to effectively and meaningfully participate in developing suitable conditions for effective teaching and learning of mathematics to take place. This can only happen if all the schools support the implementation of the program. Some schools persistently

register poor results, and relevant stakeholders must demand accountability from those leading these institutions. The fact that there is a significant drop in learner performance in mathematics made this study timely.

The government has to ensure that it has established suitable support structures and environments in ECDE centers to enhance quality outcomes due to effective teaching and learning. This objective may be achieved by improving facilities and instructional resources in ECDE centers in the whole country. Some of the essential structures and conditions for effective learning could be in-service training for teachers to implement the curriculum effectively. There is a need to establish an appropriate assessment policy statement that would direct the government to pay special attention to teacher's qualifications, experience, commitment, and motivation when deploying them to schools. Pre-school learner performance in mathematics is critical as pre-school is the point at which learners lay the foundation for their future education. This means that pre-school teachers would help build a strong foundation for learners during these initial years by ensuring that the learner develops interest and understanding of mathematics. Further, no research was done in the area to determine the influence of teacher characteristics on pre-school mathematics learners according to available literature; this hence justified this Study.

1.8 Scope of the Study

The study was done in Trans-Nzoia County, and because the county is vast, the researcher sampled out only 112 respondents comprising of 74 ECDE teachers, 36 primary headteachers, and three educational officers. The findings of this study were used to generalize the situation within the ECDs centers in the whole county. The study was limited to early childhood teachers, headteachers, curriculum support officers, and

program officers in Trans-Nzoia County. This study focused on determining the effect of teacher characteristics on implementing pre-primary learners' Mathematics Curriculum because education researchers had always overlooked this aspect.

1.9 Limitations of Study

The researcher faced some challenges in collecting field data. One such challenge was the reception by some respondents who may not have been aware of the purpose of the research. To overcome this, the researcher sought letters of introduction from the relevant authorities who provided letters of introduction that indicated the nature of the study and its significance which persuaded them to take part in the survey.

The researcher also experienced a lack of cooperation from targeted respondents who feared being exposed and victimized for information shared. To overcome this, the researcher assured them of their anonymity and confidentiality of the information they offered. Another confidentiality was guaranteed as the researcher did not seek their identities while gathering the data. There was nothing that could be used to link the information to the respondents who offered it.

1.10 Assumptions of the Study

The main assumptions used to direct the researcher in attaining the research objective were:

1) Teacher characteristics influence the implementation of pre-primary learners' mathematics curriculum.
2) Those targeted respondents were familiar with the mathematics curriculum implemented in pre-primary centers and could provide the information sought by this study.

3) Those targeted respondents gave uninfluenced opinions that were assumed to be honest as per the asked questions.
4) The researcher would have good reception in the field and would be able to receive the information required.

1.11 Operational Definition of Key Terms

Experience: This is expertise acquired through an extended period of exposure to teaching or through training that helps the teacher effectively rises to the occasion as per the calling. (Temitope and Olabanji, 2015).

Implementation: Refers to the process of putting a decision or plan into effect; execution (Laudon & Laudon, 2015).

Mathematics: Refers to the subject matter that builds knowledge and skills to learners in terms of numbers that help the learner in critical thinking and finding solutions to problems in life. (Kneebone, 2013)

The motivation of the teacher. It is the monetary and non-monetary stimulus that encourages a teacher both internally and externally to be tirelessly committed to duty and that drives her to attain the set objectives of the lesson and eventually the goal of education to learners (Ruthland and Bremer, 2012)

Pre-primary: is used synonymously with pre-school, also known as nursery school, playschool or kindergarten, and refers to an educational system established for unique teaching and learning of children at their early childhood before they join class one in regular primary schools (Stephens, 2013).

Teacher characteristics: Refers to distinguishing traits possessed by teachers which serve to identify them (Wat and Gayl, 2015).

Teacher Commitment: This refers to the teacher's willingness to dedicate them wholeheartedly to the teaching profession. (Human-Vogel & Dippenaar 2013)

Qualification of the teacher: This is the wealth of relevant knowledge, skills, and attitudes that enable the teacher to perform her duty effectively as per the employer's expectation and usually acquired through formal training. (Richardson, 2014).

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a review of related literature under the following sub-headings: Theoretical framework, Conceptual framework, and literature review of study variables.

2.1 Empirical Literature

2.1.1 Teacher's Qualification

Darling Hammond (2014) defines a polished and qualified teacher in his teaching field as one who has successfully undergone training and is certified by the senate that he can deliver the content to the learners. As much as a teacher qualifies formally as the essential requirement showing endorsement in knowledge and competence necessary for teaching, this qualification is displayed by how a teacher organizes interactive learning experiences for learners. A successful teacher can translate content as closely as possible as stipulated in the syllabus. Likewise, a successful ECDE teacher too requires to develop knowledge, skills, and attitudes necessary for effective teaching at the pre-primary school level.

Most countries consider teacher qualification as the most critical factor in teacher recruitment. In the United States, an ECDE teacher needs to possess a bachelor's degree if one expects to be employed to teach at that level. Further, an influential school teacher is also likely to have long experience if one is more effective. When a teacher is specialized, he is adequately prepared to solve specific learner needs, for example, the needs of learners of English as a Second Language (ESL) or those of learners with special needs. In America, while each state may have specific

requirements for one to get certification as a qualified teacher, whatever the condition, one must have a bachelor's degree and must have completed a teacher education program. In some states, for one to get a certification, he/she needs to pass a standardized test, while others require a teacher to have a bachelor's degree in teaching. Other states demand certification for teachers in their teaching subject or grade. Some states mandate that one must have undergone Initial Teacher Training (ITT) to be certified to be employed as a teacher in the UK. It is a strict process for one to be admitted to undergo such training and is also based on a teacher's capacity to handle subjects with a shortage of teachers. This training leads to Qualified Teacher Status (QTS) in England and Wales and the Teaching Qualification (TQ) in Scotland.

In Africa, there are essential qualifications for one to be considered a qualified teacher. In Nigeria, a primary school teacher needs to have attained a Teacher Certificate Grade II (TCGDII) at a Grade II Teacher-training college after four years of secondary school education. After 1998, one needs to possess a diploma to be a primary school teacher. A high school teacher needs a relevant education degree in a teaching subject or a general degree in that field with a post-graduate diploma in education. Teachers handling secondary schools are the most qualified in Nigeria, holding at least a bachelor's degree in their address. To teach in a university in Nigeria, one must have a doctorate, which is similar to a professor's qualification in the US and European universities.

Ruthland and Bremer (2014) consider a teacher's qualification in two ways; either traditional or alternative qualification routes. When one undergoes an undergraduate degree program or a post-graduate diploma in education, one is considered to have attained qualification through the conventional training method. An alternative method of achieving qualification is learning coursework in pedagogy and subject area without

going through the traditional degree training way. Hardy & Smith (2014) argue that for a teacher to improve his formal qualification, one should attend mentorship activities, peer evaluation programs, and professional workshops. An untrained graduate teacher with a first degree may be employed to teach but paid lowly compared to other graduates' professionally trained teachers. Such need a one-year graduate professional training to be recognized and paid as an effective teacher.

Huang &Moon (2015) study found that the teacher qualification influences a 40%-60% difference in the performance of average learners in examination action. Richardson (2014) established that learners in towns performed well in comparison to those from rural areas. The researcher concluded that the difference was due to town schools having more qualified and highly motivated teachers who made them work harder to enhance learners' performance. The present research also seeks to determine if such differences in teacher characteristics influence pre-school learner performance in mathematics in the Central Division of Trans Nzoia County.

Maundu (2014) found out that those teachers who graduated from Kenya Science Teachers College with diplomas were more competent in subject content than those with degrees from universities. Wilson et al. (2013) also support the idea that more qualified and experienced teachers highly influence learners' success than those who lack these two basic requirements.

Ashton (2014) also found out that qualified teachers positively influence learner performance compared to unqualified teachers. This research looked at how the qualifications and certification of the teachers contribute to learners' performance; Laczko and Berliner (2013) argue that a teacher's certification status influences the performance of students within the United States of America. They added that a teacher's performance depends on the school she teaches and the class level she teaches.

An analysis of the above literature indicates that teacher quality is determined by whether the teacher is certified or not, the degree attained in the university, date, and type of university. The teacher achieved his grades, the teacher's age, and years of teaching experience.

There is evidence in many countries that the qualification of the teacher is highly related to the way the learners learn, and this influences education reforms in such countries, for instance in improving from certificate to graduate teacher training programs which are believed to enhance teacher quality, (Darling-Hammond et al., 2014). While some findings based on the academic qualification of the teacher, either bachelor's degree or a master's degree, may not be conclusive, most researchers agree that there is a positive influence on the performance of learners handled by a teacher with higher academic qualifications (Rice, 2015; Wayne &Youngs, 2015).

Some researchers argue that attaining a second degree is costly and time-consuming in terms of teacher education. It discourages more good teachers from preferring to go for it (Murnane, 2014). However, this researcher supports the idea that higher teacher qualification is a factor that enhances better classroom management, better teaching, and learning, and ultimately leads to better learner achievement not just in pre-primary mathematics but in all other school subjects. Many studies have shown a significant relationship between the qualification of the teacher and the performance of the learner in the subject matter (Goldhaber & Brewer, 2015). Other studies drew mixed conclusions; for instance, Monk &King (2016) concluded that teacher qualification positively and negatively influences learner performance.

Goldhaber and Brewer (2015) established a positive and significant relationship between a teachers' preparedness and learners' performance in mathematics. Still, they found no meaningful relationship between a teachers' preparedness and the

performance of learners in science subjects. Rowan et al. (2013) reported a positive and significant relationship between the teacher's specialization in mathematics and the performance of their students in the subject.

Monk (2016) observed that even if a teacher has a major in mathematics, that qualification does not significantly influence the learner performance of the learners but that a teacher who majored in physics had a negative effect on the performance of the students. Though conflicting, the study outcomes may seem, there is more evidence to support the view that trained teachers have a positive influence on learner performance. This understanding should influence policy and practice in the training and recruitment of teachers. It should be noted that teacher experience may have a positive effect on the performance of such teachers. There is also the possibility that other factors out of a teacher's control may also influence learner performance, for instance, availability of instructional resources. This means that even a teacher who had higher grades at secondary school and passed highly in teachers' colleges may also not perform well in class if she is not accorded the necessary instructional resources.

In Kenya, the government has the policy to give in-service training to those teachers who are not qualified to teach in primary schools. There is a collaboration between the Ministry of Education with the College of Education and External Studies of Nairobi University to develop distance learning programs for teaches to continue learning while performing their daily duties. Many online and long-distance instructional programs were designed and tested before they were adopted for the program for in-service teacher training. Since the early 1980s, learning through distance in-service teachers has become permanent and parallel to regular activity undertaken by other primary teacher training colleges in Kenya.

The then Kenya Institute of Education instituted a training program for practicing teachers who needed further training and another one for untrained teachers who needed effective teaching and school management competencies. Such in-service training was done for teachers of some subjects based on the national examination results of the schools. It was assumed that the poor learner performance in those subjects was because of their ineffective teaching, which meant that the concerned teachers needed seminars and workshops to enhance their education. The training was to be extended to polytechnics since most polytechnics do not have any initial formal teacher training. This training program aimed at helping the teachers acquire relevant competencies that would make them more efficient in teaching. This researcher hopes that some of the untrained teachers in ECDE centers would benefit from seminars, workshops, and short-term in-service courses that would help boost their efficacy.

