# ^THE INFLUENCE OF TEACHER CHARACTERISTICS IN CHILDREN'S PARTICIPATION IN NUMBERWORK ACTIVITIES IN SELECTED PRE-SCHOOLS IN KATHIANI DISTRICT.

**BY**

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**A research project submitted in partial fulfillment for the award of Master of Education Degree in Early Childhood Education in the Department of Educational Communication and Technology.**
**University of Nairobi.**

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## DECLARATION

I hereby declare that this research project is my own work and that it has not previously been submitted for assessment to another university or for any other qualification.

Signature 

Kiilu Thomas Mutinda

This research project has been submitted with my approval as university supervisor.

Signature (fffyjAs^—.. — '

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# DEDICATION

This research is dedicated to my father, the late Joseph Kiilu.

**ACKNOLEDGEMENTS**

I am grateful to my supervisor, Dr. Agnes Kibui, for her tireless efforts in guiding me throughout the research period.

I also feel obliged to acknowledge the department of educational communicational communication and technology, University of Nairobi.

I really thank my wife and children for their patience, encouragement and prayers.

My special thanks go to the Kathiani district education officer, teachers and children for allowing me to conduct this research in the school.

The purpose of this study was to investigate the influence of teacher characteristics on children participation in number work activities in Kathiani district. The study used questionnaires and observation to collect data .The population for the study comprised of forty teachers of the- forty sampled schools from a population of two hundred and two schools. The study used descriptive research design since this was a survey research. Data was analyzed using descriptive statistics which involved tabulation of data into tables, percentages and graphs. The findings of this study revealed that teacher's level of education, teacher's teaching experience and teacher's creativity do influence children participation in number work activities in Kathiani district. The results indicated that there is a need for the government to facilitate training, seminars and courses that can enhance the teacher's interaction with the children. This can enable the teachers to develop skills that can improve children's participation in number work activities.

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# LIST OF ABBREVIATIONS AND ACRONYMS

**E**.C.D.E-Early Childhood Development Education

**N**.C.T.M-National Council of Teachers of Mathematics

**N**.I.C.H.D-National Institute of Child Health and Human Development

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the study

The conditions of learning are very crucial in determining the quality of education children get from the pre-schools. Kane, (2005) reflects on the significant impact teachers have on the quality of teaching and learning. [44] The notion of what the teacher knows (knowledge), shows (attitudes) and does (skills) having an impact on the learners they work with ( and on what the learners learn) is a long held given amongst education practitioners, parents and policy makers the world over." (Kane, 2005)

Farquhar, (2003) states that given the young age of children and the particular complexity of teaching this age group, both teacher education (including knowledge an^ pedagogical skills) and the teacher's personal characteristics do matter. Smith (1996) strongly points out that those teachers have a powerful role in enhancing children's learning by bringing together the educational and care functions when working with young children. Other evidence is by Tizard (1989) who found that the best outcome for young children are achieved in settings where cognitive and social developments are seen as complementary.

The crucial role teachers play is discussed by Darling(2006). In her article on teacher preparation and professional development, she states that the importance of education has increased and therefore there is consensus on the importance of teachers which has led to many countries focus on improving teacher education, preparing accomplished teacher who can effectively teach diverse learners to high standards.

Hyson (2003) asserts that the value added by quality education and training goes beyond specific skills or techniques. As early childhood education develops they need to know on how to nurture and promote children development and learning. The discussion goes on to state that the interactions between teacher and learner within the social context they are engaged in are also crucial in ensuring quality learning and development. He continues to state that quality teachers provide children with an opportunity to interact and experiment in the learning process. This fits well in Vygotsky's(1978) social - cultural theory of teachers and learners working together within the zone of proximal development (Hyson, 2003). •

Burchinall, (1997) on his bio- ecological model of development applied to pre-schooi programs stated that children's development is the direct result of their interactions within physical and social resources in the classroom. Within this framework, he emphasized on teacher characteristics (for example, level of education, type of training and amount of professional development in which teachers participate), which are also seen to influence children participation in the classroom. The same study is supported by Ethridge (2002), who shows that teachers should provide children with opportunities for sustained engagement with appropriate physical materials.

According to Mwangi (2009), Children have a limited attention span and therefore activities for children should be developmentally appropriate and should meet their needs. Children should be given success oriented activities to motivate them to do and learn more. Many teachers are able to teach children how to complete basic number

work problems. Thus, it is against this background that it is important to establish the teacher characteristics that influence children participation in number work.

