THE INFLUENCE OF NUMERACY AND LITERACY TRAINING PROGRAM ON CURRICULUM IMPLEMENTATION BY EARLY GRADE TEACHERS IN PUBLIC PRIMARY SCHOOLS IN MOMBASA COUNTY

BY

AMWAYI HENRY NYAGAH

A RESEARCH PROJECT REPORT SUBMITTED IN THE PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF A MASTER OF ARTS DEGREE IN PROJECT PLANNING MANAGEMENT OF THE UNIVERSITY OF NAIROBI

2016

DECLARATION

This research project report is my original work and has never been presented for the award of degree or any other examination to any institute.

Signature …….Date…….

AMWAYI HENRY NYAGAH

L50/71786/2014

This research project report has been submitted for examination with my approval as the university supervisor.

Signature…… Date……..

DR. MOSES OTIENO

LECTURER, DEPARTMENT OF EXTRA MURAL STUDIES

UNIVERSITY OF NAIROBI

DEDICATION

My beloved wife Mercy and children Myles, Jasmine and Jeffrey, to you I dedicate this work. I could not have gone this far for it were not for your constant encouragement, love and prayer. For all the time and resources I spent on my education, I thank you for your perseverance. God bless you.

ACKNOWLEDGEMENT

My sincere thanks go to Dr. Moses Otieno for his invaluable support and guidance throughout the entire period of instruction and drafting this report. His dedication and input has propelled me to this far. I sincerely appreciate the very valuable input by Mr. Johnbosco Kisimbii for his constructive criticism in making this report.

I do also thank Mr. Gatimu, Mr. Nyambati, Dr. Itegi and all University of Nairobi lecturers for their guidance and inspiration. My fellow students were great academic comrades and I thank them for their encouragement and resilience. I thank the Almighty Lord for the gift of life and for giving me people who have been of great help to me.

TABLE OF CONTENTS

DECLARATION..... ii

DEDICATION..... iii

ACKNOWLEDGEMENT..... iv

TABLE OF CONTENTS..... v

LIST OF FIGURES viii

LIST OF TABLES..... ix

ACRONYMS AND ABBREVIATIONS..... x

ABSTRACT..... xi

CHAPTER ONE: INTRODUCTION..... 1

1.1 Background of the study 1

1.2 Statement of the problem 3

1.3 Purpose of the study..... 5

1.4 Objectives of the study..... 5

1.5 Research Questions..... 5

1.6 Significance of the study..... 6

1.7 Assumptions of the study..... 6

1.8 Limitations of the study 6

1.9 Delimitations of the study..... 7

1.10 Definition of Significant Terms……..... 7

1.11 Organization of the Research..... 7

CHAPTER TWO: LITERATURE REVIEW ……..8

2.1 Introduction..... 8

2.2 Teacher Training Program Influence on Literacy and Numeracy skills..... 8

2.3 Teacher Training Program on Pedagogical skills and Professional Growth 10

2.4 Teacher Training Program on Learner Outcomes 11

2.5 Teacher Training Program on Curriculum Implementation..... 11

2.6 Theoretical Framework..... 12

2.7 Conceptual Framework..... 14

2.8 Summary of Literature Review..... 15

CHAPTER THREE: RESEARCH METHODOLOGY..... 16

3.1 Introduction..... 16

3.2 Research Design..... 16

3.3 Target Population..... 16

3.4 Sample Size and Sampling Method..... 17

3.5 Data Collection Instruments ……..... 17

3.6. Data Collection Procedure..... 18

3.7 Validity and Reliability of research instruments..... 18

3.7.1 Validity of research instruments..... 18

3.7.2 Reliability of research instruments..... 19

3.8 Data Analysis techniques..... 20

3.9 Ethical Considerations..... 20

3.10 Operational Definitions of Variables..... 21

CHAPTER FOUR:DATA ANALYSIS, PRESENTATIONS AND

INTERPRETATIONS 23

4.1 Introduction..... 23

4.2 Questionnaire return rate 23

4.3 Demographic characteristics of the respondents. …… 23

4.4 Level of Proficiency in English and Use 0f Basic Mathematics Skills..... 25

4.5 Pedagogical skills and Continuous Professional Growth..... 29

4.6 Training Program on Learner Outcomes..... 34

4.7 Influence of Curriculum Implementation..... 36

CHAPTER FIVE: SUMMARY OF FINDINGS, DISCUSSIONS CONCLUSIONS

AND RECOMMENDATION..... 38

5.1Introduction..... 38

5.2 Summary of Findings..... 38

5.3Discussions of Findings..... 40

5.4Conclusions of the Study..... 41

5.5 Recommendations for policy Action..... 42

5.6 Suggestions for Further Research 43

REFERENCES..... 44

APPENDICES..... 48

Appendix 1: Letter of Transmittal..... 48

Appendix 2: Research instruments (Questionnaire)..... 49

Appendix 3: Research instruments (Interview Guide)..... 54

Appendix 4: List of Participating Schools 55

LIST OF FIGURES

Page

2.8 Conceptual framework……14

LIST OF TABLES

Page

Table 3.1 Operation definition of variables……..... 21

Table 4.1 Response rate……..... 23

Table 4.2 Demographic characteristics of respondents……..... 24

Table 4.3 Proficiency in English and Math……..... 26

Table 4.4 Chi-square tests on use of English 27

Table 4.5 Math skills articulation……..... 27

Table 4.6 Chi-square tests on English and Math objectives…….. 28

Table 4.7 Pupils feedback……..... 28

Table 4.8 Variety of teaching strategies……..... 29

Table 4.9 Correlation of teaching strategies ……..... 30

Table 4.10Correlation between pupil interaction and learner centered lessons…… 30

Table 4.11 Chi-square test on Teacher-pupil interaction…… 31

Table 4.12 Correlation on revision and learner centered lessons……..... 31

Table 4.13 Chi-square test on revision and learner centered lessons..... 32

Table 4.14 Differentiation…….....……. 32

Table 4.15 Continuous Professional growth……..... 33

Table 4.16 ICT Integration.....……..... 34

Table 4.17 Actual learning position……..... 34

Table 4.18 Team work…….....…….... 35

Table 4.19 Curriculum implementation……..... 36

Table 4. 20 Current level of Curriculum implementation …… 37

ACRONYMS AND ABBREVIATIONS

AKAM, PDC-Aga Khan Academy Mombasa, Professional Development Centre

DFTD-Department of Foreign Affairs, Trade and Development (Canada)

DFID-Department for International Development (United Kingdom)

ECE-Early Childhood Education

EFA-Education for All

GMR-Global Monitoring Report

MoEST-Ministry of Education Science and Technology

MRC-Madrassa Resource Centre

NACECE-National Association for the Education of Young Children

NESP-National Education Sector Plan

PRIMR-Kenya Primary Math and Reading Initiative

RTI-Research Triangle Institute

UNESCO-United Nations Educational Scientific and Cultural Organization

USAID-United States Aid Agency

USD-United States Dollars

UPE-Universal Primary Education.

ABSTRACT

Studies have shown that early childhood years serve as an essential foundation for subsequent literacy and numeracy development. Despite the increased attention given to children's early literacy and numeracy development, gaps remain in understanding whether our children are learning or not due to poor outcomes at the exit level. The purpose of this study was to find out the influence of early grade teachers training project being undertaken by the Aga Khan Academy Professional Development Centre targeting early grade teachers in Mombasa County and within the Island and Jomvu cluster of schools. The objectives of the study were to establish the influence of the training program on early grade teachers proficiency in the use of English(Literacy) and basic mathematics skills (numeracy), to examine the influence of the training program on early grade teachers' pedagogical skills and continuous professional growth, to examine the influence of the training on pupils learning outcomes, to find out the influence of the training program and to establish its influence on the implementation of curriculum in their schools. This study used a descriptive survey in obtaining information on the influence of numeracy and literacy training program for early grade teachers. The target population was the 15 public schools in the program. Data analysis was done using qualitative and quantitative methods. The findings indicate that for children to attain better outcomes at exit level, strong emphasis on attainment of literacy and numeracy skills should be placed at the foundation stage. Thus, it is important to ensure that early childhood teachers are well trained and post training programs should be done to ensure that curriculum implementation is successful. Policy makers may use the findings and recommendations from this study as guidelines in making crucial decisions that affect the pupil performance at individual schools, counties and the country as a whole

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Early grade school enrollments have increased rapidly in sub-Saharan Africa, eliciting concerns about low levels of learning. Teachers are an important component of **e**ducation whose services are indispensable in the realization of educational goals the world over (Simonson, Smaldino, Albright & Zvacek, 2014). Due to their central role in the enterprise of education, teachers at all levels require effective and sufficient education to be able to adequately carry out their roles and responsibilities. There are variations of teacher education program for the different levels of education from early childhood to tertiary education (Darling-Hammond, 2012).

Teacher education is a whole range of activities that constitute preparation for and improvement of the teaching profession (Danielson, 2011). This encompasses pre-service and in-service teacher education programs. These forms of teacher education programs involve the study of professional disciplines, teaching subjects and general knowledge subjects. Since independence in 1963, Kenya has markedly expanded services for young children. Kenya is now recognized as a leader in early grade teacher training in sub-Saharan Africa, known for its large-scale national early grade teacher training program that caters for a wide cross-section of children from different socio-economic, cultural and religious backgrounds (Smith & Smith, 2013).

Although much still needs to be done to further improve quality in service delivery, the rapid scaling-up of Kenya's early grade teacher training program provides some lessons in this respect that would be useful in scaling-up programs across the region (Lucas, McEwan, Ngware, & Oketch, 2014).In Kenya, stakeholders in Education have shown great concern on the poor results in some subjects and in particular English and Mathematics in the Primary school examinations. One such organization is the Uwezo initiative. (Uwezo means 'capability' in Kiswahili). Uwezo is a five year initiative that aims to improve competencies in literacy and numeracy among children aged 6-16 years old in Kenya, Tanzania and Uganda, by using an innovative approach to social change that is citizen driven and accountable to the public). In their report entitled, "Are our children learning? Numeracy and Literacy across East Africa, August 2012." The bad results at the primary school level was attributed to the poor mastery of the literacy and numeracy skills for both teachers and pupils in primary schools. One of the key findings of the Uwezo report was that: Two in every 10 children in Standard 7 in East Africa do not have Standard 2 level literacy

and numeracy competencies. This indicates that the effective literacy and numeracy competencies of many children remain low throughout primary school. Equally worrying is that a number of children who are preparing for the end of cycle national examinations have no mastery of basic literacy and numeracy skills.

Most researches on the relationship between teacher training and pupil achievement focuses on salaries, experience, and education. The effect of in-service training has received less attention. Accordingly, there is need to invest more in early grade education since the low learning outcomes in numeracy and literacy is an issue of great concern in the education sector in Kenya. The AKAM, PDC has decided to undertake the training of early grade teachers' project as a response to this problem.