Owolabi and Adedayo (2012) did a study to establish the effect of teacher's qualification on the performance of Senior Secondary School learners in Physics. The study aimed to determine whether the teacher's status had any influence on the performance of the learners in Physics. The research design used was descriptive. The sample size was made up of students from 100 Senior Secondary and the teachers who handled the learners in each school during the 2015/2015 West African School Certificate Examination. That year's examination results for each school were summarized and correlated to the bio-data of their respective teachers of Physics from those schools. There was a hypothesis that was postulated for testing and was and yielded a 0.05 significance level. The data collected were tested using both descriptive and inferential statistics. The results established that those taught by highly qualified teachers with degrees passed more than those taught by teachers with a diploma.

Those led by a master's degree holder were also higher than those conducted by a teacher with bachelor's degree holders. The study also established that performance of learners significantly improved when taught by teachers who are professionally qualified. The study also found out that the gender of the teacher did not influence the performance of learners in physics so long as that teacher is allowed. However, the study established that teachers' experience was crucial in influencing learners' performance in the subject matter. The study focused on secondary learners and mainly tested on teacher's qualifications and experience in physics performance. The current research emphasized two more teacher characteristics: teacher motivation and teacher commitment, which affect the implementation of mathematics curriculum among pre-primary learners.

Aina and Olanipekun (2015) wrote a paper on the influence of teacher qualification on learners' academic achievement in Nigerian schools. This paper addressed the controversies surrounding the teachers' qualifications and their impact on learners' academic achievement. Their research measured teacher qualification based on seven factors which are: formal education, experience, subject matter knowledge, pedagogical studies, duration of training, certificate/licensing and professional development. The paper looked at various opinions on the perceived teacher factors that influenced learners' performance in academics. The study concluded that the teacher's qualification was paramount in the learners' performance than his certificate, i.e. degree, diploma or masters. White book (2015b) did comprehensive review about teachers' level of education in the early childhood environment. It concluded that the qualification of a teacher is essential in the implementation of the ECDE program. The review also established that achievement for the learners in ECDE is positively affected by the higher qualification of the teacher.

Studies by Aina and Olanipekun (2015) and White book (2015b) support higher teacher qualification for effective instruction. The current study considered teacher qualifications and other teacher characteristics like experience, teacher commitment, and motivation to implement mathematics curriculum for pre-primary schools.

2.1.2 Teacher's Experience

Teacher experience has a significant influence on pupils' performance at the primary and upper pre-school levels. Teachers who are experienced have a wealth of knowledge and skills to refer to while solving problems. These can positively contribute to effective teaching and learning by helping learners see the insight of an idea while teaching. Such teachers welcome correction and are not authoritarian in class. They are more flexible and listen to learners' views about learning. Learners achieve highly if qualified and experienced teachers teach them. The reason is that these talented and experienced teachers have mastered the content and have relevant skills to handle various classroom issues and thus have good management skills (Gibbons et al., 2013). In addition, more experienced teachers are likely to concentrate on teaching topics to learners with different learning abilities in the same class.

Such a teacher has prior knowledge, a positive attitude, and skills acquired through experience (Stringfield & Teddlie, 2013). When a teacher attends in-service training, it is one of the clear indicators of an experienced teacher. Governments and ECDE teacher employers expecting teachers to participate in in-service training should offer incentives for those who attend, such as increasing their salaries so that many are encouraged to attend. In this way, teachers would be updated on the latest instructional and classroom management skills due to their interaction with colleagues who have already trained.

Heedges and Laine (2014) established a positive and significant relationship between years of teaching experience and learner achievement. Likewise, data from the UTD project in schools in Texas revealed that learners taught by experienced teachers scored significantly higher in examinations than those learners taught by new teachers with an experience of one year or less. Amadi, (2014) concluded that the duration in which a teacher has taught influenced the performance of his/her learners. Ciotfelter et al. (2014) argued that well-trained teachers with more extended experience usually bring forth highly disciplined and better achievers.

In South Africa, there was a Science Education Project (SEP) whose objective was to improve science teaching in consultation with highly experienced education experts from Education systems implemented in African countries. The teachers to run this project had no relevant experience with practical work. They caught a better idea later in the stage after an in-service training course. They got a better understanding of the required content and acquired knowledge in teaching methodologies. They further knew how to derive lesson objectives as part of their daily requirement before attending any class (Fullan, 2014). The re-analysis of the STAR Tennessee experiment revealed the importance of experience in the teaching profession. The analysis established that learners in Kindergarten achieved highly and earned more in their adult life due to their teacher's experience from the first year up to twenty.

Murnane (2014) established that the teacher is more effective in the first to the third year of his teaching career. The effectiveness reaches its peak between the third and the fifth year but found that teachers do not show significant improvement after the fifth year. In contrast, few studies believe that the teacher's experience can be seen for as long as they are still in the profession. Murnane and Phillips (2013) say that experience of the teacher during their first eleven years has a positive and significant influence on

the learners' performance in the elementary school. Ferguson (2013) established that high school students taught by teachers who had been in the profession for nine years scored significantly higher in examinations than learners taught by a teacher with five to nine years of experience. Rivers and Sanders (2014) believe that each year of knowledge increases the teacher's effectiveness rapidly within the first ten years of teaching.

Clotfelter et al. (2013) established that teacher's effectiveness grows as they teach for over 20 years or more while analyzing data for teachers in North Carolina. However, the skills to help a teacher become more effective are gained in the first five years of teaching and will continue being effective throughout their teaching profession. Stronge et al. (2013) confirm a positive and significant relationship between the verbal ability of the teacher and the performance of learners. In this case, teacher's speaking ability was considered the basis to measure the quality of their teaching. For a teacher to deliver content effectively, she should have better communication skills, including explaining, asking questions, and giving direction on what is expected of the learners. However, the ability of a teacher to communicate verbally may be hard to measure, for instance, when using a 30-item sentence completion test (Lai, 2011). As much as teacher talking ability is essential, it is not a reliable measure for the quality of a teacher. This researcher also sought to determine the extent to which a teacher's teaching experience influenced her learner's achievement in pre-primary mathematics on a local scale in Trans Nzoia County.

Teachers who have taught for an extended period master how to teach and effectively manage the class using the ample time acquired skills (Cailloids, 2014). Experience helps the teacher reduce the amount of time they spend on administrative engagements, requiring them to follow some procedures; this allows them quickly maintain order,

contributing to availing more time to be used in teaching. A similar study showed that 13 out of the 23 studies done in 2014 to establish the effect of teachers' experience on the performance of their learners revealed that there was a significant relationship between teachers' knowledge and the understanding of learners in primary schools (Fuller, 2014).

Temitope and Olabanji (2015) conducted study in public secondary schools in Ogun State, Nigeria, to see how teaching experience affects students' academic achievement in mathematics and English language. The goal of the research was to see how experienced instructors influenced how students at public secondary schools in Ogun State performed in Mathematics and English Language. A descriptive study design was adopted by the researchers. The population of the research consisted of 31 Senior Secondary Schools from two different local government districts. A sample size of 20 schools was chosen from the population using a simple random selection method. These schools were spread throughout Ado-Odo/Ota and Ifo Local Government Areas, with 14 in Ado-Odo/Ota and six in Ifo. The findings revealed that teaching experience had a substantial impact on students' performance in mathematics and English. Researchers discovered that students who are taught by instructors with more than ten years of experience get better outcomes than students who are taught by professors with fewer than ten years of experience. Because the research variables are comparable, even if the study regions are diverse, the present study used the descriptive survey method.

Studies by Amadi (2014); Ciotfelter et al. (2014); Heedges and Laine (2014), and Temitope and Olabanji (2015) focused on teacher experience and performance of learners at higher school levels, whereas the current study was concerned with teacher characteristics like motivation, commitment, experience and qualifications and their

effect on the implementation of the mathematics curriculum in pre-primary schools in Central Division of Trans Nzoia County, Kenya.

2.1.3 Teacher Motivation

The desire to satisfy individual needs and those of an organization such as a school may cause the organization to motivate its workers by creating a conducive environment to help the organization achieve its goals. Motivation is defined by Okumbe (2013) as a process that takes place inside a person by giving him/her the drive and necessary energy to direct and maintain one's behavior. Motivation is a directional force that makes someone behave in a particular manner. Okumbe (2013) still asserts that because motivation is a process that takes place within an individual, it is psychological and can therefore be interpreted from how one behaves. Consequently, it is agreed that motivation comprises all the inside situations explained as wishes or desired conditions that make a person perform specific actions. Motivation has three main parameters; needs, drives, and performance. Motivation may as well be seen as that internal ability to make results look appealing.

Mwangi (2015) gives two leading causes of motivation to perform some work: intrinsic motivation, which is the result: it is the job in itself, and the other is extrinsic, which is the end towards which the job provides the means. Intrinsic motivation is motivation that is generated internally rather than via external pressure and is not based on external causes. It generates interest or pleasure in the job at hand. Intrinsic motivation has long been investigated by social and educational psychologists. According to research, intrinsic reason is typically linked with excellent academic achievement and learner pleasure. If teachers can control internal factors, then they are likely to be intrinsically motivated and will be able to associate their educational results to internal factors. This

type of motivation is a good agent believed to help one achieve desired goals. In this regard, any achievement is not influenced by mere luck but by mastering the content but not just through rote-learning that a student can achieve good grades.

Densimone et al. (2016) conducted a study that established a positive correlation between the teacher's attitudes, motivation, and teaching work. The research found that as long as the teacher is motivated, they will better implement the curriculum in class. Chege (2016) studied the impact of motivation on teaching staff in the Thika district and established that the teaching profession should be structured in schools to enable teachers to get individual satisfaction as they perform their duties.

Studies by Densimone et al. (2016) and Chege (2016) considered teacher motivation an essential factor that leads to better performance. The current study also regarded other teacher factors such as teacher qualification, experience, and commitment and their effect on implementing the mathematics curriculum among the pre-primary schools in the Central Division of Trans Nzoia County. The public being stakeholders in education, desire to be informed about the productivity of their school by getting performance results of their children (Okumbe, 2013). When a pupil has passed an examination, a parent will help the pupil choose a good school. Lerine and Lezotte (2015) think that a good school should have a good learning environment, have a culture of performing well and be disciplined, and cooperate among staff members. Such teachers are better at problem-solving, thus enabling the learner to master the content given to them by a teacher who has mastered the skill of teaching. An effective teacher constantly monitors the progress of their pupils. The school displays outstanding leadership by involving parents in the issues concerning student performance. The school needs to have an effective way for the implementation and

selection of instructional materials. All these are important if a learning program is to be effectively implemented.

Okumbe (2013) noted that to manage pupils comprehensively and effectively, the headteachers must make a lot of efforts to enhance teacher creativity for effective teaching. Ogola (2015) established that graduate teachers in public secondary schools had less commitment to their duty as they had a negative attitude to teaching as they had their hearts elsewhere. If given extra work apart from teaching, they attach a monetary value to any additional work provided by their seniors and often feel they were overworked. Yet, they got very little pay though they had many years of training. Others did not view teaching as a noble profession because of low salaries. He concluded that most graduate teachers avoided responsibility and were not committed to their work.

According to Ogola (2015), some graduate teachers felt overworked with little pay and quit the teaching profession for well-paying jobs. Young qualified mathematics teachers had the option of getting employment elsewhere quickly in the private sector. However, the massive movement of these teachers to better employers was not necessarily because of the salaries. Pastor and Erlandson (2013) argue that the community and the employer failed to recognize the teachers. The limited chances for upward mobility killed teacher morale and commitment and motivated their desire to move to other sectors.

Further, Park, (2014) supported the view that the teacher needs to understand the curriculum for effective implementation. If the teacher does not understand the theories behind the curriculum framework, they will not be motivated to implement it effectively. Besides that, Butera et al. (2015) argued that the teacher's personality had a significant influence on implementing the curriculum. Highly motivated teachers

accept changes and try new learning opportunities and become effective implementers of the curriculum, unlike their counterparts who are not motivated and not ready to take shifts. More so, Punch and Waugh (2013) found out that if teachers support the changes in the curriculum, it would eventually influence the quality of curriculum implementation, unlike the teachers who do not support the curriculum and who always keep complaining; this means that if there is openness in adapting to change, then the implementation of the curriculum would be done effectively by all.