### 1.2 Statement of the problem

Teacher's effectiveness in children learning has been shown to have an important influence on children academic achievement as they play a crucial role in educational attainment because it is the teacher who translates policy into action and practice based on theories during interaction with learners (Rice, 2003).

Preschool age children naturally develop to their fullest potential in a stimulating and respectful environment. Children learn and grow alongside teachers under the direction of dedicated, professional teachers. Participating teachers who volunteer their time and effort to mediate a positive learning environment give crucial support to children participation. Children participation forms the basis of their learning and their educational achievement (Mwangi, 2009).

One of the key areas influenced by teachers is children participation in the classroom. Owing to this fact that teachers are crucial in children's educational achievement, it is quite important to establish those teacher based factors influencing children participation in number work activities of pre - school children within Kathiani district.

The question is whether participation is influenced by the teacher characteristics on the way they interact with children in the teaching-learning of number work or other factors influence the way children participate (Rice, 2003). Number work activities is aimed at equipping the child with numerical abilities and therefore kids need to learn a lot about

numbers before they begin to label specific quantities. This may not be the case on the ground owing to the fact that majority of teachers do .use paper and pencil in assessing children achievement as evidenced by various records obtained from several pre-schools. Many teachers are able to teach children how to complete basic number work problems, but do forget that class participation should play an important part.

The DEO Kathiani had convened a stakeholders meeting that included teachers from the nursery, primary and secondary schools to discuss issues on performance. Among the issues discussed was the performance of mathematics. He cited that the performance of mathematics depends entirely on the foundation of number work Children receive in their early lives. From this background, it is vital in establishing the teacher's characteristics that influence children participation in number work activities.

This leaves a gap which needs to be filled and if this is to be taken seriously, then there is a need to find out how teacher characteristics influence participation of children in number work activities in the pre-schools which consequently affect children performance in mathematics in the primary schools.

**1.3 Purpose of the study.**

The purpose of this study was to establish the influence of teacher characteristics on children participation in number work activities in selected pre - schools within Kathiani district.

## 1.4 Objectives of the study

The study had the following objectives:

- Establish whether the teacher's level of education has any impact on children participation in number work activities.
- Examine whether teacher's teaching experience has a direct influence on children participation in number work activities.
- Determine whether teacher's creativity has any impact on children participation in number work activities.

## 1.5 Research questions

- What is the relationship between teacher's level of education and children participation in number work activities?
- To what extent does the teacher's teaching experience influence children participation in number work activities?
- How does the teacher's level of creativity influence children participation in number work activities?

## 1.6 Significance of the study

A major contribution to this study is established on the teacher characteristics influencing children participation in number work activities. It might provide important suggestions to improve standards and quality of education and performance that is desirable. The study might bring light to stakeholders and policy makers about their roles in enhancing proper environment for children learning. It might bring a clear

understanding of what factors can promote children's learning and enhance help in sustaining those factors that contribute to children learning in number work.

### 1.7 Limitation of the study

This was a survey research design and therefore it limited the depth of the conditions under investigation. It was a research that involved the use of survey and used observation and questionnaires and the response rate would have been low. Some respondents would have failed to provide in-depth information as required and posed a challenge to the research work and therefore limited the depth of the conditions under investigation. Open ended questionnaires had a limitation of giving irrelevant answers. However, a personal approach was used to minimize chances of non-respondents and captured issues that might not have been addressed explicitly in the questionnaire.

### 1.8 Delimitations of the study

The study was specifically focused on identifying the teacher characteristics that influence children participation in number work activities in pre-schools within Kathiani district. It looked at the impacts of these factors and their implications on children performance. An entire population of 40 centers was included through a random sampling. At least 1 teacher in each of the schools was required to fill in a questionnaire. An observation was also carried out on the teachers and children in their classrooms in order to ascertain teacher creativity and children participation.

### 1.9 Basic assumptions

The study assumed that some of the teachers in the pre - schools were qualified and experienced. The study assumed that the teachers in schools did evaluate the learners in the best ways possible. It was also assumed that teachers knew their role in processing children learning. It was also assumed that teachers had the required teaching and learning resources and could use them at varying levell

### 1.10 Definition of key terms used in the study.

The following terms are used in this study;

**Creativity:** As an act of utilizing of the acquired teaching knowledge and Skills by teachers during the teaching process.