The project is funded by The Canadian Department of Foreign Trade (DFTD), Intel and Concordia University. This project was inspired by the need to contribute to Kenya's effort to improve literacy and numeracy levels among learners leading to improved pupils outcomes at the completion of their primary school years. The focus is on early grade teachers in public primary schools.

Thus on the 17th of May 2014, a forum was held at the Academy's professional development center that was attended by amongst others 40 lower and upper primary school teachers. The main objective of the forum was for teachers to share their experiences in teaching mathematics and use of English in early grades, upper primary, secondary schools and teacher training colleges with specific regard to content delivery, classroom management, attitude, teaching and learning resources, teaching and learning environment. During the deliberations, it was agreed that there were challenges on content delivery, poor applications of mathematical concepts and poor foundations and this hindered effective learning and teaching of mathematics and proficiency in the use of English.

The learning crisis is leading policy-makers to turn their attention to the role of teachers in early grades and the contributions made by pre-service and in-service training. The Primary Mathematics and Reading initiative (PRIMR) through RTI is currently being implemented as part of addressing this problem. RTI introduced the initiative in Kenya in 2011 under the USAID education data for decision making project. Its aim was to improve teacher uptake of a set of simple, cost effective interventions in order to improve numeracy and reading outcomes in grades 1 and 2. It is being implemented as Tusome Project. PRIMR to date focuses on improving

the Ministry of Education's fluent reader benchmark levels set in July 2012. RTI agrees that acquiring literacy skills becomes more difficult with increasing age. Pupils who do not read in the few grades are more likely to repeat and eventually drop out, and the gap between readers and non-readers increases over time. This study looks at the influence of numeracy and literacy training program by the AKAM, PDC for early grade teachers to enhance curriculum implementation in public primary schools in the Island and Jomvu clusters in Mombasa County.

1.2 Statement of the problem

Early grade teacher training has a long history, with the institutionalization of early childhood group care and education programs moving out from Europe by colonizing forces as early as the 1820's (Morgan, 2011). The period 1989/1990 marked significant changes for children and for early grade teacher training internationally. For many years early grade teacher training had been the 'invisible child', hidden behind 'family', and disconnected from the recognition afforded its 'older siblings': Primary, secondary and tertiary education, as key contributors to international development (Romano, 2014).

Through early grade teacher training recognition at Jomtien, the rapid ratification of the CRC, and the world summit for children held in New York, on 28–29 September 1990, the early years began to move out from the shadows to a place of recognition in their own right on the international stage. Education curricula, beginning with kindergarten and nursery Centre's, disseminate disparate chunks of western bodies of knowledge and skill repertoires but "are deficient in local content and traditional skills learning" (TERO, 2012).In spite of the benefits of education, the African school, beginning with early grade teacher training services, pushes Africa's children into gaining western knowledge and skills but disturbingly involves alienation from, and ignorance of, their cultural heritage and life-journeys (Shizha, 2015).

As Beach, Thein, & Webb (2012) notes, a western educational system can produce dysfunctional African children as it decontextualizes cognitive repertoires and life skills from African experience. Early grade teacher training and education systems in African must recognize and value "patterns of intelligence that exist already in their culture because their culture requires it" (Vernon, 2014).

According to Murungi, (2012) the general Objectives for Pre-school Education in Kenya is to provide an informal education geared towards developing the child's mental capabilities and

physical growth, enable the child to build good habits for effective living as an individual and a member of a group, develop a child's imagination, self-reliance and thinking skills and to enrich the child's experience so as to enable him to cope better with primary school life. Indeed, Pre-school education is an important aspect of basic education that provides a sound foundation for primary education and personality development which can make all the difference in the child's future (MoEST, 2006), &(Gordon, & Browne, 2013).

However, surveys done by the Uwezo initiative (Uwezo 1, 2009/2010 and Uwezo 2, 2011/2012) the principal finding is that despite significant gains in expanding access to primary schooling, actual literacy and numeracy outcomes remain significantly deficient across the region. Although children are now enrolled in school in unprecedented numbers, they are not learning core skills expected at their age and grade level. Specifically, the Uwezo assessments found that more than two out of every three pupils enrolled at Standard 3 level in East Africa fail to pass basic tests in English, Kiswahili or numeracy set at the Standard 2 level and that improvements in basic literacy and numeracy occur only slowly as children progress through the education system, implying that the quality of learning remains low throughout primary school.

In Kenya, the Ministry of Education, Science and Technology through the National Education Sector Plan (NESP) has managed to raise USD88.4 million (To improve Early Grade Mathematics in standard 1 and 2 in all public primary schools and strengthening governance and management of selected public primary schools) and USD55.4 millionfromUSAID(Tusomeproject)toimproveearlygradereadinginallpublicprimaryschools.

Tusome which means 'Let us read' in Kiswahili, is a nationwide program that will improve the learning outcomes of 5.4 million pupils in class 1 and 2 in 22,600 Kenyan primary schools by providing them with text books and other developmental reading materials. More than 60,000 primary school teachers will also receive training in improved teaching methods. (RTI, 2015).

It is against this backdrop that this research seeks to investigate the influence of numeracy and literacy training program for early grade teachers in public primary schools in the Island and Jomvu Clusters of Mombasa County. This is a deliberate intervention project by AKAM, PDC aimed at complementing the Kenya governments' effort to improve pupils learning outcomes by ensuring an effective implementation of the curriculum and thus addressing the learning crisis in primary schools. The Uwezo report (2012) stated that there are gender issues that affect early childhood learning, for example, only 1 out of 4 class 2 teachers are male, all are trained but half

have not undergone in-service training in the last 2 years. Thus, there is dire need to equip early childhood teachers with the necessary skills to make them improve their practice.

1.3 Purpose of the study

The purpose of this study was to establish the influence of numeracy and literacy training program on curriculum implementation by early grade teachers in public primary schools in the Island and Jomvu Cluster schools, Mombasa County.

1.4 Objectives of the study

The following were the objectives of the study:-

a. To establish the influence of the training program on early grade teachers proficiency in English (literacy) and basic mathematical skills (numeracy).
b. To examine the influence of the training program on early grade teachers' pedagogical skills and professional development.
c. To examine the influence of the training program on pupils learning outcomes.
d. To establish the impact of teacher training program on curriculum implementation.

1.5 Research questions

The following were the research questions of the study:-

a. To establish the extent to which the training program for early grade teachers has influenced their proficiency in English (Literacy) and basic mathematical skills (Numeracy).
b. To examine the extent to which the training program for early grade teachers has influenced their pedagogical skills and continuous professional growth.
c. To examine the extent to which the training program for early grade teachers has influenced pupils learning outcomes.
d. To establish the extent to which the professional development program has influenced curriculum implementation.

1.6 Significance of the study

This research will be important in a number of ways. First, it will enhance the understanding of the influence of early grade teacher training program in public schools in Mombasa Island and Jomvu Cluster schools in Mombasa County. This will go a long way in addressing the

educational needs of children at early stages not only in Mombasa but also in Kenya, East Africa, the continent and indeed the whole world. Secondly, the study will provide meaningful feedback to the AKAM, PDC the sponsors and the County Ministry of Education whose mandate covers the early grade years. Thirdly, early grade teacher training program has continued to receive much attention from the policy makers and researchers in all developing countries, thus the research will be a welcome addition to the body of knowledge. This is due to the crucial role that this sector plays in the fight against illiteracy, child growth and empowerment and the general child growth in her/his future academic life since it plays an important role in educational foundation of the child.

This study therefore hopes to shed more light on the role played by this particular early grade teacher training program in the local public schools and especially to the ultimate beneficiaries, the pupils. The need for educational integration cannot be over emphasized. Policy makers may use the findings and recommendations from this study as guidelines in making crucial decisions that affect both individual schools, counties and the country as a whole.

1.7 Assumptions of the Study

The assumptions made in this study are that the sample represented the population; the data collection instrument had high validity index and measure the desired constructs; the respondents answered questions correctly and truthfully and all respondents were literate.

1.8 Limitations of the study

The study involved teachers, head teachers and pupils within Island and Jomvu Cluster schools in Mombasa for the researcher was constrained with time and availability of funds to carry out a more elaborate research involving all clusters in Mombasa County. These factors may come into play and hence affect the validity of the results to some extent.

1.9 Delimitations of the study

The study involved teachers, head teachers and pupils from Island and Jomvu clusters of Mombasa County. The study focused on the numeracy and literacy in-service program by The Aga Khan Academy, Professional Development Centre in Mombasa. Proficiency in English, use

of basic mathematical skills, pedagogical skills, learning outcomes for pupils, professional development and curriculum implementation were studied.

1.10 Definition of terms

AKAM, PDC-Aga Khan Academy, Mombasa, Professional Development Centre.

Literacy-For this research "Literacy' means proficiency in English.

Numeracy-For this research 'Numeracy' means basic Mathematical skills.

Cluster- A number of schools in the same locality. The Ministry of Education uses this system to offer support to schools in the same geographical region. This is o ensure that the teachers are able to network easily.

1.11 Organization of the project report

Chapter one presents the background of the study, the problem statement, the relevancy of the study, objectives of the research as well as research questions, the study assumptions, procedure used to collect data and document as well as the limitations of the research.

In chapter 2 there is the Literature review that looks at what others have done on the same study, the theoretical framework, conceptual framework and the gaps in the literature reviewed and Chapter 3 has the Research methodology and instruments of research, sampling procedure, target population, validity and reliability of the instruments. The results and findings of the study are presented in chapter four while chapter five gives the summary of findings, conclusions and recommendations

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature related to the study topic; influence of numeracy and literacy training program for early grade teachers in public primary schools in the Island and Jomvu Clusters of Mombasa County, Kenya.

This review is based on the research objectives: To establish the influence of the early grade teachers training program on curriculum implementation by targeting literacy (proficiency in English) and Numeracy (Math skills), examining the influence of the training program on early grade teachers' pedagogical skills, professional development and to establish the influence of the training on curriculum implementation in their schools.

A conceptual framework is used to operationalize the variables and lastly the gaps in literature are summarized.

2.2 The influence of early grade teacher training program on literacy and numeracy skills

In East Africa, there is great effort directed toward ensuring that there is learning and value for money invested in universal education policies initiated over the past decade. Kenya and Uganda are two countries that typify this effort. The effort includes the work of research organizations such as Uwezo, which assesses learning levels; RTI, which assesses language and early grade reading; and the work of African Population and Health Research Center (APHRC), which looks at schooling patterns of different households. All these studies paint a disappointing picture both for the universal access to Education for All policy and the large sums of money that have been devoted to achieve it. The verdict is that too many pupils in schools are not learning and too many poor ones are excluded from universal public access. (Moses Oketch et al January 30, 2014)

Child development theory has served as an anchor for work led by the influential American early childhood professional group, the National Association for the Education of Young Children (NAEYC) (Darling-Hammond, 2012). In the late 1980s NAEYC turned to 'developmental science' to bolster its argument that 'best practice' in ECE should be 'child-centered'. The result of this

adoption was the publication of position statements on developmentally appropriate practice (DAP) (Goodrich, Harper, Luke, & Singh, 2013).