Alternatively, intrinsic factors like having professional knowledge in the area, having an interest, and being motivated are essential characteristics in the implementation of the program and can also be a hindrance to the performance of the curriculum in a proper way; however, if there may be shortcomings in other areas (Lewthwaite, 2014).apart from personal characteristics of the teacher, for instance, environmental factors that affect academic performance.

Fishman, Gallagher, Penuel, and Yamaguchi (2013) established that if the teacher is allocated sufficient time and given technical support, they are likely to be effective in implementing the curriculum. Based on Lewthwaite's (2013) argument, factors in the environment and other extrinsic factors are essential in supporting effective performance in schools. Environmental factors include time and adequate instructional resources, equipment, facilities, and space to install these facilities, which may demotivate teachers. Additionally, a support system from the school principal and other teachers is an essential factor for successful performance in academics. Desimone (2015) likewise looks at the importance of support from the administration for the effective implementation of the curriculum by saying that besides knowledge and skills, teachers need to be encouraged and assisted in reaching defined goals set for their children in the class. He says that creating an environment for collaboration from other

teachers is essential to implementing any curriculum; this encourages teachers to improve on learner performance in Mathematics.

Some practices of management which have the potential to motivate teachers to be involved are the low ratio of teacher to pupils (27:1) in the primary section and 30:1 in the pre-primary section compared to 50:1 in public schools. Some of the measures that have contributed to the success of school performance in improving teachers' motivation include Staff development where committee/boards of governors were concerned with staff upgrading and welfare. School-based in-service training, which gives new graduates and older staff opportunities to share knowledge and experience, is essential. Induction programs for new staff to inform them of the school mission and policies improve teacher motivation. Strong dynamic leadership with duties delegated to individuals or panels of the team is an important motivational factor. Positive parental involvement, supportive parent\teacher associations, and complimentary tea at break time or school lunch provision adds to high teacher morale.

Chege (2016) carried out a study to establish the impact of motivation on teaching staff in the Thika district and found that the teaching profession should be structured to enable the teacher to get satisfaction as they perform their duties. Studies by Densimone et al. (2016) and Chege (2016) mainly considered teachers' motivation as one factor that leads to better learner performance. This study considered other teacher factors such as teacher qualification, experience, and commitment to finding out their effect on implementing mathematics curriculum among the pre-primary learners in schools.

Ibrahim, Ghavifekr, Ling, Siraj, & Azeez, (2014) maintain that the teacher has to carry out him/herself in a professional manner. Teachers should continue to learn from multiple sources of knowledge throughout their careers. A teacher can have the chance

to learn by doing practice, through making mistakes and learning from his colloquies, and with support from the school administration. The teacher should be able to commit him/herself to excellence by utilizing learning opportunities provided by the school environment and the classroom. Every new student the teacher has to attend to offers a unique learning opportunity for him. If a teacher undergoes any professional development like workshops and conferences, he improves on his competencies. Academic qualification like a degree certificate only provides a starting point for one teaching journey. A teacher gains more valuable competencies than while taking lectures in the university. A continuously learning teacher is seen as a model by learners and shows the importance of learning to his learners.

McInerney, Ganotice, King, Morin, and Marsh (2015) noted that another way a teacher can show their level of commitment is by responsibly implementing the curriculum. While the ministry of education may provide teachers with the syllabus to teach, the teacher needs to know how to interpret the syllabus and deliver content to attract and keep learners' attention. By being responsible for the curriculum, it means that the teacher needs to be responsible in the way he makes choices to meet the learners' expectations. According to Bogler, & Nir, (2015), teachers should aim at teaching to meet learner needs and interests. Teachers should accept the diversity brought about by different ethnic communities, cultures, socio-economic statuses, disabilities, and sexual orientations. A teacher should purpose to be accommodative by catering to varied learner needs even within the same class. Teachers who are highly motivated develop a positive attitude towards their job. Such is likely to teach wholeheartedly to enhance learner achievement in pre-primary mathematics and in every other school subject where highly motivated teachers are needed.

2.1.4 Teacher Commitment

Teaching is a job that needs dedication (Human-Vogel, & Dippenaar, 2013). An successful educator must be dedicated not just to their students but also to the teaching profession; this includes adhering to the laws and regulations as well as adopting the teaching profession's values. A person's attitude toward her work is referred to as professional dedication. For the professional learners, it is her point of view and active involvement, and they recognize that not every kid will learn in the same manner. According to Lai, Luen, Chai, and Ling (Lai, Luen, Chai, & Ling) (2014).

Teacher dedication distinguishes individuals who are committed to their job from those who are not. Individuals that are committed are dedicated to their students and their school, as well as to the teaching profession as a whole. One of the most important characteristics of a teacher that is committed to their job is the pull they feel towards their students. They are passionate about education, and their focus is on their students, their learning, and their overall well-being. Teachers that care about their students constantly prioritize their desires, needs, and interests. They provide a range of unique teaching methods and strategies to suit the requirements of each student. They try to inspire and engage their students in order to guarantee that they are receiving as much information as possible in order to be successful (McInerney, Ganotice, King, Morin, & Marsh, 2015).

A teacher has committed to teaching when she spends personal time to becoming an active part of their school and community, according to Somech and Bogler (2017). Teachers who care about their students give their time to serve on committees and teach after-school activities. They are coaches who also donate their time to help students participate in extracurricular activities. They volunteer their spare time to assist their school in whatever manner they can. They are committed to the success of their school

(Spaull, 2014). Teachers that are dedicated to their profession invest time in continuous education. Teachers who are committed to their profession never stop studying new teaching methods, just as doctors never stop learning new ways to help save lives. Teachers who understand that teaching is dynamic strive to stay up with these ever-changing trends. Committed instructors, according to Tyree (2014), attend seminars and conferences, establish online professional learning networks, and read educational blogs to stay up to date on scholarly advances and teaching methods. They are dedicated to pushing themselves by seizing every chance to learn more, all in the sake of their students' success (Pergamon. Tsui, & Cheng, 2013).

Teaching is not a profession where you can leave your work at the end of the day and pick it up again in the morning (Vandenberg, & Scarpello, 2015). It's a profession that requires dedication and time. Teachers who care about their students carry their job home with them, not just physically but also emotionally. They devote not just their physical and mental self to their students and jobs, but also their emotional selves. When their students are in pain, they are in pain. When things aren't going well at school, Walker and Dimmock (2016) suggest that they are the ones that push for change. Nothing is ever left undone for a dedicated instructor. Teaching is an ongoing process in which instructors are constantly active participants (Walker, & Dimmock, 2016).

According to Warr, Cook, and Wall (2013), dedicated instructors devote themselves to keeping up with the ever-changing educational advances in order to educate our students to continue to exist in this modern environment. They are attempting to master 21st-century educational communication tools that will assist learners in navigating a rapidly changing environment (Weick, 2016). They design classroom experiences that link students to real-world problems, such as helping them in applying ideas taught in

the classroom to real-world scenarios. Other abilities that committed instructors acquire include how to assist students develop critical thinking and problem-solving skills. (Scarpello, Vandenberg, and Scarpello, 2015).

2.2 Theoretical Review

2.2.1 Skinner's Behavioral Theory

Schacter and Gilbert (2011) present Skinners' belief that one way to understand how people behave is to establish the leading cause of their behavior and how it affects others which he termed operant conditioning. Skinner believes that human behavior is motivated by free will arising from their previous beliefs and actions. Skinner further explained that if the consequences of a particular action are negative, it reduces the possibility of that specific individual repeating the action; similarly, if the results are good, there is a higher possibility of the individual wanting to repeat a particular activity. Skinner found out that when individual human action is rewarded, the individual is more likely to repeat the action. (Schacter, 2011).

Consequently, Skinner (2014) derived the term operant conditioning from purposely rewarding an action to achieve a specific response. In his research, Skinner identified three types of reactions: neutral re-enforcer is an action from the surroundings that may not cause an increase or decrease the possibility of an action being repeated in the future. Positive re-enforcers refer to stimulations from the environment that increase the chances of that behavior being repeated. Negative re-enforcers are actions from the environment that decrease the likelihood of a behavior being repeated. An example of a negative re-enforcer is a punishment that discourages behavior from being repeated(Skinner, 2014).

This theory is essential for this study in that it helps to explain how characteristics of pre-school teachers influence the implementation of the mathematics curriculum. One feature of teacher effectiveness is teacher motivation. It means that if teachers are deliberately motivated, they are more likely to achieve positive results in their work; for instance, they may show positive commitment to their work which eventually may mean better learner achievement; this may call for education stakeholders to work together to create conducive teaching environment and enhanced salaries. It may also mean that negative re-enforcement may demotivate pre-school teachers and consequently cause them to have less commitment resulting in lower learner achievement in mathematics and other school subjects. Therefore, it is necessary to understand which category the different teacher characteristics fall into and how they affect the implementation process of mathematics in pre-primary schools.

2.2.2 Erick Erickson's Psychosocial Development Theory

Erik Erikson's psychosocial development theory assumes that human beings undergo eight developmental phases and that at each level, one is required to solve problems associated with that level. When one successfully solves problems at a lower level, one then moves to the next level and learns to solve problems that ultimately constitute an individual's personal development.

According to Erikson, crises do not mean that individuals are stuck but act as motivation for individuals to expand their minds to be creative at problem-solving. This enhances personal development and increases an individual's self-esteem that would positively affect the task such an individual engages in. All the stages in life have crises that exist in some form. Therefore human development is occurring as individuals solve problems that come in life to reach increasingly mature stages. In this study, Erikson's

theory is applicable in the following ways. A pre-school teacher who tries to solve classroom issues that are likely to retard her learner's achievement in Mathematics becomes committed to her duty to derive strategies that enable her to motivate her learners and help them improve on their performance. Therefore, the researcher sought to determine the applicability of Erickson's theory by pre-school mathematics teachers in Trans Nzoia County.

2.2.3 Needs Assessment Theory

Needs Assessment Theory or situational analysis aims at assessing the competencies one needs to perform some task (Richard, 2013) effectively. Such competencies include knowledge, skills, and attitudes one needs to acquire to effectively perform the required task. This theory was used to effectively establish the competencies the pre-school teacher needs to teach Mathematics at the pre-school level. The approach also helped the researcher seek limitations to pre-school mathematics teaching and how instruction could be organized to seal the gaps to develop the desired results in pre-school learner achievement (Maranga, 2013). This theory helped in finding out gaps in implementing the ECDE related to the ECDE teacher training program, which enhances pre-school learner achievement. This could help to reduce the existing gaps in pre-school mathematics teaching. This theory assumes that one can measure every intervention in education based on specified educational purposes. Since needs assessment requires a researcher to be specific about variables in play, it enabled the researcher to specify the characteristics an effective pre-school mathematics teacher needs for effective teaching. The researcher could establish the desired outcomes that helped develop priority needs, goals, and philosophy of education necessary to pre-school mathematics instruction by analyzing the situation. Prioritization is an essential

feature in the needs assessment. This aspect helped the researcher prioritize teacher characteristics as indicated by various respondents. These priority needs then became the guide to suggestions on how to improve pre-school mathematics teaching and learning. When the situational analysis is done, it creates an opportunity to involve as many relevant stakeholders as possible to make decisions concerning implementing the ECDE curriculum. Because the learners' needs are considered during the development of the ECDE curriculum, this theory becomes essential for this study. The researcher chose the theory because it helped establish the factors that influence pre-primary teachers' performance in ECDE mathematics curriculum implementation.