**Characteristics:** It is the teacher's unique elements in teaching process in terms of education, training, experience and creativity.

**Education:** Knowledge in basic skills academic, technical, discipline, Can also mean intention to foster learning, a concern with environment and certain values.

**Experience:** Years of performing duty in school.

**Participation:** Getting involved in an activity

**Training:** The level at which the teacher has the required skills in the teaching profession

**Teacher:** One who can impart knowledge, skills and attitudes

**Teacher characteristics**:These are the unique elements differentiating teachers in terms of education, training,, experience and creativity in the teaching process.



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### 1.11 Organization of the study

Chapter one is the introduction of the research. Chapter two deals with literature review; chapter three is research methodology, chapter four deals with findings and discussions while chapter five deals with summary, conclusions and recommendations.

# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

## 2.1 Introduction

Children participation in the classroom activities is influenced by many factors. The findings of research studies focused that children participation is affected by some factors such as learning abilities because new paradigm about learning assumes that all students can and should learn at higher levels. (Barnet, 2004). Other researchers have tried to explain the link between participation and economic circumstances

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Teaching effectiveness has been found to affect children performance in different class activities. It has been accepted as a multidimensional construct since it measures a variety of different aspects of teaching such as subject mastery, effective communication, lesson participation and presentation (Barnet, 2004).

Various educators have written on the prime importance of teachers to the educational development of any nation. From the writings of Newton ( 1997) , one can infer that whatever facilities are available, whatever content is taught, whichever environment the school is situated and whatever kind of children are given to be taught, the most important and vital role of the teacher cannot be over emphasized . Assuming that necessary facilities are adequately provided for, the environment is conducive to learning, the curriculum satisfies the needs of the learners and the learners themselves have interest, learning cannot take place without the presence of the teacher (Newton, 1997).

Coombs (1970) observed that the problem of teacher supply in not one of simple numbers. "It is foremost a problem of quality and of getting the right quality" Teachers present a large proportion of input in an educational system. Berry (2003) commented on the importance of the teacher when he observed that the overall problem of education and performance cannot be fully accomplished without the aid of competent teachers. Savoury (1958) added that well planned and imaginative use of visual aids in lesson school do much to banish apathy, supplement inadequacy of books as well as arouse learners interest by giving them something practical to see and do, and at the same time helping to train them to think things out themselves. Savoury (1958) suggested a catalogue of useful visual aids that are good for teaching. That is, pictures, post cards diagrams and models. However, given the teaching aids, the skill on how to use them to bring the desired outcome remains a challenge to many teachers., , .



Instructional strategies support learners in an active participation in number work lessons and allow teachers to assess the developing proficiency levels of all the learners in the class by monitoring their responses. Some of these strategies are the use of white boards which the teacher asses individual or independent participation levels. The teacher can also use the show me the answer technique where there are opportunities to incorporate visual components into children responses. For example, the teacher can use them to form numbers from the largest to the smallest using their digit cards. (Murphy, 2005) The teacher should create opportunities for learner interaction through groups and provide enriched activities and scaffolding, (Darling, 2006). Several factors can influence learner's participation in the classroom activities and these are not limited to number work activities. This study identifies teacher characteristics that influence in

children participation in number work activities. These characteristics are teacher's level of education, teacher's experience, and teacher's creativity.

**2. 2 Teacher's level of Education**

The overwhelming majority of work on teacher quality has examined the relation between teacher characteristics and student participation at the individual and school level. Hanushek (2000) in his research with regard to teacher education and experience, he finds "in a majority of the cases the estimated coefficients are statistically insignificant. Statistical significances and just looking at estimated observable signs do not make much of a case for the importance of these factors either." However teacher quality may be unrelated to the observable characteristics. Research in the connection between teachers' qualifications of early childhood workers and the quality of children experience in their settings indicate that staff with more formal education provides higher quality care than those with less formal education (Howes, 1997).However, in contrast to this, the research by Machesseult (2005) indicates that teacher education and certification are not consistently related to higher quality classroom or better pre - academic skills in a head start programme.

The question here is whether teacher education and certification matter in teacher quality and effectiveness. Goffin and Washington (2007) observed that it is doubtful that minimally educated teachers (less than a bachelors degree) will be prepared to connect a new scientific research about early education with their teaching practice. Specifically, a question can be raised here that addresses the implication of variation in

teacher education programs and the relationship between the measures of teacher education and the actual practice in educational settings.