The idea of 'quality' as an objective reality that existed outside of context and could be measured with 'universal' instruments was also disturbing and elaborations of those ideas led to two related volumes (Feiereisen, & Hill, (Eds.). (2011). Work related to early childhood in New Zealand was also opening up possibilities for other ways of understanding – and, significantly, for the opportunity to apply alternative and inclusionary approaches: to policy development (O'Shea, & Toohey, 2014), to curriculum and programming, and more recently to assessment.

The bulk of initiatives by INGOs, for example, the Bernard van Leer Foundation and the Aga Khan Foundation (AKF), have been in the East and Southern Africa regions. Since 1982 in Kenya, with subsequent extension to Uganda and Tanzania, the AKF funded a *madrassa* system under the auspices of the Mombasa *Madrasa* Resource Centre (MRC), to mobilize communities to support early childhood education (Adan, 2013).

This initiative went beyond traditional Koranic learning to integrate early childhood development, teacher-empowerment, and community participation. The emphasis will be on self-sufficiency and community management. Local management committees appointed women from the community as ECD workers, who were trained by the MRC.

Though originally intended for Muslim children only, the program has since expanded to include non-Muslim students in 78 schools in Kenya, 63 in Uganda, and 88 in Zanzibar. It has served over 50,000 children and trained over 4,500 teachers and 2,000 school committee members (Adan, 2013). About 49 percent of school management committees of the MRC project are women, an unprecedented achievement for "a paternal institution once exclusively managed by men".

The earliest years of a child's education—from birth through 3rd grade—set the foundation upon which future learning is built. In recent years, state policymakers have emphasized the need to improve children's reading skills early on because a lack in this essential skill is a strong predictor of low student performance and increased high school dropout rates. By 2012, a total of 32 states plus the District of Columbia had policies in statute aimed at improving 3rd-grade literacy, with 14 of those states requiring retention of students on the basis of reading proficiency. While the emphasis on reading proficiency is critical, research shows that the

development of mathematics skills early on may be an even greater predictor of later school success. Early knowledge of math not only predicts later success in math, but also predicts later reading achievement even better than early reading skills. Koskei J.R. (2013), in her article in the Journal of Emerging Trends in Education research and policy studies, notes that training is important for it prepares teachers for their work. It equips them with necessary knowledge, skills and attitudes for them to perform their duties competently. Thus, teacher training and in-service education are important components in facilitating the implementation and innovation of the curriculum. A teacher as an implementing agent must receive appropriate training to handle effectively the emerging challenges in the practice. It is important to recognize that pupils in their early childhood learning entirely depend on their teachers to guide and scaffold them in their learning activities, therefore teachers must have a sound knowledge of how children grow, develop and learn.

2.3 Early Grade Teacher Training and Teachers' Pedagogical skills and Professional Development.

Studies have made it clear that significant differences in ability to improve student achievement exist among fully trained and experienced teachers (Feng, & Sass, 2013).It is argued that these differences reflect the education community's view that student achievement is not public education's highest priority. Rather, achievement is only one valued outcome among many, and it often suffers from inattention. The education community's priorities are consistent with ideals that have been taught in teacher training programs for decades, but especially since the sixties. They have come to constitute a pedagogical orthodoxy that the vast majority of educators treat as unquestionable. The pedagogical concepts in which teachers are indoctrinated shape the education community's preference for schooling that is relatively ineffective and inefficient (Christou, 2012) Teachers are taught that it is more important to use stimulating and engaging practices than to use effective ones (Darling-Hammond, 2013)

To be effective, professional development must provide teachers with a way to directly apply what they learn to their teaching (Fink, 2013). Research shows that professional development leads to better instruction and improved student learning when it connects to the curriculum materials that teachers use, the district and state academic standards that guide their work,

and the assessment and accountability measures that evaluate their success (Salvia, Ysseldyke & Bolt, 2012).

Studies suggest that the more time teachers spend on professional development, the more significantly they change their practices and that participating in professional learning communities optimizes the time spent on professional development. What matters most is what teachers learn. Professional development should improve teachers' knowledge of the subject matter that they are teaching, and it should enhance their understanding of student thinking in that subject matter. Aligning substantive training with the curriculum and teachers' actual work experiences also is vital (Polikoff, 2013)

2.4 Early grade teacher training and influence on the pupil's performance.

There is evidence that better trained and more experienced teachers tend to be assigned to students of greater ability and with fewer discipline problems (Harris, & Sass, 2011)Given this positive matching between student quality and teacher training, the gain-score studies 'inability to control for unobserved student characteristics would tend to upwardly bias estimates of teacher value-added associated with education and training. Elementary and middle school teacher productivity increases with experience (Harris, & Sass, 2011)

Studies have shown that most African governments have been reducing investment in teacher training and employing non-professional teachers as a cost cutting measure and a quick solution to the problem of teacher shortage. A direct impact of this action is the deterioration of learning outcomes. A well trained teacher is able to guide the learning process of children, making learning relevant and stimulating. Such a teacher is able to impart knowledge and life skills that are essential in the development of a child. (Akarkshay 2010).

Despite the alarming trend concerning the low levels of student achievement, there is little existing research that directly links students' achievement outcomes with teacher training qualifications. However, the fact that those teachers are the main staff responsible for supporting students' learning and it is imperative that they are well trained. The Education for All Global Monitoring Report (EFA GMR, 2010) finds that what students achieve in school is heavily influenced by classroom practices and teacher skills.

2.5 Early grade teacher training on curriculum implementation

Little of the early literature on curriculum development calls for teachers to take curricular leadership roles. Early work clearly centers teachers' curricular role within the classroom and focused on instructional practice. The relegation of teachers to an ancillary role in curricular development reflects common assumptions regarding women and the responsibilities of teachers in the first half of the 20th century. Examinations of teacher preparation programs offered at the time and of contemporary teacher job descriptions provide additional evidence of such limited assumptions (Ogren, 2005).

Kenya like other developing countries has instituted educational reforms and policies with a bid to achieve national development. However, despite the efforts by the government, teachers encounter many problems and challenges in the implementation of the educational reforms. It is these challenges that have been responsible for partial and inadequate implementation of educational reforms in Kenya. The end result has been a decline in national development because achieving such goals as Education For All (EFA) and Universal Primary Education (UPE) still proves to be nightmare. Thus there is need to increase budgetary allocations to the education sector so as to employ more teachers to cater for teacher shortages and in particular Early Childhood Education and fund schools more. Also, there is an urgent need to make Early Childhood Education free and compulsory for all.

2.6 Theoretical Framework

The current study will adopt the Grounded theory (GT) method which is a systematic methodology in the social sciences involving the discovery of theory through the analysis of data. Bryman, 2012). Grounded theory method is a research method which operates almost in a reverse fashion from traditional social science research. Rather than beginning with a hypothesis the first step is data collection, through a variety of methods. From the data collected, the key points are marked with a series of codes, which are extracted from the text. The codes are grouped into similar concepts in order to make the data more workable. From these concepts, categories are formed, which are the basis for the creation of a theory, or a reverse engineered hypothesis.

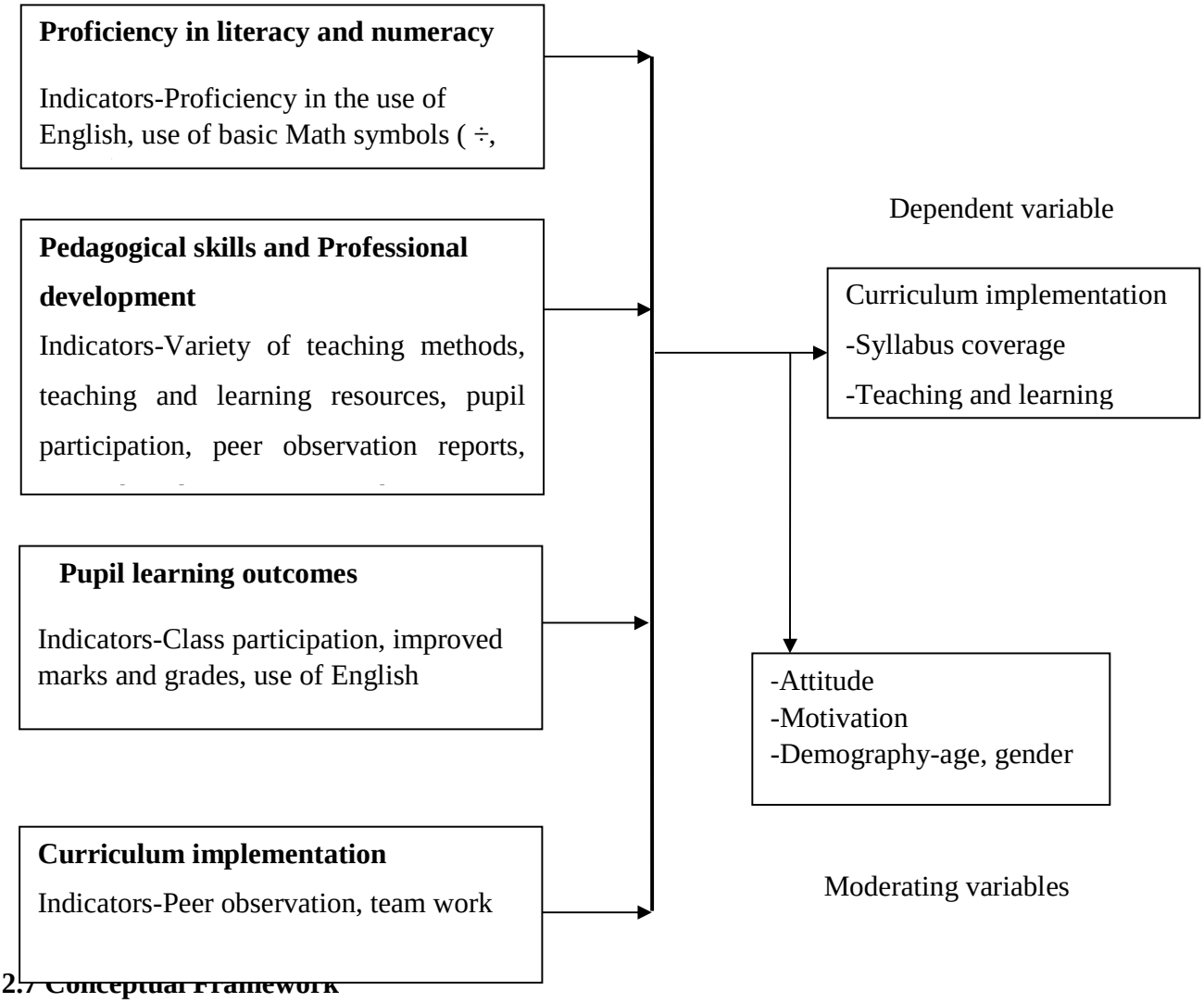
This contradicts the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the phenomenon to be studied. This approach

was written down and systematized in the 1960s by Anselm Strauss (himself a student of Herbert Blumer) and Barney Glaser (a Student of Paul Lazarfeld), while working together in study the sociology of illness and university of California, SanFrancisco. For and with their studies, they developed a methodology, which was then made explicit and became the foundation stone for an important branch of qualitative sociology (Tesch, 2013)

Important concepts of grounded theory method are categories, codes and coding. The research principle behind grounded theory method is neither inductive nor deductive, but combines both in a way of abductive reasoning (coming from the works of Charles Sanders Peirce). This leads to a research practice where data sampling, data analysis and theory development are not seen as distinct and disjunct, but as different steps to be repeated until one can describe and explain the phenomenon that is to be researched. This stopping point is reached when new data does not change the emerging theory anymore (Charmaz, 2012).