The influence of pre-school teacher characteristics on pre-school learner performance in mathematics is of vital concern to educators and policymakers because they all have a problem over learner experiences at pre-school. Therefore, any challenges in pre-school mathematics instruction must be addressed scientifically by basing decisions on research findings. Any changes regarding content, methodology and teacher suitability, and other aspects of pre-school programs be based on a needs assessment from time to time to keep pace with changing learner and societal needs.

2.3 Conceptual Framework

The conceptual framework for this study presents the interaction between the independent and dependent variables. The independent variables in this study were: teacher qualification, teacher experience, teacher motivation, and teacher commitment. These influenced the dependent variable, namely the implementation of the pre-primary learners' mathematics curriculum.

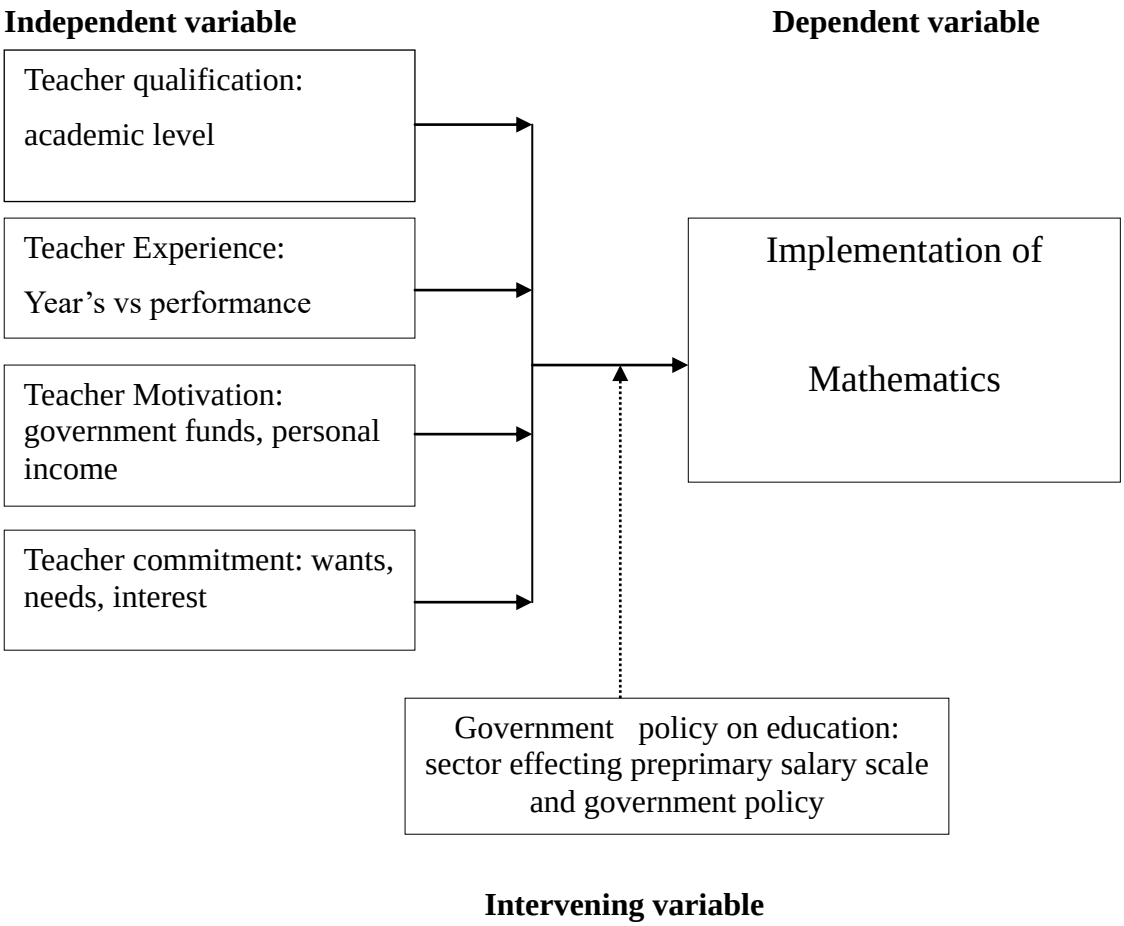

Figure 1: Conceptual Framework

Teacher factors such as teacher qualification, experience, motivation, and commitment in the implementation of mathematics curriculum in pre-primary education are related to the quality of teaching and other services offered in ECDE centers, which are determined by the level of material input allocated to the ECDE centers. The efficiency with which these material inputs operate has many effects on the interrelationship among the variables.

Teacher motivation is a factor for implementing mathematics curriculum in pre-primary schools; this means that for teachers to play their role effectively, they should be given attractive terms of service such as attractive salaries and other benefits that create a conducive work environment. All these variables are interrelated and influence the

implementation of mathematics curriculum in pre-primary schools in the Central division of Trans Nzoia and Kenya. Teacher factors are also crucial in the performance of other educational programs at every level of education.

2.6 Literature summary

This section looks at the literature that has been reviewed that relates to the field of the study. It examines the theories in line with the research and found out that Skinners' approach is more relevant and applicable to the task. This section looks at the studies done in the past. It establishes that these studies have not covered the study area concerning the influence of teacher characteristics on mathematics curriculum implementation for the pre-primary pupils. This critical analysis of the literature helps to establish the existing gaps in the subject matter that the research is done to try to fill these gaps. The section also relooks the conceptual framework, which shows how the independent variable is related to the dependent variables in the study.

2.3 Literature Gap

Reviewed literature shows that not much has been done to determine the effect of teacher characteristics on implementing mathematics curriculum to pre-primary learners. Effective implementation of mathematics curriculum can only happen if those advocating for its performance have a favorable consideration to hiring qualified and experienced teachers motivated to commit to their line of duty. Olembo et al. (2014) argue against untrained teachers in the education sector and the need for professional teacher engagement in curriculum implementation. Shiundu & Omulando, (2014) believe that training for teachers is paramount because of the dynamics in an education system that require a teacher to remain abreast l with changes that occur in education.

Most of the studies have looked at primary, secondary, and tertiary institutions with little or no attention given to ECDE centers even though the ECDE level lays an essential foundation to a pre-primary learner's future education. This study, therefore, aims to fill this gap by looking at teacher's characteristics and their influence on the implementation of mathematics curriculum among the pre-primary learners; this makes this study timely and significant.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This section consists of procedures and methods that the researcher employed to obtain data needed for the study and the data analysis. The researcher provides a detailed account of the following: research design, description of the study, study population, sample and sampling techniques, instruments of data collection, validity and reliability of the research instruments, methods of data collection, and methods of data analysis.

3.1 Research Design

This study was conducted using a descriptive survey research methodology. A descriptive research survey, according to Gay (2014); Thomas and Nelson (2014), collects data to answer questions about the present state of the study's topic. A descriptive survey methodology was selected because it is suitable for educational fact-finding and produces a large amount of reliable data. A descriptive survey is a technique of gathering data that involves interviewing, observation, and the distribution of a questionnaire to a group of people. It may be used to gather data about people's views, beliefs, and habits, as well as other educational and societal problems (Orodho & Kombo) (2014). According to Kerlinger (2015), descriptive investigations aren't only for obtaining facts; they may also lead to the development of fundamental principles of knowledge and the resolution of important issues. The technique comprises data measurement, categorization, analysis, comparison, and interpretation in addition to data gathering. As a result, it was determined to be appropriate for evaluating the impact of teacher qualities on preprimary learners' academic performance in Trans-Nzoia County's Mathematics Central Division.

3.2 Location of the Study

This study was conducted in ECDE centers in the Central Division of Trans-Nzoia County. The county has 350 secondary schools, 600 primary schools, some adult literacy classes, several tertiary institutions, and 650 ECDE centers. The selected area because it's among the counties in Kenya which has an adequate number of ECDE centers, and there is the consistently poor performance of pupils in mathematics at Kenya Certificate of Primary Examination throughout the years among other counties, and therefore its findings can be generalized to improve the implementation of mathematics curriculum in Kenyan pre-schools; this is crucial because ECDE Center lays the foundation for children's future education at primary school level. The nature of the foundation at preprimary school determines how far and effectively the child will learn at primary school and other education groups. The table below indicates learner performance selected subjects in KCPE in Trans Nzoia County between 2015-2017.

Table 3: learner performance in mathematics in Trans Nzoia County

YEAR	MATHEMATICS	ENGLISH	KISWAHILI
2015	40.35	41.08	45.01
2016	43.03	44.38	48.30
2017	39.01	49.01	47.87
2018	40.00	45.61	50.80

Source: Kiminini Sub county Education Office (2019)

Related research done by UWEZO (2015) indicated that 8 out of 100 class 8 pupils in public schools could not effectively handle class 2 work than five out 100 in private schools who could effectively manage the same result. The Uwezo (2015) study also

tested class 3 pupils on class 2 mathematics and found out that urban schools performed better than those from rural schools. The following table illustrates this information.

Table 4: Percentage of class 3 pupils who can handle class 2 work

County	Percentage	Rural schools	Urban schools
Trans Nzoia	26.8	24.2	36.2
Bomet	19.1	24.1	38.7
Narok	21.2	16.5	38.2
Busia	25.9	22.4	33.6
Nyeri	51.8	47.2	68.2

Source: UWEZO, (2015)

The learners were tested on: counting, matching, number recognition (10 to 99), addition, subtraction, multiplication, and division. The testing began at the counting and matching level and moved upwards to division. The child's result was graded at the highest level reached. Pupils in private schools performed better than those of public schools. When learners in a higher class are unable to learn and perform well at tasks they are supposed to have covered at an earlier class, it becomes a matter of deep concern not only to educators but also to other stakeholders. Research can help find reasons for such low learner performance to derive effective remedies.

It can be evidenced from the preceding information that the consistent poor result by pupils in mathematics in the Kenya Certificate of Primary Examinations in Trans-Nzoia and possibly the entire country is significantly dependent on a child's Preparedness at the preschool level. Furthermore, the area was also selected because

there was no record of a similar study conducted in the area, providing a suitable place for research.

3.3 Target Population

According to Mugenda (2003), the target population is the group to whom a researcher wishes to apply the study's findings. 104 preprimary teachers and 52 headteachers, two curriculum support officers, and one county ECDE program officer made up the study's target group.

3.4 Sample and Sampling Techniques.

A sample, according to Kothari (2012), is a subset of the target population that has been procedurally chosen to represent it. Sampling is the process of choosing representative components of a population in a systematic manner. Fisher et al. suggested that the sample size of the research be determined using the method below (2011)

$$nf = \frac{n}{1 + \frac{n}{N}}$$

Where;

nf = Sample size (when the population is less than 10,000).

n = Sample size (when the population is more than 10,000); 384.

N = Estimate of the population size; 159

Calculating (n =384)

n = z2pq

d2

Where:

z= Standard normal deviation (1.96)

p= proportion (0.5)

q = 1-p =0.5

d= 0.5

$$nf = \frac{384}{1 + \frac{384}{159}}$$

Sample size for the respondentsThe desired sample size will thus comprise 112 respondents.

A saturated sampling technique was used to select the sample of one Program Officer and one Curriculum Support Officer. Saturated sampling is a non-probability sampling procedure. All the target population numbers are chosen because they are too few to sample (Borg and Gall: 2014). A simple random sampling technique was used to select 84 preprimary teachers and 56 primary headteachers, representing 40% of the population. Simple random sampling is a technique in which every member has an equal chance of being selected (Borg and Gall 2014).