Levine (2006) observes that all teacher education is not created equal, including early childhood program. The quality of teacher preparation is often related to the risk status of the students being severe (Darling, 2006). Children at highest risk of educational underachievement are typically taught by teachers who are poorly prepared, poorly induced, and poorly mentored into the profession (Darling, 2006). This means that all teachers are not necessarily similarly qualified, even with the same levels of education. Darling, (2005) found out that some students out performed untrained teachers in a sample carried out in Texas. Other studies are for the idea that teacher education is positively related to student academic outcomes (Kane, 2006).

Cochran - Smith (2001) in her research on teacher education set down three ways in which the outcomes of teacher education are constricted. One of them, long - term impact outcomes, refers to the relationships between teacher qualifications and student learning. She observed that teachers' qualification encompasses teachers' scores on tests and examinations, years of experience, the extent of their preparation in subject matter and pedagogy, what qualifications they hold in their areas of expertise and their ongoing professional development. Hofer, (1994) is for the idea that better educated teachers mediate an effective teaching and learning across education settings.

Barnet (2004) emphasizes on the importance of preschool teacher training by pointing out the high - quality pre-school education produces substantial long - term

educational, social and economic benefits. He strongly pointed out that large benefit occurs only when teachers are professionally prepared and adequately compensated. Teacher preparedness in of major importance therefore in order to meet children learning needs in the classroom. Other researches support these ideas.In a research by National Institute of Child Health and Human development NICHD (2003), the value of teacher training can be derived. The research asserts that the quality of teacher - child interaction is primarily determined by teacher's effectiveness and general behavior in the classroom. Here, teacher quality was measured as total years of education, and additional teacher qualification that included the presence or absence of specialized early childhood education training.

In the research by National Institute of Child Health and Human development NICHD (2003) emphasis is placed on teacher training. The research explains that better educated and trained teachers have the required professional skills. These teachers have the knowledge of how young learners learn and how they should be taught. The research asserts that teachers who have been taught what young children need to learn and how to teach them are likely to spend more time conducting rich learning activities that address each child's needs and less time in unproductive and in appropriate activities. What can be noted in this study is that the words training and teacher education appear synonymous.

Howe's (1997) examined the effects of teacher qualification on teaching quality and child development and found a relative co-relation on better teaching and better language acquisition. Her research showed that teachers with the most advanced

education and training appeared to be most effective. Barnet (2011) is for the idea that teachers should possess a high level of training since it improves the teacher's behavior. In his research on teacher qualifications, he compared the teaching of teachers who had four different levels of education and training. He concluded that teachers having the right qualifications expressed greater warmth for the children and greater enthusiasm for the activities they engaged in, they communicated more clearly with children to share and cooperate with their peers. They also were less punitive with the children and exhibited less apathetic and uninterested behavior (Barnet, 2004).

A more distinct observation is given byl leymore (2002), on the effect of teacher formal education and in-service professional development training on teacher productivity. Their study used data on student performance and was tied to the identity of their classroom teacher, and in turn linked the teachers to their in- service training, their college course work and their pre- college entrance exam scores. The study showed that better trained and more experienced teachers tend to be assigned to students of greater ability and with fewer discipline problems. This is a covariance result and therefore the matching of student achievement and teacher training is biased. There is an inability to control for observed learner characteristics and would therefore only assume the teacher added value to the classroom interaction and its association with teacher education and training.

Berry (2003) posits that while teacher qualities are important, they simply focus on content knowledge but highly qualified teachers must know how to organize and teach their lessons in ways that assure diverse learners can learn those subjects. Berry

attributes this to teacher level of training by emphasizing that qualified teachers are those who are trained since "they don't just teach well-designed, standards based lessons, but they know why the learners learn." The emphasis here is on the importance of teacher training.

There is an agreement that teacher training and professional development of the early education is a key component for ensuring that early childhood education programmers make good on improving children success in schools (Bogard, 2008). However, according to Zaslow and Martinez (2005), the form of training is paramount. Professional development for years seems incoherent and ineffective (Ball, 1999).

In service training pursues learning opportunities on their own and do pick up informal settings at school, they attend workshops, and learn from daily experiences with children in the classroom without attention to how these experiences systematically and progressively are linked to classroom performance (Wilson and Berne, 1999). In service training takes the form of short term training, often knowledge or technique based, and in the most common form of in service training with substantial variation in nature and quality and is virtually no evidence of effectiveness (Bierman, 2008).