In an interview that was conducted shortly before Strauss' death (1994), he named three basic elements every grounded theory approach should include (Seidman, 2012). These three elements are: Theoretical sensitive coding, that is, generating theoretical strong concepts from the data to explain the phenomenon researched; theoretical sampling, that is, deciding whom to interview or what to observe next according to the state of theory generation, and that implies starting data analysis with the first interview, and writing down memos and hypotheses early; and the need to compare between phenomena and contexts to make the theory strong (Ragin, 2014). It was against this background that the current study adopted the grounded theory while undertaking the study on the impact of numeracy and literacy training program for early grade teachers in public primary schools in Island Cluster, Mombasa County.

Independent Variables



2.7 Conceptual Framework

A conceptual framework is a scheme of variables a researcher operationalizes in order to achieve the set objectives (Tuckman, & Harper, 2012). The current study was guided by the following conceptual framework, which was used to explain the interrelationship between the variables.

Gravetter, &Wallnau, (2013) argued that independent variable attempts to indicate the total influence in the study. It is hypothesized that the independent variable with its components i.e. impact of numeracy and literacy training program for early grade pupils in public primary schools in Island Cluster schools, Mombasa County. However intervening and moderating variables with its components such as attitude, motivation and demographic factors like gender may improve or negate the influence of numeracy and literacy program in the Island Cluster schools of Mombasa County

2.8 Summary of gaps in literature reviewed

The challenge as to whether our children are learning is not adequately covered. While there is significant investment in early childhood teacher training programs by government and the private sector, literacy and numeracy levels continue to all time low in Kenya and in particular, in the coastal region of Kenya. There is visible and concerted effort towards achieving enrolment of pupils in early grade schools but curriculum implementation is not adequately monitored. There is a gap in evaluating as to whether the training programs offered to early grade teachers are relevant and adequate; their implementation, and the relationships between pupil outcomes and the professional ability of their teachers. There is little literature that focuses specifically on the issues like the influence of teacher training on pupil learning outcomes that are measurable. Most studies look at teacher quality thus there is lack of empirical evidence on the relationships between teacher training and pupil learning outcomes.

Studies done in Kenya and other countries have shown that there is great concern for early grade education. Many programs have been put in place to guide learners at that level; however, implementation has been the setback. It has been captured that early grade learners curriculum in most countries has not been adequately implemented as it was initially designed and conceptualized. This has mainly been attributed to the teacher who is at the core in curriculum implementation. Studies show that there is need to invest in acquisition of literacy and numeracy skills during the foundation stage if the children are expected to produce desired outcomes at the exit stage. There exists a knowledge gap in identifying the link between teacher training and in-service with pupils learning outcomes. The study is informed by the social cognitive theory and motivation theories. According to the conceptual framework, the study investigated the proficiency in English and Math, pedagogical skills, learning outcomes, professional development and individual skills acquired as independent variables while the dependable variable is curriculum implementation. The moderating variables studied are motivation, attitude and democratic factors such as gender and age.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a detailed methodology that will be used in this research in terms of research design, target population, sample selection and sample size, research instruments, validity and reliability of instruments, data collection procedures and data analysis techniques and presentation.

3.2 Research Design

This study used a descriptive survey (Describing the characteristics of existing phenomenon) in obtaining information on the influence of numeracy and literacy training program for early grade pupils in public primary schools in Island and Jomvu Cluster schools in Mombasa County. Descriptive statistics describe the distribution of and relationship among variables. It can be used when collecting information about people's attitudes, opinions, habits or any of the variety of social issues (Babbie, 2015).). Survey research design allows researchers to gather information, summarize, present and interpret (Bell, & Waters, 2014). In this way, verification, deeper explanation and appropriation of findings of the survey were sought for the sake of accuracy in interpretation of data (Bataineh, 2014).

Descriptive survey design was used since it provides insights into the research problem by describing the variables of interest. It was used for defining, estimating, predicting and examining associative relationships. This helped in providing useful accurate information to answer the questions based on who, what, when, and how. Historical research was used tolerate events that have occurred in the past to current and possible future events. It also enabled the researcher to relate the research problem to the missing gaps of other research work done and also showed what the other researchers overlooked possibly due to time differences or economics and social factors (Bataineh, 2014).

3.3 Target Population

Schwab, (2013) defines a population as a group of elements or cases, be it an individual, objects or events that conform to specific criteria and are intended to provide a suitable base for the research. This study used a population comprising of 15 schools in the program. Each school as a

unit has teachers who have been trained in the program, a head teacher and pupils. The study population was chosen because of the rising concern over poor performance of schools in the cluster and the need to address the problem at the early formative years.

3.4 Sample size and sampling method

Sampling is selecting a given number of persons from a defined population in such a way that the sample selected is representative of that population (Levy, &Lemeshow, 2013). Information obtained from the Aga Khan Academy, Professional Development Centre, Mombasa, revealed that there were 15 public primary schools and a total of 29 teachers from the Island/Jomvu cluster of schools who had been trained in this particular in-service program. It was prudent to employ a simple sampling method to select a sample of 28 teachers for the study, which is 96% of the sample size.

3.5 Data Collection Instruments

A questionnaire has the ability to collect large amount of information in reasonably quick space of time. Through use of questionnaire, information can be collected from a large number of people and the question can be easily analyzed and it allows anonymity (Natrella, 2013). Questionnaires are used in collecting quantitative data.

Fritz, Balhorn, Riek, Breil, &Dugas, (2012) explains instrumentation as a tool for measuring, observing or documenting quantitative data. He further stated that researchers may identify these instruments before they collect data, and they may include a test, questionnaire, a tally sheet, a log, an observation checklist, an inventory or an assessment instrument. Interviewing (individual interview) the participants is important in understanding the views of the respondents based on the management of school curriculum delivery and interventions.

Interview allowed the researcher to clarify items on the study by repeating and replacing questions that seemed unclear to respondents (Seidman, 2012). Interview is a good tool in collecting qualitative data. Because questionnaires do not allow probing, prompting and clarification (Amin, 2005) the researcher used interview schedules in order to collect additional data that were left out by the questionnaires whose items are fixed. The study also used questionnaires for teachers, interviews for head teachers and observation schedules to gather information.

3.6 Data collection procedure

The researcher obtained permission from the Aga Khan Academy, Mombasa, Professional Development Centre to access its facilities for document analysis for the study. The researcher as well did seek for consent from the respondents before undertaking to collect data from the field. The researcher informed and explained the importance of the research in order to get informed consent from the respondents by convincing the respondents.

To effectively collect the data, the researcher employed the services of two research assistants who were first degree holders. The research assistants were adequately trained to understand the questionnaire before commencement of the data collection.

3.7 Reliability and Validity of Instruments

This section looks into the validity and reliability of research instruments.

3.7.1 Validity of Instruments

Validity is the degree to which empirical measure or several measures of the concept, accurately measure the concept (Tavakol, &Dennick, 2011). Validity refers to the extent to which an empirical measure adequately reflects the real meaning of the subject under investigation Bryman, (2012) defines validity as the accuracy and meaningfulness of the inferences, which is based on the research results while Tavakol, &Dennick, (2011) define content validity as the extent to which the question on the instrument and the scores from these questions are representing possible questions that could be asked about the content or skill.

It is the degree to which the results obtained from the analysis data actually represent the phenomenon under study. In fact content validity is non-statistical method used to validate the content employed in the questionnaire. According to Silverman, (2013) the research instruments must be appropriate for the study objectives to be achieved.

The data was tested for reliability to establish issues such as data sources, methods of data collection, time of collection, presence of any biasness and the level of accuracy. The test for reliability established the extent to which results were consistent over time. Reliability test was carried out to test the consistency of the research tools with a view to correcting them. The researcher improved the instrument by reviewing or deleting items from the instrument. The research instruments was discussed with respondents and piloted to find out if everything worked well and to detect any flaws or misunderstanding. Any item found to be ambiguous was modified and restructured.

3.7.2 Reliability of Instruments

Ary, Jacobs, Sorensen, & Walker, (2013) defines reliability as a measure of the degree to which a research instruments yields consistent results or data after repeated trials. Reliability of an instrument is the dependability or trustworthiness of an instrument. It is the degree to which the instrument consistently measures what it is supposed to measure (Silverman, 2013) comments that test-retest or stability test provides evidence that scores obtained on a test at one time (test) are the same when the test is re-administered some other time (retest).

The correlation coefficient of the instruments was computed using the Spearman Brown prophecy formulae for the split-half. Reliability of the instruments were determined by Cronbach's Alpha coefficient. Computation of alpha is based on the reliability of a test relative to other tests with same number of items, and measuring the same construct of interest (Hatcher, 1994). Cronbach's alpha method given by;

$$\alpha = \frac{p}{p-1}\left|1 - \frac{\sum_{i=1}^{p} \sigma_t^2}{\sigma_T^2}\right|$$

Where p is the number of items in the scale (given the denominator of the first term, p must be 2 or greater) σ_i^2 is the variance of the ith item, i = 2……p and σ_r^2 is the variance of the entire test, to test the reliability of the two sets of data. The alpha coefficient ranges between 0.0 to 1.0 though there is actually no lower limit to the coefficient. The closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale. George and Mallery (2003) provide the following rules of thumb: $\alpha > .9$ – Excellent, $\alpha > .8$ – Good, $\alpha > .7$ – Acceptable, $\alpha > .6$ – Questionable, $\alpha > .5$ – Poor, and $\alpha < .5$ – Unacceptable.

While increasing the value of alpha is partially dependent upon the number of items in the scale, it should be noted that this has diminishing returns. It should also be noted that an alpha of .8 is probably a reasonable goal. It should also be noted that while a high value for Cronbach's alpha indicates good internal consistency of the items in the scale, it does not mean that the scale is uni-dimensional. This study achieved a correlation coefficient of 0.8 for the purposes of reliability of the data.

The reliability analysis was used to test consistency of respondents' answers to all the items of independent and dependent variables in the questionnaire, whether the items were highly

correlated with one another or not . According to Silverman, (2013), a perfect reliable instrument has a coefficient alpha of 0.7, meaning that all values to 0.7 are reliable.

3.8 Data analysis techniques

Schwab, (2013) describes coding as a descriptive name for the subject or topic of a data segment. The data was collected, sampled, coded and analyzed using descriptive statistics such as frequencies, percentages, means and standard deviation with help of statistical package for social science(SPSS) and MS Excel that was subsequently presented inform of tables, charts and graphs.