Table 5: Sample and Sampling Techniques

Category of respondents	Total population	Sampling procedure	Sample size
ECD Teachers	104	104/159*112	74
Primary Head teachers	52	52/159*112	36
Education officers	3	3/159*112	2
Total	159	112	112

Source: Researcher (2021)

3.5 Data Collection Procedure

The researcher sought research clearance (permit) from the NACOSTI through the Institute of Research and Post Graduate Studies (IRPS) of Mount Kenya University and the Trans-Nzoia County Education Office (DEO) Trans-Nzoia, the DICECE programs officers, and ECDE center managers or directors or headteachers.

Once the permission was granted, the researcher made introductory visits to the ECDE center managers and teachers. The researcher briefed them on the study and made appointments for the administration of the instruments. On the appointment dates, research instruments were administered to the respondents by the researcher. The researcher then collected the questionnaires for analysis. The researcher also visited the CSO's and the DICECE officer and selected teachers for interviews after making appointments with them. Further, the researcher conducted classroom observations for selected preprimary mathematics teachers.

3.6 Data Collection Instruments

The study used questionnaires, interviews, and observation schedules as data collection instruments. The items in the tools were made up of close-ended and open-ended questions. Open-ended questions gathered in-depth information, while close-ended questions gave structured responses to facilitate tabulation and analysis (Mugenda &Mugenda 2015).

3.6.1 The Questionnaire

Creswell (2015) says that a questionnaire allows the researcher to reach many respondents within a limited time. Various authors support its suitability for this study. The questionnaire was administered to the ECDE teachers. The questionnaire was

divided into sections that contained both closed and open-ended questions. Section one had questions dealing with personal information, experience, qualification, and the role of the respondents. In contrast, section 2 highlighted information about their views and perceptions on the effect of teacher characteristics on implementing the preprimary mathematics curriculum. The questionnaire is attached as appendix B.

3.6.2 Interview Guide

The interview was administered to the headteachers, CSOs, and DICECE program officers, who provided more information for the study on the effect of teacher characteristics on implementing the mathematics curriculum. The InterviewInterview provided more in-depth information on the same area, adding more weight to the information provided by preprimary school teachers on their take on the same. The interview can be conceived as a data collection device that attempts to capture people's responses to carefully standardized questions and is intended to be minimally interceptive. The image is one of skimming from the subject's consciousness a series of statements, views, or attitudes (Tripp, 2015)

Kerlinger (2015) sees interviews as the most powerful tool in social research. The interview is used to get valid answers, as stated by Kothari (2017). The interviewers should be honest, sincere, hardworking, and impartial and must possess the necessary technical experience. They must not cheat or deviate from instructions given. The interview schedule for this study is attached as Appendix C.

3.6.3 Observation Checklist

Observation is a method of collecting facts in a methodical manner. Researchers study individuals in their natural environments using all of their senses. In a child-care environment, observation is observing, listening, recording, and evaluating children as they play and learn. Monitoring children's bodily movements and expressions, gestures, and behaviors, as well as listening to them speak and interact with others, may provide insight into their development. It's also possible to study their likes and dislikes, as well as how they learn via play and interactions. Observation also tells more about the child as a person, including how they interact with other kids, instructors, and other adults. The aspects observed in this study included: physical facilities such as classrooms, numbers of desks and chairs compared to the number of pupils, and availability of instructional materials such as mathematics books, numerical activities such as counters, mathematical games, and songs. The observation schedule used for this study is attached as appendix D.

3.7 Piloting, Reliability and Validity of Instruments

Before being used in the field to gather information, the research instruments were tested to determine their reliability and validity for the study.

3.7.1 Piloting

A pilot study was carried out to enhance the reliability of the research instruments. The pilot study was conducted in 2 ECDE schools. The first and the second testing were done, and the results from the two tests were used to obtain the coefficient of correlation, and the result was 0.56, which was considered reliable enough to be used for this study. These centers were within the Central Division of Trans Nzoia County,

therefore presenting a population that had identical characteristics with the one in the survey enabling the researcher to determine the suitability of the instruments. The two centers after that were used in the actual research. The results obtained from the pilot study were then revised to ensure it was in a position to gather the information required for the task.

3.7.2 Reliability of Instruments.

Kasomo (2013) defines reliability as the stability or dependability of an instrument or procedure to obtain information. Sherman and Webbs (2013) represent reliability as the repeatability of a given study by researchers other than the original participant observer. Before engaging in the actual data collection exercise, the instruments were first piloted to confirm their reliability. Orodho (2012) notes that the reliability of research instruments concerns the degree to which a particular measuring procedure gives similar results from several repeated trials. The study employed Cronbach's alpha coefficient to measure the internal consistency of the questionnaire. According to Katou (2014), research instruments are considered reliable when the Cronbach alpha value is more significant than 0.50. The studies scales were reliable since their Cronbach alphas were above the threshold.

3.7.3 Validity of the Instrument

Coolican (2016) defines content validity as the degree to which the research instrument or test items measures what it should count. It focuses on whether the device contains adequate traits it is expected to estimate. Content validity of the research instrument sought to ascertain whether the items on the research instruments related to the effect of teacher characteristics on implementation of mathematics curriculum in preprimary

schools. The content of the questionnaire, InterviewInterview, and observation schedules was valid as they contained items related to the study variables: teacher qualification, motivation, experience, and commitment. In this study, the validity of the instruments was determined by the research supervisors who carefully and critically examined the items in the tools and advised the researcher accordingly. Their responses were included in the revised instruments that were then used for this study.

3.7.4 Establishment of Credibility

Credibility is used to determine whether or not a research is right and reliable by examining the data, analyzing it, and drawing conclusions. Random sampling of individuals serving as informants, as well as the use of relevant, well-known research procedures, were used. Subjective elements were used to determine trustworthiness, although objective measurements such as documented reliability were also used.

3.7.5 Dependability Establishment

The term "reliability" refers to the consistency of findings. By collecting data from a sample of the same respondents using the same instruments at various times, the researcher verified the instruments' reliability (qualitative).

3.8 Data Analysis.

The information gathered was quantitative as well as qualitative. Questionnaires were verified for completeness after data collection, and data was coded for simple entry. To make the data easier to comprehend, percentages, means, frequencies, and p-values were utilized. Kluckhohn (2015) says that the relevance of information is found not

simply in the account of incidence and distribution but in the description of the pattern of behavior or various ways the design is manifested. Quantitative methods aim to formulate general laws free of specific social-cultural constraints. On the other hand, the qualitative analysis seeks the whole meaning of behavior. It is pattern shaped in the actual matrix of a given social-cultural environment, rather than a relationship among predetermined variables subjected to rigid measurement.

Quantitative data was analyzed and presented using percentages, means, p-values, and frequencies using the Statistical Package for Social Sciences (SPSS) version 27.0. Themes were used to evaluate qualitative data from open-ended questions using narrative analysis. The coded data was then uploaded to a computer sheet and analyzed using SPSS 27.0 (Statistical Package for Social Sciences). SPSS, according to Martin and Acuna (2015), can manage huge quantities of data, is time-saving, and efficient, and therefore its use is critical.

Table 6: Data Analysis

Objectives	Independent variables	Dependent variables	Intervening variables	Data analysis
To find out the effect of teacher qualification on implementation of Pre-primary mathematics curriculum	Teacher qualification	implementation of Pre-primary mathematics curriculum	Government policy	Descriptive Means percentage P-values
To determine the effect of teacher experience on implementation of Pre-primary mathematics curriculum.	Teacher experience	implementation of Pre-primary mathematics curriculum	Government policy	Descriptive Means percentage P-values.
To investigate the influence of teacher motivation on implementation of Pre-primary mathematics curriculum.	Teacher motivation	implementation of Pre-primary mathematics curriculum	Government policy	Descriptive Means percentage P-values
To determine the effects of teacher commitment on implementation of Pre-primary mathematics curriculum	Teacher's Commitment	implementation of Pre-primary mathematics curriculum	Government policy	Descriptive Means percentage P-values

Source: Researcher (2015)

3.9 Ethical Consideration

3.9.1 Intellectual Property and Plagiarism

Copyright infringement encompasses both the theft or misuse of a protected invention as well as the uncredited literary replication of another's work. The unauthorized use of ideas or one-of-a-kind methods obtained via a specific correspondence, such as an

award or original copy audit, is considered theft or misuse of protected invention. All of the authors mentioned in the study have been identified and cited within the text.

3.9.2 Consent with Knowledge

To allow for fair and free transactions, the researcher put the participants in situations that were both free and fair. The researcher encouraged people to openly share information and acknowledged their emotions if they did not disclose some private information. By making the participants provide information freely and joyfully, the researcher provided specifics to the subjects about the methods to be utilized throughout the information collecting. Before taking part in the study, the participants read, understood, and signed a permission form. All of the participants were assured to be at least 18 years old based on their national identity cards. After they signed a permission form, their data was gathered.

3.9.3 Confidentiality and Privacy

The responders were assured by the researcher that the information they provided would be kept private. The researcher promised them that the information would be used for no other reason than that stated in the study, and that no unwanted individuals would have access to it in any way. The names of the participants and their institutions were not to appear anywhere on the data collecting instrument except a coded system devised and understood only by the researcher for this reason.

3.9.4 The Right to Be Free of Coercion

Respondents were urged to read and comprehend the permission form before freely signing it to indicate their willingness to participate. All of these procedures have the combined effect of ensuring that no one gets insulted as a result of volunteering to participate in the research.

3.9.5 Confidentiality

The respondents were asked to provide information without revealing their names on the data collection devices. The contributions were classified using secret codes in this research. In black and white or any other form of communication regarding the events between the researcher and the responders, no information about the participants was left unprotected. This greatly helped the researcher in avoiding respondents' biased answers.

3.9.6 Right to Voluntary Participation

Respondents were told that they had the option to opt out of the research at any time. They were asked to provide information at their leisure.

3.9.7 Collected Data Storage

To avoid seepage to unauthorized persons, the data gathered from the respondents was handled and stored in strict confidence. Both hard and soft copies were preserved. The researcher did not provide anybody any prepared data for any reason.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.0 Introduction

This chapter presents data, analysis, and discussion to determine the effect of teacher characteristics on implementing the Pre-primary Mathematics Curriculum in the Central Division of Trans-Nzoia County. The study sought to achieve the following specific objectives; to establish the effect of teacher qualification on implementation of Pre-primary Mathematics Curriculum in Trans-Nzoia County, to establish the impact of teacher experience on implementation of Pre-primary Mathematics Curriculum in Trans-Nzoia County, to determine the effect of teacher motivation on implementation of Pre-primary Mathematics Curriculum in Trans-Nzoia County and to examine the influence of teachers commitment on the performance of Pre-primary Mathematics Curriculum in Trans-Nzoia County.

4.1 Response Rate

The researcher distributed 74 questionnaires to the ECDE teachers and conducted interviews with the headteachers, program officers, and Curriculum Support Officers (SOs). Thirty-four headteachers were available from the targeted sample for the study together with the CSO and DICECE program officer. From the pre-primary school teachers, 51 of the questionnaires were brought back for the task. The fundamental instruments received for the study were 36 interviews, ten classroom observations, and 51 questionnaires, giving a response rate of 77.7%; this was more than sufficient for the task, so the researcher went ahead to analyze the data. The classrooms were also observed to determine the use or lack of instructional materials and facilities for in-

class interaction. The return rate indicated that most of the respondents co-operated with the researcher in the process of data gathering.

4.2 Demographic Information of the Respondents

The study sought to determine the demographic information of the pre-primary school teachers. The findings are presented in table below.