Berne (1999) argues that this form of training (in service) creates passive teachers, and the content is vague, irrelevant or disconnected from classroom context, and there is limited follow up. Mushburn (2007) has another version. This one shows that despite these incoherent qualities of in service training, "it still remains important since it improves the quality of emotional, instructional and organizational interactions that

children directly experience in class are effective at changing teacher behaviors and promoting children development of numerical language and literacy skills."

On preservice training, Gifford, Early and Hills, (1999) asserts that the staff should seek additional training and the early childhood education system becomes more formal and programmatic. These efforts to meet the demand for trained teachers are moving so rapidly without any systematic evaluation of their impact on the nature and quality of instruction in classrooms and on child outcomes (Yinger, 2005).

Teacher training should produce positive and even big gains in teacher child interaction. This should be a training program adopts the sense that high quality pre-school involves emotionally, instructionally, and organizationally supportive interactions that children directly experience with physical and social resource in pre-school programs. These training materials provides a sequence of focused coursework that promotes knowledge about the types of interactions that influence children development, skills in detecting effective interactions in classrooms, and skills in delivery of effective interactions. With this in mind, it remains a gap that needs to be filled of whether teacher training and education does influence children participation in number work activities in preschools within Kathiani.

**2.3 Teacher's teaching experience**

Studies on the effect of teacher experience on student learning have found a positive relationship between teachers effectiveness and their years of experience, but the relationship observed is not always significant or entirely linear one ( Klitgaard,1974 ).

Hanushek (2000) suggest that while experienced teachers are less effective than more senior teachers, the benefits of experience level fall of after a few years. Harris and Sass (2006) points on the years of experience as affected by the market conditions and therefore may be more difficult to measure.

Other estimates of experience relied on the variation across teachers to identify experience levels and other teacher characteristics They assert that teacher's experience on student performance is identified from variation within teachers (Hanushek, 2000).Teacher experience is counted by the number of years a teacher has been actively involved in the teaching profession through an interaction with students Clotfelter (2007).

Studies that include middle school consistently find positive effects on teacher *it*

experience on math achievement whereas the findings for effects of experience on middle school reading achievement yield conflicting results. Betts (2003) finds no significant correction between teacher experience and learner participation. Clotfelter (2007) finds strong positive effects between teacher experience and children participation.' However, he relies on end of course exams while other studies rely in general achievement exams to test children participation.

**2.4 Teacher**'s **creativity**

Creativity is the ability to bring something new into existence. Psychologists have tried to define creativity in terms of mental ability consisting of many component abilities, a capacity to do a thing or produce something of a particular nature and subjective experience or process having special characteristics.

According to Torrance (1962) creative thinking is the process of sensing gaps, distributing, missing elements, forming ideas and testing. In this hypothesis, creativity is seen as a process of becoming sensitive to problem, deficiencies, gaps in knowledge and missing elements (Torrance (1962). The same hypotheses see creativity as "identifying the difficulty, searching for solutions, making guesses, or formulating hypotheses and modifying to communicate results."

Guilford (1950) viewed creativity as individual's capacity or ability to generate cognitive associates in quality and uniqueness. He also cited creativity as being a process of interacting with the organizing to bring out desired learning outcome, ability to generate novel ideas spontaneously, adapting to situations, using the immediate environment for effective communication. Creativity here is seen as provoking of thought in interacting agency.

Torrance (1962) definition of creativity is an act of research.Teacher creativity in the classroom interaction is a process of sensing gaps and discovering the missing elements and how to feel the gaps. (Torrance, 1960).According to him, creativity is problem solving, becoming sensitive to problems and finding solutions.

Creativity is viewed by (Quackibush, 1960)as implying teaching .Peers and Quarckirbush (1960) stated that creativity is the capacity of the individual to avoid the usual volatile conventional way of thinking and doing things and producing a quality of ideas which are original, novel and which are workable. True to this definition, a creative teacher is one who is able to bring a new idea into the existing basic concept. It

could be obvious that $1 + 1 = 2$, but what is not obvious is the concept of putting together since the child may see it differently as 11 (Guilford, 1950) Teachers always want a correct answer but not a clever answer. Number work activities require creative thinking. Creative thinkers are flexible thinkers. These are thinkers who desert old ways of thinking and strike out new directions

Teachers who are creative are spontaneously flexible. They can produce a great variety of ideas, with freedom from preservation. They are also seen to be adaptively flexible for the reason that it facilitates the solution to the problems in a type of problem that requires a most casual type of solution (Guilford, 1950).