Data analysis was approached through answers given in the questionnaires. The participants in the study responded to questions that investigated the study problem which was based on the title; "to investigate influence of numeracy and literacy training program for early grade teachers in public primary schools in Island and Jomvu Cluster schools, Mombasa County", Findings collected from the respondents was specifically on school-based factors of: school administration process, physical and learning resources, teacher and pupils' characteristics factors, frequency of standard assessments: monitoring and evaluation, home-based and community factors. The interviews were analyzed using the detailed responses of the school head teachers on the influence of numeracy and literacy on early grade teacher in-service program in Mombasa County.

3.9 Ethical Consideration.

According to Fouka, & Mantzorou, (2011) it is important to observe ethics in research in order to maintain human dignity. In this study, ethics will be observed by maintaining confidentiality, treatment of respondents with respect and honesty and observation of protocol at all stages.

The researcher obtained an informed consent from the respondents before collecting data from the field. The respondents were recruited into the study on voluntary basis and were informed that their freedom to leave the study at any time was to be respected. Personal details were not be required on the questionnaires to ensure confidentiality.

The researcher informed and explained the importance of the research in order to get informed consent from the respondents. A high level of confidentiality on the information was provided by the respondents through interviews and questionnaires was maintained.

3.10 Operational definition of variables

In this study, literacy means proficiency in English language while Numeracy means mathematical skills. The indicators include well prepared teaching and learning materials, use of English in lesson delivery, variety of teaching methods among others. A mixture of measurement scale levels were used especial lly nominal and ordinal.

Table 3.1 Summary of operation definition of variables

Research objective	**Variable**	**Indicators**	**Data collection instrument**	**Measurement scale**	**Data analysis**
To establish the impact of the training program on early grade teachers proficiency in English (literacy) and basic Math skills(numeracy)	Proficiency	-reading -speaking -writing -use of basic Math symbols	Questionnaire	Nominal	Descriptive and Inferential
To examine the impact of the training program on early grade teachers' pedagogical skills.	methods	-resource materials -lesson plans -team work -variety of teaching methods	Observation, Questionnaire	Nominal	Descriptive and Inferential

To examine the impact of the training program on pupils learning processes and outcomes.	Motivation	-class participation -grades -marks	Observation Document analysis	Nominal	Correlational
To find out the impact of the training program on the early grade teachers' professional development.	Continuous Growth	-peer observation -workshops, presentations	Interview Questionnaire	Nominal	Descriptive and Inferential
To establish the impact of teacher training on curriculum implementation.	Skill transfer	-syllabus coverage, schemes of work	Questionnaire Observation Document analysis	Nominal	Correlational

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter focuses on data analysis, interpretation and presentation. This purpose of this study was to establish the influence of numeracy and literacy training program offered by The Aga Khan Academy, Mombasa, and Professional Development Center to early grade teachers in public primary school in Mombasa County. The objectives of the study were (1) to establish the proficiency in English and use of basic mathematical skills, (2) to examine the influence of the professional development program on early grade teachers' pedagogical skills and continuous professional growth, (3) to examine the influence of the professional training program on pupils learning outcomes and (4) to establish the influence of the professional development program on curriculum implementation.

4.2 Response rate

The response rate of respondents is presented in Table 4.1

Table 4.1 Response rate

Category	Frequency	Percentage
Responded	28	100
Did not respond	0	0
Total	28	100

From table 4.1 above, the researcher distributed 28 self-administered questionnaires to the sampled respondents, all the 28 questionnaires were returned and this represents 100% response rate which the researcher found sufficient to proceed with data analysis.

4.3 Demographic characteristics of the respondents.

The researcher sought to establish various demographic characteristics of the respondents in the area of study. Table 4.2 below shows results obtained from respondents.

Table 4.2: Demographic characteristics of the respondents

Respondents gender			
Category	Frequency	Percentage	Cumulative Percentage
Male	1	3.6	3.6
Female	27	96.4	100.0
Total	28	100.0	

Distribution of respondents to classes currently assigned			
	Frequency	Percentage	Cumulative Percentage
KG1	5	17.9	17.9
KG2	5	17.9	35
KG3	3	10.7	46.4
Class 1	3	10.7	57.1
Class 2	4	14.3	71.4
Class 3	3	10.7	82.1
Class 4	2	7.1	89.3
Class 5	1	3.6	92.9
Class 8	2	7.1	100.0
Total	28	100.0	

Distribution of respondents by years of service

No. of years	Frequency	Percentage	Cumulative Percentage
1 - 5	5	17.8	17.8
6-10	11	39.3	57.0
11 - 20	8	28.6	85.6
21years and above	4	14.4	100.0
Total	28	100.0	

The researcher asked the respondents to indicate their gender, classes they teach, number of pupils and their teaching experience. On gender of the respondents, a greater percentage of the respondents were female (96.4%). Only one respondent (3.6%) was male. In this section the researcher sought to establish the level of implementation of the program by identifying the classes currently assigned to early grade teachers in their respective schools. Early childhood classes from kindergarten 1 to Standard 3 in Kenya. A greater representation of the respondents (82.1%) reported to be covering lower classes from KG1 to class 3. The remaining 17.9%were teachers between classes 4 to 8. The teachers in upper classes have gone through the Professional Development training program but now are assigned to upper classes. The years of experience among the respondents were spread from between 4 years to 35 years. In fact 57% of the respondents were teachers with an experience of 10 years and below. This is positive in terms of long term curriculum implementation programs in their respective school

4.4 Level of proficiency in English and use of basic mathematics skills

In this section, the researcher sought to establish the extent to which the professional development program has influenced the proficiency of early grade teachers in English and mathematics as illustrated in table 4.5.

Table 4.3: Proficiency in English and use of basic math skills by early grade teachers

	English		Maths		Strategies		Feedback		Skills		Progress		Team work	
	Freq	%	Freq	%	Freq	%	Freq	%	Fre	%	Freq	%	Freq	%
Strongly disagree	1	3.6	2	7.1	1	3.6	0	0	0	0	0	0	0	0
Disagree	4	14.3	2	7.1	0	0	0	0	0	0	0	0	0	0
Neither agree or disagree	2	7.1	2	7.1	1	3.6	4	14.3	0	0	1	3.6	3	10.5
Agree	15	53.6	10	35.7	15	53.6	4	14.3	8	28.6	12	42.9	10	35.7
Strongly agree	6	21.4	12	42.9	11	39.3	20	71.4	20	71.4	15	53.6	15	53.6
Total	28	100	28	100	28	100	28	100	28	100	28	100	28	100

It was seen that 75.0% of the respondents agreed that they used English as a medium of instruction in curriculum implementationwhile 78.6% agreed that they were comfortable with the use of basic mathematical skills in their practice. 78.6% of the respondents agreed their strategies for achieving set objectives in English and Math are usually met in their respective classes. This is a plus for proficiency in the use of English as a medium for instruction as well as the mastery of basic mathematical skills. Feedback from pupils is valued by 85.7% of the respondents for it is used to improve pupils performance. On transfer of skills,100% of the respondents agreed that they are able to assist pupils who are struggling in both English and Math. A significant 96.5% of the respondents agreed that they monitored pupils use of English language and basic mathematical skills while 89.3% agreed that team work and feedback from peers is used to enhance their proficiency in English language and use of basic mathematical skills.

The researcher sought to establish the significance level of the relationships between the uses of English as a medium of instruction and meeting the objectives set for English and Math as illustrated in Table 4.4

Table 4:4 Chi-Square Tests on establishing significance level of the relationship between use of English in meeting Math and English objectives

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	33.645[a]	12	.001
Likelihood Ratio	15.728	12	.204
Linear-by-Linear Association	8.486	1	.004
N of Valid Cases	28		

A strong relationship was established between the two with a significance level of 0.001. This showed that Strategies for achieving set objectives in English and Math's being met and English language being used as a medium of instruction by the teacher had a very significance relationship at 99% confidence interval.

The researcher sought to find out the correlation between the articulation of basic Math skills and meeting the objectives set for English and Math as given in Table 4.8.

Table 4.5: Mathematics skills articulation

	Basic Mathematical skills are articulated effectively					
Strategies in English and Math	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	Total
Strongly disagree	0	1	0	0	0	1
Neither agree or Disagree	0	1	0	0	0	1
Agree	2	0	1	5	7	15
Strongly agree	0	0	1	5	5	11
Total	2	2	2	10	12	28

It was seen that 79% of those who agreed and strongly agreed that strategies for achieving their objectives in English and Math are met agreed and strongly agreed that basic mathematics skills are articulated effectively.

These results were taken through the chi-square tests to establish the relationship between achieving the objectives of English and Math and the articulation of basic math skills as summarized in Table 4.6.

Table 4.6 Chi-Square Tests to establish the relationship between achieving the objectives of English and Math and the articulation of basic Math skills

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	29.895[a]	12	.003
Likelihood ratio	16.899	12	.153
N of Valid cases	28		

A strong relationship was between the two at a p value of 0.003. This means that strategies for achieving set objectives in English being met has a great effect on how the mathematical skills are effectively articulated by the teacher in class.

The researcher sought to establish the correlation between the uses of feedback from pupils to improve their work and strategies set to achieve objectives in English and Math. The findings are as shown in Table 4.7.

Table 4.7: Use of pupils' feedback for improvement in outcomes

	Feedback from the pupils is used to improve on their work					
Strategies for achieving your objectives in English and Math are usually met	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	Total
Strongly disagree	1	0	0	1	1	0
Neither agree or Disagree	0	1	0	1	0	1
Agree	2	3	10	15	2	3
Strongly agree	1	0	10	11	1	0
Total	4	4	20	28	4	4

It was seen from the findings that 82.2% of the respondents who agreed that strategies for achieving objective in English and Math are usually met also agreed that feedback from the pupils is used to improve on their work. This was also very significant at 0.002 significance level.

4.5 Influence of the Profession Development program on pedagogical skills and continuous profession growth

The researcher sought to find out the impact of the professional development program on early grade teachers pedagogical skills and their continuous professional growth. Table 4.8 below illustrates the study findings on pedagogical skills.

Table 4.8: A variety of teaching strategies are incorporated in your practice

	Frequency	Percentage	Cumulative percentage
Valid Disagree	1	3.7	3.7
Agree	11	40.7	44.4
Strong Agree	15	55.6	100.0
Total	27	100.0	
Missing	1		
Total	28		

It was seen from the findings that 96.3% of the respondents agreed that they incorporate a variety of teaching strategies in their practice. Only 3.7% disagreed.

The researcher sought to establish the correlation between varied methodology used in teaching and lessons in class being learner centered as seen in Table 4.9.

Table 4.9: Correlation between varied methodology and leaner centered lessons.

		Varied pedagogical skills			Total
		Disagree	Agree	Strongly Agree	
Learner centered lessons	Agree	0	2	1	3
	Strongly Agree	1	9	14	24
Total		1	11	15	27

It was seen that 93.6% of the respondents who agreed that a variety of teaching strategies are incorporated in their practice reported also that their lessons in class are leaner centered. This is very important in achieving pedagogy in teaching.