Table 7: Demographic Information of the Pre-Primary School Teachers

		Frequency	**Percent**
Gender	Male	22	43.1
	Female	29	56.9
	Total	51	100
Age	Below 25 years	6	11.8
	25-35 years	17	33.3
	36-45 years	18	35.3
	Above 46 years	10	19.6
	Total	51	100
Education	Certificate	11	21.6
	Diploma	34	66.7
	Graduate	5	9.8
	Post-graduate	1	2
	Total	51	100
Experience	Below 5 years	6	11.8
	5-8 years	24	47.1
	9-11 years	14	27.5
	Above 11 years	7	13.7
	Total	51	100

Source: Field Data (2021)

The findings on the gender of the respondents indicate that 56.9% were female while 43.1% were male. This finding implies that both genders were well represented in the study, and therefore the results were not biased towards any gender.

The respondents' findings indicate that 35.3% of the respondents were aged between 36-45 years, 33.3% were aged between 25-35 years, 19.6% were aged above 46 years, while 11.8% were aged below 25 years. These findings mean that the respondents were drawn from different age brackets and therefore were representative of different opinions from different age brackets.

The respondents' educational level indicates that 66.7% of the respondents had diplomas, 21.6% had certificates, 9 .8% were graduates, while 2% were postgraduates. These findings imply that the respondents were drawn from different educational level brackets providing a representative group for the study.

The respondents' findings indicate that 47.1% had an experience of between 5-8 years, 27.5% were between 9-11 years, 13. 7% had above 11 years, while 11.8% had below five years. These findings imply that the respondents had different lengths of experience, and therefore we're able to provide sufficient and relevant information for the study.

4.3 Descriptive Analysis

4.3.1 Effect of Teacher Qualification on Implementation of Pre-primary Mathematics Curriculum

The study sought to test the effect of teacher qualification on the implementation of a pre-primary mathematics curriculum. The findings are presented in the table below.

Table 8: Teacher Qualification on Implementation of Pre-primary Mathematics Curriculum

Teacher Qualification	T	Df	Mean	Sig	Remarks
Grade attained	9.743	49	3.81 76.20%	.140	No effect
In-service Training	1.07	51	3.67 73.40%	.560	No effect
ITT Training	7.538	49	3.70	.314	No effect
Subject Specialization	1.52	51	3.70 74.00%	.296	No effect
			3.70 74.00%		
Teaching Practice	6.94	51	4.88 97.81%	.314	No effect

T-value=3.5

Source: Field Data (2021)

The study findings indicated that the grade attained by a teacher either at school or in college does not affect (p-value=.140) implementation of the Pre-primary mathematics curriculum among pre-school learners. This value may imply that the grade a teacher attains in high school or at teachers' college does not affect how a particular teacher teaches mathematics at pre-primary school. The findings also indicated that in-service training of teachers does not affect (p-value=0.560) implementation of the pre-primary mathematics curriculum. This may imply that in-service training does not add value to the teaching of pre-primary mathematics. It may also mean that unqualified teachers or those already qualified do not need workshops to improve their education since their performance remains the same.

The study findings indicated that ITT training does not affect (p-value=0.314) implementation of the pre-primary mathematics curriculum; this may imply that though most people assume that pre-service teacher training is essential, it may not be so as both qualified and unqualified teachers seemed to achieve similar results. The study also found that subject specialization does not affect (p-value=0.296) implementation of the pre-primary mathematics curriculum. This may seem attractive because, in other educational levels, such as a secondary school, teachers specialize in teaching specific subjects. Doing so is said to have some benefits. However, according to this study, pre-primary school teachers do not need specialization, possibly because the teachers need closer contact with their learners over a long period for effective teaching.

This means a single teacher teaches all subjects in a specific pre-school class level for consistent communication with her learners to encourage and correct them for effective learner performance. The study indicated that teaching practice does not affect (p-value=.314) implementation of the Pre-primary mathematics curriculum. This p-value is interesting because teaching practice constitutes an essential aspect of teacher training. When untrained pre-school teachers perform and those who are trained, it may seem that teaching practice may seem an unnecessary burden in the teacher training programs. Finally, the study findings indicate that teacher qualification in terms of academic level effect (p-value=0.00) implements pre-primary mathematics curriculum. It implies that the more a teacher achieves educational certification, the more competent it is to be in terms of classroom delivery. Such a teacher is likely to be a better performer than one with lower academic standards. This is why colleges should admit students with higher academic grades to register in teacher training colleges, and equally, they pass well in college examinations before being deployed as teachers.

The observation saw that trained teachers with high academic levels had more interactive learners when compared with those taught by untrained teachers with lower academic grades. The learners were actively interacting amongst themselves because of the encouragement from their committed teachers. Also, the rate of interaction of the learners with their teachers was seen to be active. These findings are supported by Klobb (2015), who noted that qualified pre-primary teachers are more likely to influence learners' academic performance than their ITT counterparts. These teachers are keen on matters such as personnel management which directly affects the performance of the learners.

Consequently, in areas where a school's academic performance is a more significant challenge, then a qualified teacher is more desirable. They participated in staff recruitment to a great extent, ensured their staff understands their limit to independent action, conducted themselves so their staff could respect them, and made sure that the teacher-pupil relationship is enjoyable and friendly. According to Odigo (2015), the qualified pre-primary teachers were also found to be effective in influencing student performance at almost the same levels where they invited teachers to discuss matters about the management of learners, discussed with learners regularly on issues about their welfare, employed guidance and counseling in reforming exceptional cases and resolved conflicts to prevent strikes and crises.

The findings from the interview schedules on the effect of teacher qualification on implementation of Pre-primary mathematics curriculum indicate that a majority of the respondents that is the headteachers, CSOs, and program officers, thought that the capability of the teachers was essential in influencing the implementation of mathematics curriculum among pre-school learners since it determined their ability to carry out their duties effectively. One headteacher on the interview said, "the teachers'

with proper qualifications in the school yield better results as their learners excel more. They are better when teaching in class. In fact their learners interact more among themselves and with the teacher. It is a very interesting class if you are to observe." The views from the interview supported what most of the teachers indicated in the questionnaires.

4.3.2 Teacher Experiences on Implementation of Pre-primary Mathematics Curriculum

The study sought to determine the effect of teacher experiences on the implementation of curriculum among pre-primary school children. The findings are presented in the table below.

Table 9: Teacher Experiences on Implementation of Pre-primary Mathematics Curriculum

Teacher experience	T	Df	Mean	Sig	Remarks
Parental Role Challenges	1.52	51	3.81	.140	No effect
Inadequate Resources Challenges	2.56	51	3.96	.017	Affect
Local Community Challenges	1.03	51	3.70	.314	No effect
Large Number of Learners Challenges	1.52	51	3.81	.140	No effect
	1.52	51	76.20	.140	No effect

T-value=3.5

Source: Field Data (2021)

The study findings showed that teachers' experience in dealing with parental role challenges does not affect (p-value=.140) implementation of the curriculum in preprimary school children. This could mean that whether teachers had short-term or

long-term teaching experience, such an experience did not affect how they viewed and handled the challenges preprimary school parents faced. The study results revealed that teachers' ability to manage inadequate resources (p-value=.017) was based on their years of teaching experience. While resources are always scarce, teachers with more years of teaching experience have better ways of using the limited instructional resources in teaching. The study finding indicated that local community challenges do not affect (p-value-0.314) implementation of the preprimary mathematics curriculum. The implication here is that whether the school's community had its challenges does not affect many preprimary school activities. The study findings further indicated that teachers' ability to handle large numbers of learners does not affect (p-value=0.140) implementation of the preprimary mathematics curriculum; this means that the teacher-pupil ratio was reasonably good so that teacher-pupil contact was appropriate to ensure effective teaching and learning.

According to Helmatts, 2015), the experience of teachers is a critical factor in resource mobilization and management in preprimary schools. Experienced teachers already have networks that they can use to acquire and manage necessary resources. They know where to get the best buyers in terms of the teaching resources, who are the most effective suppliers of school products. According to Hallmark (2016), experienced teachers can nurture and support their learners.

The findings from the interview schedule on the effect of teacher experience on implementation of Preprimary mathematics curriculum indicate that a majority of the respondents held that the experience of the teachers gave them the skill to work with their pupils and the community at large. A headteacher narrated how a teacher with experience can handle various issues with tact and ensure that each pupil is given enough attention enabling them to excel. Classroom observation also showed that

teachers with ample teaching experience had more interactive classroom experiences. These observations supported the views arising from the questionnaires and the interview.

4.3.3 Effect of Teacher Motivation on Implementation of Pre-primary Mathematics Curriculum

The study also sought to determine how financial, parental, and local community challenges affected teacher motivation implementation of the pre-primary school mathematics curriculum within the study area. The findings are presented and discussed under the following sub-headings.

Financial Challenges as a Teacher Motivational Factor affecting Implementation of Pre-primary Mathematics Curriculum

The study sought to determine the financial challenges affecting the implementation of the Pre-primary Mathematics Curriculum. The findings are presented in table below.

Table 10: Financial Challenges as a Teacher Motivational Factor affecting Implementation of Pre-primary Mathematics Curriculum

Financial factor	T	Df	Mean	Sig	Remarks
Inadequate funding of School	6.94	51	4.46	.000	Affect
Delay in disbursement of funds by the government	22.53	53	4.89 97.8%	.000	Affect
Seeking more money from parents due to delay in disbursement of funds	.590	53	3.70%	.560	No effect
Personal Income financial challenges (Salary)	3.55	53	4.19 83.8%	.001	Affect

T-value=3.5

Source: Field Data (2021)

The majority of the responses regarding financial challenges as a factor affecting preprimary teacher motivation indicated that 97.80% (mean= 4.89) of the respondents agreed that there is a delay in disbursement of funds by the government, which affects the motivation of teachers. It was also noted that 98.20 (mean=4.46) of the respondents agreed that there is inadequate funding. Over 83.80% (mean=4.19) of the respondents agreed that there are personal financial challenges related to the salary which affect teacher motivation, and finally, 73.40% (mean=3.67) of the respondents reported having to seek more money from parents due to delay in disbursement of government funds which affects teacher motivation while implementing the Preprimary mathematics curriculum.

The study findings further indicated that inadequate funding negatively affects (p-value=0.00) (mean3.5<4.46 mean) the preprimary mathematics teachers' motivation. Delay in disbursement of funds by the government also affects teacher motivation (p-value=0.00) (mean3.5<4.89), and Personal financial challenges (Salary) affect (p = 0.001) teacher motivation.

The findings from the interview schedule on the influence of teacher motivation on academic performance at preprimary schools indicate that majority of the respondents thought that the teachers' motivation was crucial in determining how they did their job. The level of motivation they received determined how committed they were at their jobs and the kind of results they would yield since children at this level require special attention for them to perform well.

Interview findings indicated that most teachers were generally motivated by financial rewards more than anything else. One teacher said, "While I like teaching, I cannot teach on an empty stomach. I love my pupils. But I also need to be paid well and on time if am to cater for myself and my family, if am to be comfortable while teaching." Most of the teachers expected their employers to pay them well and on time to motivate and keep their morale high. Some teachers, especially in private schools, had issues with their employers, for example, low salary and delayed payments.

On observation, teachers in schools with more finances to buy instructional materials seemed more highly motivated than those in schools with fewer finances to purchase needed instructional materials. The questionnaire, interview, and observation responses indicated that teachers were encouraged when teaching in schools with more financial resources. The researcher further observed that schools with more financial resources had a higher capacity to purchase, hire or construct better facilities such as classrooms

and other critical playing facilities such as metal swings. Schools with more finances were better placed to make provision for teaching preprimary mathematics.

4.5.2 Parental Role Challenges as a Teacher Motivational Factor affecting Implementation of Preprimary Mathematics Curriculum

The study sought to determine the parental role challenges as a teacher motivational factor affecting the implementation of the Preprimary Mathematics Curriculum. The findings of the questionnaire responses are summarized in the table below.