Noddings (2001) explains that an effective teacher is one who is creative. According to him, this teacher is caring in a variety of situations. Again, Noddings suggests that such a teacher is prepared and organized. Norlander - case, Reagan and Case (1999), clearly articulate the importance of being creative and nurturing.

Borich (2000) explains that a teacher who is excited about the subject being taught and shows it by facial expression, voice inflection, gesture and general movement is more likely to hold the attention of learners than one who does not exhibit these behaviors. A research on teacher enthusiasm, which is seen as one element of creativity is strongly connected to learner participation. Bettencourt( 1983), still on creativity, and Cruickshank, Jenkins and Metcalf (2003), do report that effective teachers are enthusiastic, have warmth and possess a sense of humor. Creative teachers are those who do have a positive attitude.

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Borich (2000) suggests that creative teachers are those who use "meaninglul verbal praise to get and keep learners actively participating in the process.

Teachers who convey a personal touch with the learners do call them by their name, smile often, ask about their feelings and accept the learners as they are. Borich, (2000) states that teachers who bring their lives and stories into the classroom build trust with the learners. Teachers who tell stories of events in their own lives which relate to the subject matter being taught captivate the learners interest and promotes good teacher - learner relationship.

Another element in creativity is the sense of humor According to MC Dermott and Rothenberg (2000), children enjoy teachers with a sense of humor since they make learning fun. Creativity refers to those unusual things that the teachers do not in the teaching process. These things make children have interest in the content being taught. They also make learning real. In addition to creativity, mediating effects of classroom characteristics on development, the effects of high quality interaction with social and physical resources on children development may be moderated by some features of classroom environment such as class size, ration and curriculum type (MC Dermott, 2000).

There are a number of plausible examples of the potential moderating effects of classroom characteristics on the association between high quality interactions and children development. According to Callebo and Terrel (1994), teachers with high quality modeling techniques in their interactions with children may have a stronger

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influence on children's development of number work skills and language skills when used with a curriculum that provides more opportunities for language and number work focused instruction. With this in mind and from the literature, then it is important to establish whether teacher creativity has an influence on children participation in number work activities.

## 2.5 Theoretical framework

The theoretical framework which informs and frames this study is influenced by the constructivist theory of learning. This theory assumes a setting where there are knowledgeable teachers who plan with the children's interest in mind (Hendricks, 1997). Murphy (2005) points out that any course taught in school is justified first of all in the contribution it makes to the child's urge to know and to reach out for meaning. One of the characteristics of the truly effective teacher is that he or she has mastered ways of being alert to what each individual learner is trying to tell, or what he learns to see with each pupil in the adventures of learning. (Murphy, 1966)

When remarking about children and youthful learning, Murphy stated here on "the great craving to understand and make sense of the world." Murphy goes on to say," the most relevant question is whether we find what the learners are curious about and whether we arrange a two way traffic strategy of learning such that the learners are not passive (Murphy, 1966).The emphasis here is on the assumption of an active and creative mind that engages the content and the methods of instruction by which the experiences of the classroom are presented. When learning is viewed from this point, it can be said to be a

transaction between content and the learner with the teacher as the mediator (Taba, 1962).

Murphy (1966) emphasizes on climate characterized by contagious enthusiasm by asking questions on the characteristics of a good teacher. The question whether a good teacher is one who finds his own organization of knowledge being dutifully reproduced by the learners or one whose pupils catch from a zest of inquiry and join him in his adventure which has a chance of resulting in their own organizing of knowledge. The question is also whether a good teacher is one who helps pupils to understand and accept with satisfaction the idea or the fact of openness of experience or trust or ones experience.

Berliner (2005) points that 'good' teacher are considered to be those who exhibit desirable traits and uphold the standards and norms of the profession. But quality teachers are considered to be those who bring about child learning. These teachers are considered 'effective' or successful (Berliner 1987, 2005).

Berliner (2005) distinguished between good teaching and successful teaching. He sets three ways in which the outcomes of teacher education are constructed. These are the teacher's qualification which encompasses teacher's scores on tests and examination, their years of experience, the extent of their preparation in subject matter and pedagogy, what qualification they hold in their area of expertise and their ongoing professional development. Smith (1996) went on to posit the relationship between teachers qualifications and learning as the percentage of variance in the learner scores accounted for by the teacher qualifications are held constant.