Table 4.10 Correlation between pupil interaction and learner centered lessons

		Teacher-pupil interaction is friendly		Total
		Agree	Strongly Agree	
Learner centered lessons	Agree	1	2	3
	Strongly Agree	0	24	24
Total		1	26	27

100% of the respondents who agreed that lessons in their classes are learner centered also agreed that the Teacher-Pupil interaction is friendly. This exhibited a very strong relationship between the two at a p-value of 0.004 and clearly showed that a friendly Teacher-Pupil interaction has a great effect on lessons in class being learner centered as it can be seen in the table 4.11.

Table 4.11 Chi-Square Tests on Teacher-Pupil interaction and effect on learner centered lessons

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.308[a]	1	.004
Continuity Correction	1.590	1	.207
Likelihood Ratio	4.735	1	.030

The researcher sought to establish the correlation between revision of pupils work and lessons being leaner centered as seen in table 4.12.

Table 4.12 Correlation between revision of pupils work and learner centered lessons.

Pupils work is always revised to improve on their outcomes					Total
		Neither agree or Disagree	Agree	Strongly Agree	
Learner centered lessons	Agree	0	3	0	3
	Strongly Agree	1	6	17	24
Total		1	9	17	27

96.3% of the respondents who agree that pupils work is always revised to improve their outcomes were also seen to agree that this makes the lessons in the class learn centered. Again, Revising pupils work to improve on their outcomes was seen to have a great effect on having the lessons being leaner centered at a significant level of 0.034.

Table 4.13 Chi-Square Tests on revision and leaner centered lessons

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.750[a]	2	.034
Likelihood Ratio	7.380	2	025
Linear-by linear Association	3.617	1	.057
N of Valid cases	27		

The researcher sought to establish as to whether the respondents appreciate differentiation as a teaching and learning method in their classroom practice. The findings are indicated in table 4.14.

Table 4.14: Do you use differentiation as a teaching and learning technique?

	Frequency	Percentage	Cumulative percentage
Yes	25	100.0	100.0
Missing	3		
Total	28		

The 25 responded to this question all reported that they use differentiation as a teaching and learning technique. Three respondents did not answer the question.

Some of the reasons the respondents gave as to why they use differentiation include better understanding of concepts by learners and it caters for diversity, individual needs for learners at all levels. Differentiation as well provides the pupil with alternative ways of solving problems for learning starts in this case from known to unknown. Finally it kills boredom for it motivates and creates interest to learners.

Table 4.15 below illustrates the extent to which the training program has influence the desire by early grade teacher to engage in continuous profession growth.

Table 4.15: After completing training, what gets in your way of achieving Continuous professional Growth?

	Frequency	Percentage	Cumulative percentage
Myself	13	48.1	48.1
School Administration	4	14.8	63.0
Parents	2	7.4	70.4
Nothing: All goals achieved	8	29.6	100
Total	27	100.0	
Missing	1		
Total	28		

It was seen that after the training, 48.1% of the respondents felt that they were standing in their own way to achieving continuous professional growth and that nothing else was a hindrance. 29.6% reported that there was no hindrance at all as they had achieved all their goals. 14.8% reported that school administration was the hindrance.

The findings showed that 96.7% of the respondents reported that they took part in peer observation. They reported many advantages of peer observation as a professional development strategy for it was a learning platform for both the teacher teaching and the one observing.

The researcher sought to establish as to whether the respondents have incorporated ICT in their lessons since it was part of their training program.

Table 4. 16: ICT Integration

	No experience with ICT integration		Attempted to use ICT integration but needs help		Proficient in ICT integration applications	
	Frequency	%	Frequency	%	Frequency	%
Agree	4	16	14	60.9	14	60.9
Undecided	0	0	0	0	1	4.3
Disagree	21	84	9	39.1	8	34.8
Total	25	100	23	100	23	100

The findings indicated that 16% of the respondent agreed that they do not have enough experience with ICT integration but a good percentage of them (84%) reported to have experience in the same. However, a good percentage, 60.9%, still reported that as much as they had attempted using the integration, they still needed more help. The findings also showed that 60.9% of the respondents were proficient in using a wide range of ICT integration applications. This is useful in making lessons more appealing and fun to the learners. It is also however worth nothing that 96.5% of the respondents reported that in the next 5 years, they will still be advancing their teaching career. Only 3.5% (1 respondent) reported that they will be in another profession.

4.6 Influences on Pupils Learning Outcomes.

In this section the researcher sought to establish how the professional development program has influenced pupils learning outcomes. Their responses are highlighted in table 4.17 below.

Table 4.17: Position of the actual learning by your pupils after the training program.

	Frequency	Percentage	Cumulative percentage
Increased greatly	17	60.7	60.7
Increased	11	39.3	100.0
Total	28	100.0	

There was an overwhelming response on the position of actual learning by the pupils after the training and 60.7% reported that the learning increased greatly while the remaining 39.3 also

reported that learning increased after the training. Response of the integration of ICT in the lessons was also well rated with 91.7% reporting that the response has been good.

Great diversity was also witnessed as the respondents commented and explained on the pupils position as literacy and numeracy skills are concerned, all of them however reflecting some improvements nonetheless.

For Literacy skills however, it came out clear that learners are inspired to use the available resources including their teachers, fellow learners, books and media, learners are able to read letters and associate them with pictures, communication skills have improved and vocabulary increased, most learners are able to read and only few are still struggling, learners gain new skills by participating fully in learning activities, they can comprehend before answering questions, learners have gained interest in learning especially reading and they are able to mentor each other in different academic areas. One of the respondents reported that the literacy skills have greatly improved as a result of collaborative learning and their mean score has gone up from 59.62 to 70.98.

On Numeracy skills, it was reported that great improvement had been displayed in terms of understanding and answering both oral and written questions, learners understand better basic skills put to them, it has helped learners to comprehend operation sums, most of the pupils have acquired the basic concepts in simple addition and subtraction, they solve problems by applying the understanding of numbers and resource given by their teachers and has built their confidence and changed their attitude towards Math.

One of the respondents reported that mathematical concepts are now well understood including sequencing, ordering and numbering values. On team activities especially cooperative learning and group work amongst pupils, their highlighted in table 4.18.

Table 4.18: Assessment of Team work amongst pupils

	Frequency	Percentage	Cumulative percentage
Very satisfied	13	46.4	46.4
Satisfied	13	46.4	92.9
Neutral	2	7.2	100.0
Total	28	100.0	

From the analysis, it was seen that the respondents reported a 92.8% satisfaction with the pupil's teamwork. The remaining 7.2% were neutral. This shows that introducing a variety of teaching methods and especially those that are learner centered motivates learners to develop interpersonal skills.

4.7: Influence of the training program on curriculum implementation

The researcher at this level of the study sought to find out the influence of the training program on actual curriculum implementation in class as captured in table 4.19.

Table 4.19: After training, how do you rate your curriculum implementation?

	Frequency	Percentage	Cumulative percentage
Satisfied	20	71.4	71.4
Very satisfied	8	28.6	100.0
Total	28	100	

The findings show that 71.4% of the respondents were satisfied on their curriculum implementation after the training while 28.6% reported to be very satisfied. Majority of the respondents reported to be getting great support from the school in support of curriculum implementation. They reported that the schools provide the necessary teaching and learning materials, monitor the teaching, does effective communication, gives them enough time for teaching and learning activities, the school members are used as resource persons, there is conducive and friendly environment and allows teachers go for workshops and seminars thus teachers well shaped in their careers.

Sensitizing parents on the importance of Early Grade Education and working as a team also come out as ways in which the schools support curriculum implementation. However, one respondent reported to be getting minimal support from the school in terms of support towards curriculum implementation.

Asking open questions to learners, Continuous observation, Use of checklists, Use of pedagogical activities, Daily reflections and feedbacks, CATS, ICT tools, Progress records – Spread sheets and using academic clinics and progress supervision through class representatives

were records as the common ways the respondents use to monitor and document progress towards set goals.

The researcher sought to establish the level of curriculum implementation by the respondents as seen in Table 4.20 below.

Table 4.20: Current level of curriculum implementation

	Content		Tests		Class management		Attitude		Proficiency		Math skills	
	Freq	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**	**Freq**	**%**
Low	0	0	0	0	0	0	0	0	0	0	1	3.6
Moderate	1	3.6	1	3.6	0	0	1	3.6	3	10.7	2	7.1
Good	16	57.1	17	60.7	6	21.4	20	71.4	15	53.6	18	64.3
Excellent	11	39.3	10	35.7	22	78.6	7	25.0	10	35.7	7	25
Total	**28**	**100**	**28**	**100**	**28**	**100**	**28**	**100**	**100**	**100**	**28**	**100**

Instructional practices in Math seemed to record a 3.6% (low) rating by the respondents. The other attributes were however well rated with most of the ratings being good and excellent. There is improved classroom management at 96.4%, this was corroborated by Head teachers during the interview sessions. It is worth noting that there is a significant attitude change among the early grade teachers, 96.4%, a good indicator of better curriculum implementation in their respective schools.

CHAPTER FIVE
SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, discussions and conclusions drawn from the findings and recommendations made. The conclusions and recommendations drawn were focused on addressing the purpose of the study, which was to establish the impact of numeracy and literacy training program on curriculum implementation by early grade teachers in public primary schools in Island and Jomvu clusters of Mombasa County.

5.2 Summary of Findings

The main findings of the study are summarized as follows;

The first objective of the study was to establish the influence of the professional development program on early grade teacher's proficiency in English and use of basic mathematics skills. The study established that 75% of the respondents use English as a medium of instructions' 78.6% are able to use mathematics comfortable; 92.9% are able to realize the objectives set for English and mathematics, most of them 85.7% value feedback from their pupils. A whopping 90% indicated that now they have the confidence to assist pupils who are struggling in English and mathematics while 96.5% indicated that they monitor progress of their pupils in English and Math. Majority of the respondents 89.3% indicated that feedback from their peers is used to enhance their proficiency in English and Math. The study concluded that the teachers' proficiency in English and Mathematics has greatly improved. The teachers seem motivated and their attitude is positive to their colleagues and pupils.

The second objective was to examine the influence of the professional development program on early grade teachers pedagogical skills and continuous professional growth. The findings of the study showed that a majority of the respondents, 96.3%, usually incorporate a variety of teaching strategies in their practice. Only 3.7% disagreed. All respondents, 100%, indicated that their lessons are learner centered. 96.3% of the respondents agreed that pupils work is revised to improve on their outcomes. All respondents agreed that they use differentiation as a teaching and learning technique in their practice.

On professional development, after the training, 48.1% of the respondents felt that they were standing in their own way to achieving continuous professional growth and that nothing else was

a hindrance 29.6% reported that there was no hindrance at all as they had achieved all their goals. 14.8% indicated that school administration was the hindrance. 9607% of the respondents also reported that they take part in peer observation as one way of developing their practice. This indicates that the training program has positively impacted on the respondents. They have improved their teaching strategies and methods. They are very concerned about continuous professional growth.