Table 11: Parental Role Challenges as a Teacher Motivational Factor affecting Implementation of Pre-primary Mathematics Curriculum

Challenges from parents	T	Df	Mean	Sig	Remark
Failure of parents to pay school development levy on time	5.03	51	4.48 89.60%	.000	Affect
Lack of knowledge by parents on their role in the program	6.01	51	4.48 89.60%	.000	Affect
Failure of parents to motivate learners to excel in academics	8.24	51	4.41 88.2%	.000	Affect

T-Value =3.5

Source: Field Data (2021)

On average, the findings indicate that 89.60% (mean=4.48) of the respondents agreed that parents fail to pay school development levy on time; 89.60% of the respondents also agreed that parents lack knowledge on their role in the pre-primary program. Also, 88.2% (mean=4.41) of the respondents agreed that parents fail to motivate learners to excel in academics. The findings imply that parents who were better informed regarding their children's schooling participated more in their children's education and

interacted more with the teachers and thus noted teacher and learner needs and tried to cater to them, which boosted teacher morale which in turn had a positive influence on improved learner achievement.

The study findings indicate that failure of parents to pay school development levy on time affects (p-value=0.00) teacher motivation. Lack of knowledge by parents on their role in the program affects (p-value=0.00) teacher motivation. Finally, the failure of parents to motivate learners to excel in academics affects (p-value=0.00) teacher motivation. Due to ignorance or being busy, some parents failed to guide their children, for instance, assisting them to do their homework, making teachers' work hard for teachers and consequently lowered their morale.

Interview reports also indicated that most preschool teachers expect the active participation of parents to manage preschools. One head-teacher said, "We cannot succeed as a school without the active participation of parents. Parents need to follow up on the homework we give our pupils. We do well when we have informed parents who are concerned about everything their children do at school."

4.5.3 Local Community Challenges as a Teacher Motivational Factor affecting Implementation of Pre-primary Mathematics Curriculum

The study sought to determine the local community challenges as a teacher motivational factor affecting the implementation of the Pre-primary Mathematics Curriculum.

The findings are summed up in the table below.

Table 12: Local Community Challenges as a Teacher Motivational Factor affecting Implementation of Pre-primary Mathematics Curriculum

Challenges from the local community	T	Df	Mean	Sig	Remark
Failure of the local community to put in place measures that ensure that children attend school	7.93	51	4.48 89.6%	.000	Affect
Negative cultural practices in the communities towards education in school	1.03	51	3.70 74.0%	.314	No effect
Negative attitude by the local communities towards education in schools	1.07	51	3.70 74.0%	.296	No effect

T-Value = 3.5

Source: Field Data (2021)

Averagely, the findings indicate that 89.60% (mean=4.48) of the respondents agreed that the local community fails to put measures that ensure that children attend school, 74.00% (mean=3.70) of the respondents agreed that there are harmful cultural practices against education. The researcher noted that 74.0% (mean=3.70) of the respondents agreed that there was a negative attitude by the local communities towards education. The study findings indicate that the local community's failure to implement measures that ensure that children attend a school affected (p-value=0.00) teacher motivation.

The study findings are supported by Ngugi (2015), who noted that pre-primary schools, besides being very fundamental in developing children in the country, face numerous challenges, including teacher motivation. Teachers in the pre-primary felt that they did not have the necessary support from the local community and were not appreciated enough as they were not financially rewarded. They felt that their pay was inadequate

and wished for better pay like other teachers teaching in public primary and secondary schools. The study noted that these teachers' challenges were not addressed as they did not have strong unions like their counterparts in public primary and secondary school. For these reasons, therefore, it was clear that teacher motivation in the pre-primary schools remained low due to low financial rewards.

The findings from the interview on the influence of teachers teacher's motivation on academic performance at pre-primary schools indicate that a majority of the respondents thought that the teachers' motivation was crucial in determining how pre-school teachers did their job. The level of motivation they received determined how committed they were at their jobs and the kind of results they would yield since children at this level require special attention for them to perform well.

4.3.4 Effects of Teacher commitment on Implementation of Pre-primary Mathematics Curriculum

The study sought to determine the effects of teacher commitment on the implementation of the Pre-primary Mathematics Curriculum. The findings are shown in the table below and then discussed.

Table 13: Effects of Teacher's commitment on Implementation of Pre-primary Mathematics Curriculum

Teacher's commitment	T	Df	Mean	Sig	Remark
Teachers needs to be committed not only to their learners, but to the teaching profession as a whole.	1.52	51	3.81 76.2%	.14 0	No effect
Teachers commitment is an attitude that teachers have toward teaching	2.56	51	3.96 79.2%	.01 7	Affect
Committed teachers always put their learners' needs, wants and interests first.	6.47	51	4.56 91.2%	.00 0	Affect

T-value = 3.5

Source: Field Data (2021)

Averagely, the finding indicates that 91.20% (mean=4.56) of the respondents agreed that committed teachers always put their learners' needs, wants, and interests first, 79.20% (mean=3.81) of the respondents agreed that teacher commitment is an attitude that a teacher has toward her job. In comparison, 76.20% (mean=3.81) of the respondents agreed that teachers need to be committed not only to their learners but to the teaching profession as a whole.

The study findings indicate that teacher commitment influenced (p-value=0.17) how the pre-school teacher implements the Mathematics Curriculum. The research found out that teacher commitment influenced their attitude in implementing the required curriculum (p-value=0.00).

These findings are supported by Duke (2015), who noted that teachers' commitment to t teaching involves their attitude towards the profession. While those committed to teaching display a positive attitude towards education, those less committed negatively affect teaching.

The findings from the interview on the effects of teacher's commitment on the implementation of Pre-primary Mathematics indicate that majority of the respondents thought that level of commitment influenced teachers' behaviors and work management. The story of a teacher's commitment affects their attitude towards teaching. Teachers with positive attitudes encourage the learners with their views of mathematics and other subjects. Still, those who have a negative attitude towards their subject are more likely to discourage the learners because of the constant criticism and discouragement from their teacher. Therefore teacher commitment played a significant role in determining the implementation of the Pre-primary Mathematics Curriculum.

On commitment, one head-teacher interviewed had this to say, "One of the most important virtues a teacher should possess is commitment. We can achieve more with committed teachers than form those who are less committed or those not committed at all. Committed teachers do their work as expected. In fact they do not need to be supervised. Commitment is the number one thing I seek when recruiting a teacher. A committed teacher is ready to go the extra mile."

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter covers the summary of the findings, conclusions, and recommendations of the study. They are presented according to the research objectives.

5.1 Summary of the Findings

5.1.1 Effect of Teacher Qualification on Implementation of Pre-primary Mathematics Curriculum

The study findings indicated no significant relationship between teacher grade attained, in-service training, ITT training, subject specialization, and teaching practice in the implementation of Pre-primary mathematics curriculum but found a meaningful relationship between teacher academic level and performance Pre-primary mathematics curriculum.

5.1.2 Effect of Teacher Experiences on Implementation of Pre-primary Mathematics Curriculum

The study finding indicated that there was no significant relationship between teacher's ability to deal with parental role challenges, teacher's ability to manage the local community, teacher's ability to handle a large number of learners, and implementation of Pre-primary mathematics curriculum but found a significant relationship between teacher's ability to manage inadequate resources and implementation of the pre-primary mathematics curriculum.

5.1.3 Effect of Teacher Motivation on Implementation of Pre-primary Mathematics Curriculum

The study findings indicated that there was a significant relationship between; teachers motivation in respect of delay in disbursement of funds by the government, inadequate funding, personal financial challenges, lack of knowledge by parents on their role in the program, local community failure to put in place measures for children to attend school, harmful cultural practices in the communities towards education and failure of the local community to put in place measures that ensure that children attend school and implementation of the pre-primary mathematics curriculum.

5.1.4 Effects of Teacher commitment on Implementation of Pre-primary Mathematics Curriculum

The study findings showed a significant relationship between teacher commitment where teachers always put their learners' wants, needs, and interests first. Committed teachers were found to have a positive attitude towards the teaching profession and their learners and found that a teacher's commitment influenced the zeal of a teacher in implementing the pre-primary mathematics curriculum.

5.3 Conclusion of the study

The study concludes that teachers' qualifications in respect of academic level affect the implementation of the preprimary mathematics curriculum. Therefore the more a teacher achieves a higher educational level, the more the teacher's capacity in delivering mathematics curriculum to preprimary learners.

Further, the study concludes that a teacher's experience in managing available inadequate resources will significantly support implementing a preprimary mathematics curriculum among preprimary learners. Even with insufficient resources during the implementation of the mathematics curriculum, the outcome becomes remarkable over time with the excellent allocation of scarce resources.

The study also concludes that teachers are motivated to implement the preprimary mathematics curriculum; when they receive adequate funding, when their income is improved, when parents pay school development levy on time, when parents motivate learners to excel in academics and when local community challenges are solved to ensure children attend school. Hence, teachers' motivation is precipitated by diverse sources, which have to be well comprehended by the concerned education stakeholders.

Further, the study found that teachers' commitment by putting their learners' wants, needs, and interests first has a positive attitude and zeal towards the teaching profession influenced the preprimary mathematics curriculum. Therefore preprimary learner's stakeholders should devise strategies that will ensure teachers are committed to achieving better results in the preprimary mathematics curriculum.

5.4 Recommendations of the Study

Based on this study's findings, the researcher came up with several recommendations that may help improve the pre-primary mathematics curriculum.

The current study focused on the unique and additive contributions of teacher characteristics, on implementation of Pre-primary Mathematics Curriculum considering the finding that pre-school teacher qualification had a significant relationship on implementation of pre-primary mathematics curriculum, the study recommends that learners being recruited to teacher training colleges should be of higher academic

grades. Equally, the practicing teachers should be retrained through in-service and workshops. Pre-school administrators in pre-school centers should arrange regular seminars and refresher courses for pre-school teachers to update themselves on the changing curriculum trends and relevant instructional techniques.

The research suggests that the government hire more experienced teachers in order to improve instructional and classroom management abilities. They spend less time in the classroom on administrative and procedural matters, are quick to restore order, and develop a teaching tempo that allows them to spend more time on tasks related to classroom teaching experiences, because more experienced teachers can nurture and support their students better than less experienced teachers.

The study further recommends that the government should motivate teachers by disbursing funds in time. The teachers should be paid well to overcome financial challenges, staff development, and welfare. Schools should organize school-based in-service programs that give new graduates and older staff opportunities to share knowledge and experience. Induction programs for new staff to be aware of the school mission and policies to improve teacher motivation are highly recommended.

The study recommends that during the recruitment process for teachers, proper criteria should be set to employ only committed teachers who will guide the learners in a friendly manner and motivate them to develop a positive attitude towards mathematics even at a young age and make the implementation of pre-school curriculum much more accessible and practical.

5.4 Suggestions for Further Research

Further research may be conducted in light of the study's limits and delimitations, as suggested by the following suggestions:

1) To find out the effect of teacher characteristics on preschool learners in extracurricular activities.
2) To determine the influence of the preschool teacher motivation on preschool learners' acquisition of language skills.

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APPENDICES

Appendix I: Letter of Introduction

RUTH ONCHERA

P.O BOX 4110,

KITALE

Dear participant,

I'm a master's degree student in Early Childhood Education at Mount Kenya University (Kitale). I'm carrying out a study to determine the effect of teacher characteristics on implementing pre-primary learners mathematics curriculum in Central Division Trans Nzoia county, Kenya. When identified, the knowledge, skills, and attitudes will be used to improve the implementation of the ECDE curriculum in schools. The attached questionnaire seeks to achieve this objective. You are among many people that have been selected to participate in this survey. Your co-operation in completing the attached questionnaire will be highly appreciated. Instructions on how to complete the questionnaire are contained in the questionnaire itself. Please read them carefully. All the information obtained from your responses will be used only for this study and kept confidential. The results of this survey will be made available through publications.