The third objective was to examine the influence of the training program on pupils learning outcomes. The findings showed an overwhelming response on the position of actual learning by the pupils after the training and 60.7& reported that the learning increased greatly while the remaining 39.9% also was also well rated with 91.7% indicating that the response has been good. One of the respondents that the literacy skills have greatly improved as a result of collaborative learning and their mean score has gone up from 59.62% to 70.98%.

On numeracy skills, the respondents indicated that great improvement had been displayed in terms of understanding and answering both oral and written questions, learners understand better basic skills put to them, it has helped learners to comprehend operation sums, most of the pupils have acquired the basic concepts in simple addition and subtraction, they solve problems by applying the understanding of numbers and resources given their teacher and this has built their confidence and changed their attitude towards math.

This indicates that learners have confidence that they enjoy learning enabling them to improve on their literacy and numeracy skills. There is also better teacher-pupil collaboration which was also corroborated by all Head teachers in the interviews conducted.

The fourth objective of the study was to establish the influence of the training on curriculum implementation. The findings indicated after the training while 28.6% reported to be very satisfied. Majority of the respondents reported to be getting great support from the school in support of curriculum implementation. They indicated that the schools provide the necessary teaching and learning materials, monitor and support teaching and learning activities, the school members are used as resource persons, there is conducive and friendly environment and allows teachers go for workshops and seminars for improved performance. This indicates that the training program has been a plus to the schools and the teachers in terms of curriculum implementation.

5.3 Discussion of findings

The study finds that for professional development for early grade teachers to attain proficiency in English and Math is crucial since pupils in their early childhood learning depend entirely on their teachers to guide and scaffold them in their learning activities. This is supported by Koskei K. J (2013) who argues that training is important for it prepares teachers for their work. The findings show that public primary schools in Mombasa County encounter similar challenges as those raised in the Uwezo report (2012).

The findings from the study showed that a majority of the respondents use English as a medium of instruction in a predominantly Swahili speaking zone. Indeed those who indicated that strategies for achieving their objectives in English and mathematics were met were seen to be using English as a medium of instruction to the pupils. The respondents who agreed that strategies for achieving objectives in English and Math are usually met also agreed that feedback from the pupils is used to improve on their work. This is supported by Darling Hammond (2012).

`

The findings from the study indicated that after the professional development program, teachers have a better attitude towards learners. They collaborate well in tasks such as reading, writing and number work. This confirms that training for teachers is important for it equips them with necessary knowledge, skills and attitudes for effective performance in their practice. The study finds that a majority of the respondents usually incorporate a variety of teaching strategies in their practice. The methods of teaching and learning indicated include: Cooperative/collaborative learning, child centered approach, cognitively guided instruction and question and answer technique, teaching from known to unknown , embodied pedagogy, inquiry based learning, peer teaching, pair and share, singing /drama, storytelling, role playing, project work/ group work, oral learning, use of real objects; Flash cards and charts and demonstration. This is supported by Darling Hammond (2013) who vouches for the use of stimulating and engaging practices for effective teaching and learning. On continuous professional growth, the study finds that the respondents are willing to improve their practice but there are a number of challenges that are either internally or externally driven. The study revealed that internal workshops and briefings are normally carried out to share the new approaches to teaching and learning learnt through the training program. This is supported by Darling Hammond (2013) who asserts that professional development should improve teachers knowledge of the subject matter that they are teaching, and it should enhance their understanding of student thinking in that subject matter.

The third objective was to examine the influence of the training program on pupils learning outcomes. The findings showed an overwhelming response on the position of actual learning by the pupils. This was corroborated by respective head teachers who noted remarkable progress of pupils speaking, reading, writing and counting skills. There is evidence of enhanced pupil participation in class, more fun activities, improved enrollment and attendance as well as confidence. This is supported by Akarkshay (2010) who says that a well – trained teacher is able to guide the learning process of children, making learning relevant and stimulating. Such a teacher is able to impact knowledge and life skills that are essential in the development of a child. The study shows that for most learners their performance has improved tremendously with the incorporation of information communication technology in the classroom practice. However, instructional levels in Math are still a challenge and they need to be addressed.

The findings of the study indicate there is satisfaction on the way curriculum is implemented after the training. There is valuable investment in material development in some centers. Head teachers are providing good support to the teachers who are the curriculum implementers. The study shows that there is increased drive to teach and learn using different methodologies and the curriculum supervisor's are taking some time to observe classes and to provide meaningful feedback to teachers. So as to motivate early grade teachers, most headteachers indicated that they do recognize them during prize giving days and provide opportunities for more professional development geared towards curriculum implementation. However, a number of schools are still struggling with integration of information communication technology in teaching and learning. They do not have computers or those who have, they are limited or not all teachers have been trained in the use of computers**.**

5.4 Conclusions of the study

From the above findings, the study concludes that professional development for early grade teachers in public primary school in Island and Jomvu clusters is bearing fruits. The study shows that there is relationship between training teachers and learners performance as seen in some schools where the mean grade has continued to rise. The teachers are putting into practice what they learnt at the training program with encouraging outcomes. The proficiency of teachers in English and Math has led to actual learning in the classroom. This has made it possible for the teachers to engage learners effectively. One head teacher noted that in her school, learners

always look forward to come to school and attend classes conducted by teachers who have gone through the program.

The study shows that the pedagogical skills used by teachers in their practices have led to noticeable attitude change both by the teacher and the pupils towards Math and English and other subjects too. There is increased team work and collaboration among teachers and the relationship between learners and pupils is friendly. The respondents have indicated their personal growth professionally as a result of this training program. Majority of the respondents indicated that they would like to advance their teaching career, thus training of serving teachers through each initiatives becomes important hence dealing with the issue of literacy and numeracy for both teachers and learners.

Learning outcomes for learners depend on how the curriculum is being implemented. The findings showed that the respondents were satisfied with the positions of actual learning by the pupils after the training. This indicates that professional development motivates the teacher to perform effectively in and outside class. In most schools, the mean grade has improved; there is commendable classroom control and an increased learner participation class activity. This indicates early grade learners need well trained teachers who can unlock their potential by giving literacy and numeracy significance and a right approach.

5.5 Recommendations for Policy Action

Based on the above findings, the researcher recommends that:

The study shows that proficiency in English and Math for early teachers is vital if they are expected to mould the young learners to acquire requisite skills that will help them in future. For our children to learn, we must with teachers by making them proficient particularly in English and Math. This can be done by investing more in both pre – teacher training and post – teacher training programs. The private sector should sponsor some of this professional training program. For those who are providing training program like AKAM PDC and RTI, they should get more sponsors. All these are to supplement government effort in tackling the problem of literacy and numeracy.

The findings indicate pedagogical skills and continuous professional growth are important in transforming the teaching and learning of our children. Curriculum supervisors should do more in supervising teachers and giving back timely and meaningful to feedback. Time should be set

aside for material preparations to enhance teaching and learning. In some cluster school, this area is not given a serious attention it deserves.

The study noted the increase in mean scores as an indicator of improved learner outcome. Schools can do more to ensure that pupils can express themselves fluently in English. Teachers should also take cue and do the same. Learning can be fun with better outcomes if the necessary materials are available, for example, a lesson on numbers can be more effective if counters are used and not just theory work on the board as seems in one school. Curriculum implementations can be made easier if teachers increased contact with one another in their schools and clusters. Due to the issue of familiarity in a school or cluster, it would be better to go for partnership whereby teachers will have to collaborate with colleagues from different clusters rather than those they meet on daily basis.

5.6 Suggestions for further research

The researcher recommends that more research needs to be done on:

1. The relevance of cluster concentration in providing professional development programs to ECD teachers.
2. The large number of female teachers in ECD classes; How does it influence pupils learning outcomes?
3. The relationship between culture and ECD enrolment in Mombasa County.

REFERENCES

Adan, S. S. (2013). Islamic Education In Kenya A Case Study Of Islamic Integrated Schools In Garissa County (Doctoral dissertation, University of Nairobi,).

Ary, D., Jacobs, L., Sorensen, C., & Walker, D. (2013). Introduction to research in education. Cengage Learning.

Babbie, E. (2015). The practice of social research. Cengage Learning.

Bartlett, K. (2012). The integrated madrasa pre-school project: developments in pre-school education. Learning and Teaching about Islam: Essays in Understanding, 117.

Bataineh, A. M. (2014). The Effect of Using Audiovisual Chat on Developing English as a Foreign Language Learners' Fluency and Productivity of Authentic Oral Texts. International Journal of Linguistics, 6(3), pp-85.

Beach, R., Thein, A. H., & Webb, A. (2012). Teaching to exceed the English Language Arts Common Core State Standards: A literacy practices approach for 6-12 classrooms. Routledge.

Bell, J., & Waters, S. (2014). Doing Your Research Project: A guide for first-time researchers. McGraw-Hill Education (UK).

Bryman, A. (2012). Social research methods. Oxford university press.

Bryman, A. (2012). Social research methods. Oxford university press.

Charmaz, K. (2012). The power and potential of grounded theory. Medical Sociology Online, 6(3), 2-15.

Christou, T. M. (2012). Progressive Education: Revisioning and Reframing Ontario's Public Schools, 1919-1942. University of Toronto Press.

Danielson, C. (2011). Enhancing professional practice: A framework for teaching. ASCD.

Darling-Hammond, L. (2012). Powerful teacher education: Lessons from exemplary programs. John Wiley & Sons.

Darling-Hammond, L. (2012). Powerful teacher education: Lessons from exemplary programs. John Wiley & Sons.

Darling-Hammond, L. (2013). Getting teacher evaluation right: What really matters for effectiveness and improvement? Teachers College Press.

Eisemon, T. O. (2014). Benefiting from basic education, school quality and functional literacy in Kenya. Elsevier.

Excell, L. A. (2011). Early grade teachers' perceptions of early childhood development and how these impact on classroom practice(Doctoral dissertation, Faculty of Humanities, University of the Witwatersrand).

Feiereisen, F., & Hill, A. M. (Eds.). (2011). Germany in the loud twentieth century: an introduction. Oxford University Press.

Feng, L., & Sass, T. R. (2013). What makes special-education teachers special? Teacher training and achievement of students with disabilities. Economics of Education Review, 36, 122-134.

Fink, L. D. (2013). Creating significant learning experiences: An integrated approach to design

Fouka, G., & Mantzorou, M. (2011). What are the major ethical issues in conducting research? Is there a conflict between the research ethics and the nature of nursing?.

Freire, P., & Macedo, D. (2013). Literacy: Reading the word and the world. Routledge.

Fritz, F., Balhorn, S., Riek, M., Breil, B., & Dugas, M. (2012). Qualitative and quantitative evaluation of EHR-integrated mobile patient questionnaires regarding usability and cost-efficiency. International journal of medical informatics, 81(5), 303-313.

Goodrich, K. M., Harper, A. J., Luke, M., & Singh, A. A. (2013). Best practices for professional school counselors working with LGBTQ youth. Journal of LGBT Issues in Counseling, 7(4), 307-322.

Gordon, A., & Browne, K. (2013). Beginnings & beyond: Foundations in early childhood education. Cengage Learning.

Gravetter, F., & Wallnau, L. (2013). Essentials of statistics for the behavioral sciences. Cengage Learning.

Harris, D. N., & Sass, T. R. (2011). Teacher training, teacher quality and student achievement. Journal of public economics, 95(7), 798-812.

Hofmeyr, I., Kaarsholm, P., & Frederiksen, B. F. (2011). Introduction: print cultures, nationalisms and publics of the Indian Ocean. Africa,81(01), 1-22.

Levy, P. S., & Lemeshow, S. (2013). Sampling of populations: methods and applications. John Wiley & Sons.

Lucas, A. M., McEwan, P. J., Ngware, M., & Oketch, M. (2014). Improving early-grade literacy in East Africa: experimental evidence from Kenya and Uganda.Journal of Policy Analysis and Management,*33*(4), 950-976.

Mathews, N. (2013). Imagining Arab Communities: Colonialism, Islamic Reform, and Arab Identity in Mombasa, Kenya, 1897–1933. Islamic Africa, 4(2), 135-163.

Morgan, H. (2011). Early childhood education: History, theory, and practice. Rowman & Littlefield Publishers.

Muralidharan, K., & Sundararaman, V. (2013). Contract teachers: Experimental evidence from India(No. w19440). National Bureau of Economic Research.

Murungi, C. G. (2012). Early Childhood Education for the Pre-School Age Going Children: The Issue of Low Enrolments in Kenya. Journal of Education and Practice,*3*(6), 48-49.

Natrella, M. G. (2013). Experimental statistics. Courier Corporation.

O'Shea, M., & Toohey, K. (2014). 'Bringing women up to equality with men': Paradoxically redressing and reifying gendered recruitment and selection practices in Australian sport workplaces?. Employment Relations Record, 14(1), 2.

Polikoff, M. S. (2013). Teacher education, experience, and the practice of aligned instruction. Journal of Teacher Education, 64(3), 212-225.

Ragin, C. C. (2014). The comparative method: Moving beyond qualitative and quantitative strategies. Univ of California Press.

Romano, M. C. (2014). Independent Child Migration in the Developing World: Victims of trafficking and child labor, or autonomous economic actors?

Salvia, J., Ysseldyke, J., & Bolt, S. (2012). Assessment: In special and inclusive education. Cengage Learning.

Schwab, D. P. (2013). Research methods for organizational studies. Psychology Press.

Seidman, I. (2012). Interviewing as qualitative research: A guide for researchers in education and the social sciences. Teachers college press.

Seidman, I. (2012). Interviewing as qualitative research: A guide for researchers in education and the social sciences. Teachers college press.

Shizha, E. (2015). Reclaiming Indigenous Cultures in Sub-Saharan African Education. In Indigenous Education (pp. 301-317). Springer Netherlands.

Silverman, D. (2013). Doing qualitative research: A practical handbook. SAGE Publications Limited.

Simonson, M., Smaldino, S., Albright, M., & Zvacek, S. (2014).Teaching and learning at a distance. Information Age Pub.

Smith, J. P., & Smith, L. K. (2013). A School in Western Kenya.Journal of Mathematics Education at Teachers College, 4(1).

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. International journal of medical education, *2*, 53.

TERO, O. (2012). Increasing the Effectiveness and Efficiency of Existing Public Investments in Early Childhood Education.

Tesch, R. (2013). Qualitative research: Analysis types and software. Routledge.

Tuckman, B. W., & Harper, B. E. (2012). Conducting educational research. Rowman & Littlefield Publishers.

Uwezo report, June 2011.

Vernon, P. E. (2014). Intelligence and Cultural Environment (Psychology Revivals).

Moses Oketch, Moses Ngware, Maurice Mutisya, Admassu Kassahun, Benta Abuya& Peter Musyoka Published online: 30 Jan 2014

When to Randomize: Lessons From Independent Impact Evaluation of Reading to Learn (RtL) Programme to Improve Literacy and Numeracy in Kenya and Uganda

J. Sarama, A. Lange, D.H. Clements, and C.B. Wolfe, "The Impacts of an Early Mathematics Curriculum on Emerging Literacy and Language," Early Childhood Research Quarterly, 27, 489-502, 2012, doi: 10.1016/j.ecresq.2011.12.002Routledge.

(Journal of Education and Practice Volume 4, No. 22, 2013) www.iiste.org

ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)

Vol.4, No.22, 2013

APPENDICES

APPENDIX 1: LETTER OF TRANSMITTAL

AMWAYI, HENRY NYAGAH
UNIVERSITY OF NAIROBI
SCHOOL OF DISTANCE AND CONTINUING EDUCTION,
MOMBASA CAMPUS.

Dear sir/madam,

I am a Masters student at the University of Nairobi, School of Continuing and distance Education. In partial fulfillment of the requirement for a Master of Arts in project planning and management, I am conducting a survey on the INFLUENCE OF LITERACY AND NUMERCY TRAINING PROGRAM ON CURRICULUM IM IMPLEMENTATION BY EARLY GRAE TEACHERS IN THE ISLAND AND JOMVU CLUSTERS, MOMBASA COUNTY.

I kindly request for your assistance in completing the attached questionnaire which forms a major input of the research process. The information and data will be used for academic purposes only strict confidence shall observed on the same.

Your cooperation will go a long way in ensuring the success of this project.
I would like to thank you in advance for your valuable time and consideration.
Yours sincerely,

AMWAYI, HENRY NYAGAH.
L/50/71786/2014.
University of Nairobi.

APPENDIX 2: QUESTIONNAIRE FOR TEACHERS

Name (optional: _____

Gender: _____

School: _____

Class_____

Year of teaching experience: _____

Teaching position: _____

Section 1. To establish the influence of the training program on early grade teachers proficiency in English (Literacy) and basic mathematical skills (numeracy).

A. Strongly disagree B. Disagree C. Agree D. strongly agree

In the teaching and learning process	**A**	**B**	**C**	**D**
1. English is used as a medium of instruction				
2. Basic mathematical skills are well articulated in class				
3. Strategies for achieving set objectives in English and Math usually identified				
4. Feedback from the pupils is used to improve on their work				
5. Pupils are always aware of what is expected of them				
6. Pupils progress in the use of English and basic mathematical skills is monitored and recorded				
7. Feedback from peers in the cluster is used to improve on proficiency in English and Math skills				

Section 2: To examine the influence of the training program on early grade teachers' pedagogical skills

A. Strongly disagree B. Disagree C. Agree D. strongly agree

Pedagogical skills	**A**	**B**	**C**	**D**
1. A variety of teaching strategies are incorporated in my practice				

2. Lessons are usually planned for in advance				
3. Information Technology is integrated in the teaching and learning activities				
4. Relevant resource materials are always prepared beforehand.				
5. Strategies that are challenge to pupils are always modified				
6. Teacher-pupils interaction is always friendly and is attribute to pupils efforts				
7. Pupils work is revised to improve on their outcomes				

Section 3: To examine the influence of the training program on pupils learning processes and outcomes

1. Do you use differentiation as a teaching and learning technique in your practice?
   a. YES
   b. NO
2. Since your training, do you think the actual learning of your pupils has
   a. Increased greatly
   b. Increased
   c. Increased slightly
   d. Remained unchanged
   e. Decreased slightly
   f. Decreased
   g. Decreased greatly
3. How have your pupils respond to the integration of Computer Technologies in your lessons?
   a. Bad
   b. Very bad
   c. Okay
   d. Good
   e. Very good
4. Concerning team work amongst your pupils, are you
   a. Very satisfied

b. Satisfied

c. Neutral

d. Unsatisfied

e. Very unsatisfied

5. Briefly comment on your pupils' improvement on their

a. Literacy

Skills

_____

_____

_____

_____

_____

_____

_____

b. Numeracy

Skills

_____

_____

_____

_____

_____

_____

_____

Section 4: To find out the influence of the training program on the early grade teachers' professional development

1. After your training, what do you feel MOST gets in your way of achieving professional growth? (Select as many).

a. My self

b. Other teachers

c. School administration

d. Parents

e. Pupils

f. Nothing, all my goals are achieved

2. List the teaching and learning methods that you regularly use in your practice

_____

_____

_____

_____

_____

_____

3. Do you take part in peer observation? Mention one advantage.

_____

_____

_____

_____

4. On IT proficiency

A. AGREE B. UNDECIDED C. DISAGREE

IT INTEGRATION	**A**	**B**	**C**
I have no experience with them			
I have attempted to use them but I still need help			
I am proficiency in using a wide range of application			

5. Where do you see yourself in five years

a. Advancing in my teaching career

b. In another profession

c. Retired

Section 5. **To find out the influence of the training program on curriculum implementation.**

1. Ever since your training, concerning curriculum implementation, are you

a. Unsatisfied

b. Somewhat unsatisfied

c. Neutral

d. Satisfied

e. Very satisfied

2. Are you motivated to implement the curriculum?

a. YES

b. NO

Explain your

Answer_____

_____

_____

3. I do monitor and document the progress towards achieving set goals. _____

_____

4. My syllabus coverage is up-to-date

YES/NO

5. Briefly explain how training program has influenced your curriculum implementation plan._____

_____

_____

_____

THANK YOU FOR YOUR PARTICIPATION.

APPENDIX 3: INTERVIEW GUIDE FOR THE HEADTEACHERS

INTRODUCTORY REMARKS

I am Henry Nyagah Amwayi, a student at the University of Nairobi, School of Continuing and Distance Education. I am currently undertaking my research project as a requirement for award of the degree of masters of Arts in Project Planning and management. The study is on the influence Numeracy and Literacy training program on curriculum implementation by early grade teachers in public primary school within the Island and Jomvu Clusters, Mombasa County.

The findings and recommendations of the study will contribute to the knowledge base in the education sector and also from a basis for improvement of in-service training program for early grade teachers in public primary school in Kenya. Therefore, I would like to collect data that will assist accomplishing the objectives of this study. Your contribution will be much appreciated and the information provided will be treated with utmost confidentiality. I wish to conduct an interview with you by asking you some questions.

1. How many teachers from your school have so far been trained by the AKAM, PDC?
2. Since the training, how is the motivation of teachers who have gone through the program and their commitment to their work? Briefly explain.
3. Does the school provide computer plus other teaching and learning materials for both teachers and pupils use?
4. Are there any remarkable changes that you have noticed in the practice of those teachers who have gone through the program?
5. How is the performance of pupils handled by in-serviced teachers as compared to those handled by those have not attended the in-service training?

APPENDIX 4: DOCUMENT ANALYSIS GUIDE

1. The type of teaching and learning materials in classes.
2. Academic performance records with abias on English and Math.
3. Attendance records-Teachers/Pupils.
4. Lesson plans, schemes of work.
5. Observation reports.
6. Number of textbooks used for Math and English in relation to numbers of pupils.
7. Professional development record/report.