In advance, I thank you most sincerely for accepting to participate in this study.

RUTH .O. ONCHERA.

MEC\2013\56544.

Appendix II: Questionnaire for Pre-Primary Teachers.

Introduction

The purpose of this study is to effect of teacher characteristics on implementation of pre-primary mathematics curriculum Trans-Nzoia County. Kindly tick (√) or write the correct response in the space provided. The information given will be treated with confidentiality and used only for the purpose of the research.

Section A: Background Information

What is your gender?

Male [ ] Female [ ]

What is your age bracket?

Below 25 years [ ] 25-35 years [ ] 36-45 years [ ] above 46 years

What is your highest educational level?

Certificate () Diploma education () graduate () Post graduate () other……

How long have you served as a teacher?

Below 5 years [ ] 5-8 years [ ] 9-11 years [ ] above 11 years [ ]

SECTION B

Kindly rate the following statements to show the extent to which you agree with them on the influence of teacher qualification on Implementation of Pre-primary Mathematics Curriculum. Using the tick [√] mark.

Key – SA – Strongly Agree, A- Agree, UD – Undecided, D – Disagree, SD – Strongly Disagree

Statements	SA	A	UD	D	SD
Grades attained in school influence preprimary teachers performance					
Only the in-service programs influence performance of pre-primary teachers					
TTI teachers teaching in pre-primary are the most qualified to influence performance					
Subject specialization if key in enhancing performance of preprimary teachers					
Teaching practice has been the only way that the pre-primary teachers have been made competent					
Academic level of the preprimary teachers greatly influences performance of teachers					
Low quality of education contributed by high enrolment					

Kindly rate the following statements to the extent to which you agree with them on the influence of experience on Implementation of Pre-primary Mathematics Curriculum. Using the tick [√] mark.

Statements	Yes	No
Better management of parental role challenges		
Ability to handle inadequate resources		
Capability to deal with the community challenges		
The ability to handle a large number of learners in the classroom		

Kindly rate the following statements to the extent to which you agree with them on the teacher motivation factors influencing Implementation of Pre-primary Mathematics Curriculum. Using the tick [√] mark.

Key – SA – Strongly Agree, A- Agree, UD – Undecided, D – Disagree, SD – Strongly Disagree

Financial Challenges	SA	A	UD	D	SD
Inadequate funding of School					
Delay in disbursement of funds by the government					
Seeking more money from parents due to delay in disbursement of funds					
Personal Income financial challenges (Salary)					
Parental Role Challenges					
Failure of parents to pay school development levy on time					
Lack of knowledge by parents on their role in the program					
Failure of parents to motivate learners to excel in academics					
Local Community Challenges					
Failure of the local community to put in place measures that ensure that children attend school					
Negative cultural practices in the communities towards education in school					
Negative attitude by the local communities towards education in schools					

Kindly rate the following statements to show the extent to which you agree with them on the how teachers' commitment influences Implementation of Pre-primary Mathematics Curriculum. Use the tick [√] mark.

Key – SA – Strongly Agree, A- Agree, UD – Undecided, D – Disagree, SD – Strongly Disagree

	SA	A	UD	D	SD
Teachers needs to be committed not only to their learners, but to the teaching profession as a whole					
Teachers commitment is an attitude that teachers has toward her job					
Committed teachers always put their learners' wants, needs, and interests first.					

Appendix III: Interview Guide for Head Teachers, Curriculum Staff Officers and Sub- County

Education Officer

To what extent does teachers' qualification affect Implementation of Pre-primary Mathematics Curriculum in Central Division of Trans-Nzoia County?

……

……

……

To what extent does teachers' experience influence the Implementation of the Pre-primary Mathematics Curriculum in Central Trans-Nzoia County?

……

……

……

What is the influence of teacher's motivation on Implementation of Pre-primary Mathematics Curriculum in Central Division, Trans-Nzoia County?

……

……

……..…

……..

What is the effect of teacher's commitment on Implementation of Pre-primary Mathematics Curriculum in Central Division, Trans-Nzoia County?

……

……

……

Appendix IV: Observation Schedule

Number of desks against the number of pupils during mathematics lesson	
Size of classrooms against number of students	
Availability of sufficient playing facilities	
Number of mathematics textbooks against the of number of pupils	
The number of mathematics wallcharts against the number of pupils	
Teacher-Pupil interaction during a mathematics lesson	
Pupil-pupil interaction during a mathematics lesson	

Appendix V: Mount Kenya University Research Authorization

Mount Kenya University

KITALE CAMPUS

E- mail: Kitale campus@mku.ac.ke Website:http://www.mku.ac.ke

MKU06/MEM/P/PGS/005/2016 DATE: 18th JANUARY, 2016

The Deputy Council Secretary

National Council of Science/ Technology

P.O Box 30623-00100

NAIROBI (Kenya)

Dear Sir,

Ref: Authorization of Permit

Following an oral defense of RUTH OSEBE ONCHERA Reg. No; MEC/2013/56544; A research proposal titled "influence of teacher characteristics on pre-primary learners academic performance in Central Division in Trans-Nzoia County", I hereby request you to authorize her Permit to go to the Field and collect data.

Yours Faithfuliy,

Mount Kenya University
KITALE CAMPUS
Co ordinator Postgraduate Studies

Dr. Ronald Kikechi , PhD

(Coordinator, School of Post- Graduate Studies)

Appendix VI: Research Authorization from NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email:dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

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

Ref: No.

NACOSTI/P/16/63102/11057

Date:

10th May, 2016

Ruth O. Onchera
Mount Kenya University
P.O. Box 342-01000
THIKA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Influence of teacher characteristics on pre-unit learners academic performance in Central Division, Trans-Nzoia County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Trans Nzoia County** for the period ending **10th May, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Trans Nzoia County** before embarking on the research project.

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

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Trans Nzoia County.

The County Director of Education
Trans Nzoia County.

Appendix VII: Research Permit from NACOSTI

THIS IS TO CERTIFY THAT:
MS. RUTH O ONCHERA
of MOUNT KENYA UNIVERSITY, 0-30200
KITALE,has been permitted to conduct
research in *Transnzoia County*
on the topic: *INFLUENCE OF TEACHER CHARACTERISTICS ON PRE-UNIT LEARNERS ACADEMIC PERFORMANCE IN CENTRAL DIVISION, TRANS-NZOIA COUNTY, KENYA*
for the period ending:
10th May,2017

Permit No : NACOSTI/P/16/63102/11057
Date Of Issue : 10th May,2016
Fee Recieved :Ksh 1000

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 9071

CONDITIONS: see back page

Appendix VIII: Trans Nzoia County Research Authorization

MINISTRY OF EDUCATION SCIENCE & TECHNOLOGY
State Department of Education

Telegrams: .....
Telephone: Kitale 054-31653 – 30200
Fax: 054-31109
Email: transnzoiacde@gmail.com
When replying please quote:

Ref. No. TNZ/CNT/CDE/R.GEN/1/VOL.I/141

County Director of Education,
Trans Nzoia,
P.O. Box 2024 – 30200
KITALE.

Date: **22nd** January, 2016

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION – RUTH OSEBE ONCHERA

The above named has authority to carry out research on **"Influence of teacher characteristics on pre-primary learners academic performance in Central Division in Trans-Nzoia County,"** for a period ending **31st August, 2016**

This is therefore to authorize the student to collect data and/or carry out activities related to this particular exercise in Trans-Nzoia County. Whoever may be concerned is requested to co-operate and assist accordingly.

Thank you.

For: COUNTY DIRECTOR OF EDUCATION
TRANS-NZOIA
P. O. Box 2024-30200, KITALE
Tel: 020-2640448

J. K. WAMOCHO
COUNTY DIRECTOR OF EDUCATION
TRANS-NZOIA

Appendix IX: Map of Trans-Nzoia County

Source: Map data (c) 2020 google.

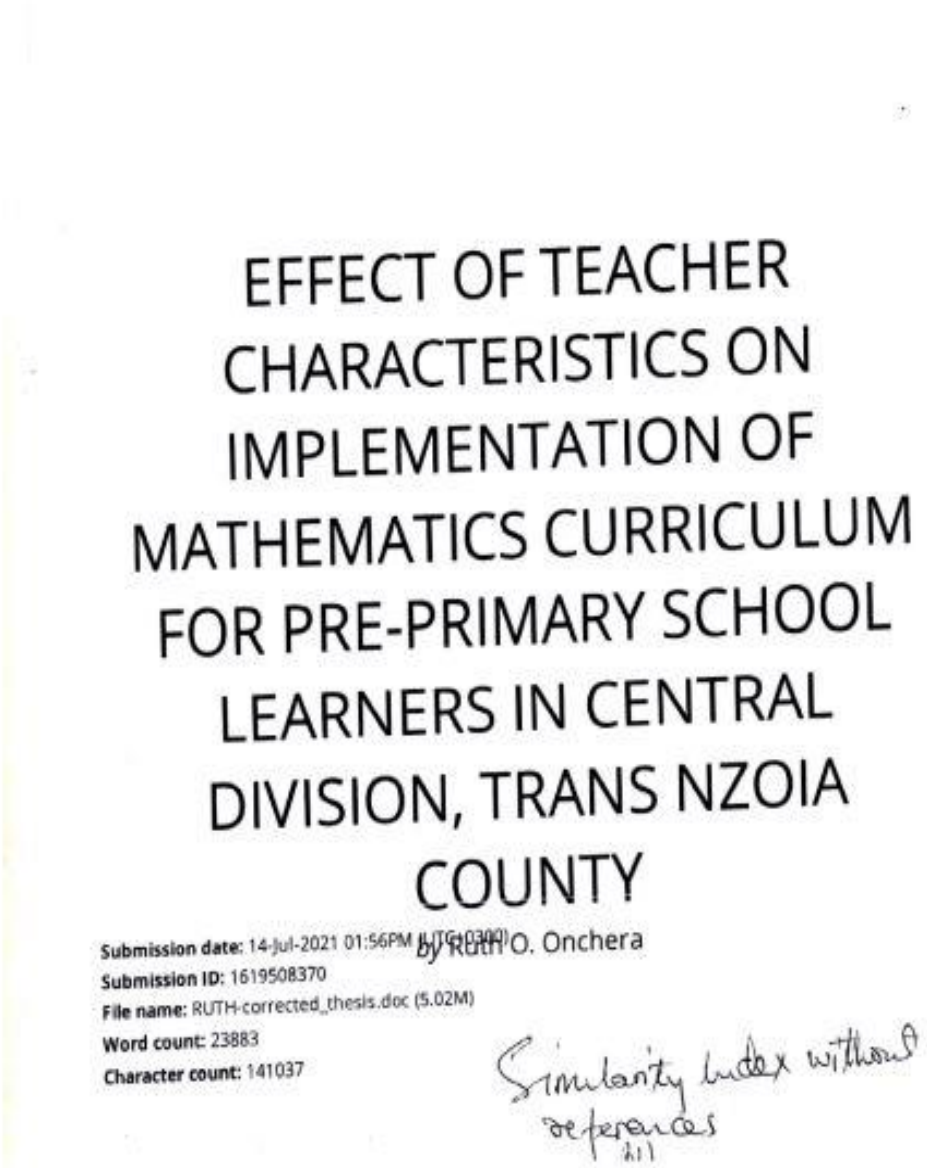
KEY

- Central Division

Appendix X: Map of Kenya

Source: Map data (c) 2020 google.

Appendix XI: Similarity Index



EFFECT OF TEACHER CHARACTERISTICS ON IMPLEMENTATION OF MATHEMATICS CURRICULUM FOR PRE-PRIMARY SCHOOL LEARNERS IN CENTRAL DIVISION, TRANS NZOIA COUNTY

by Ruth O. Onchera

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