A research by the National Council of Teachers of Mathematics on children's learning in the first six years of life validates the importance of early experiences in number work of lasting positive outcomes. A growing body of research also supports curricular resources for early number work. Teacher preparation programs, education agencies, policy maker's, and other partners must commit resources and mobilize to support teachers and collaborate in developing effective early childhood number work programs. (National Council of Teachers of Mathematics, 2007).

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This research continues to report that in a high-quality number work activities for early childhood learners, teachers and caregivers can enhance children's natural interests in number work and their instinct to use it to organize and make sense of their world. Number work experiences for young children should take advantage of familiar contexts, building on relationships within families, linguistic and cultural backgrounds, and the informal knowledge of early learners. Number work curricula and teaching practices should rest on a solid understanding of both number work and the development of young children. (National Council of Teachers of Mathematics, 2007).

Given the studies conducted and because of many conflicting results and methods, this study set to examine more specifically on teachers education, teacher experience, and teacher creativity, all that are assumed to be teacher characteristics, all of which are associated to children participation in number work activities. With this in mind, it will be necessary to establish whether these teacher' characteristics influence children participation in number work activities in pre-schools within Kathiani District.

## 2.6 Conceptual framework

The theoretical and conceptual framework which informs and frames this research emerges from the bound areas of teacher characteristics influencing children participation in number work activities in Kathiani district. From the literature review and theoretical framework the conceptual framework has been developed.

Independent variable Dependent variable

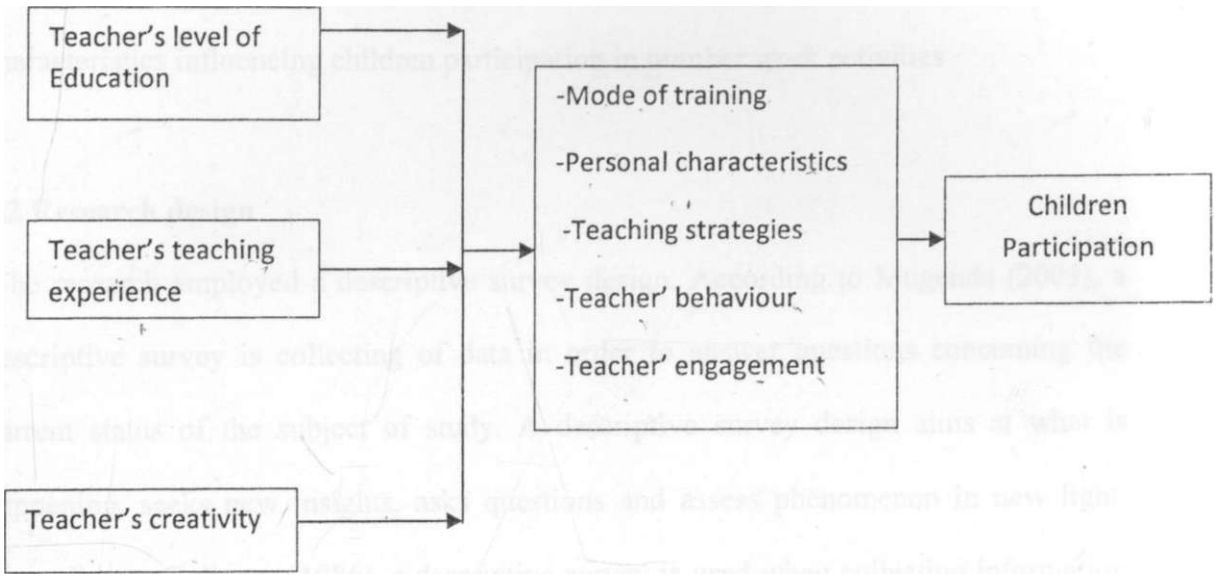


**Fig.l Conceptual framework**

The conceptual frame work assumes that teachers with a higher education level can have a great influence on children participation in the learning of number work activities. It also assumes that a higher experience and creativity positively influences children participation.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter described how the research was carried cut. It explained and presented the methodology used by the researcher when carrying the research study. It consists of research design target population sample design and procedure, sampie size, data collection and data analysis. The chapter presented the research methodology on teacher characteristics influencing children participation in number work activities

## 3.2 Research design

The research employed a descriptive survey design. According to Mugenda (2003), a descriptive survey is collecting of data in order to answer questions concerning the current status of the subject of study. A descriptive survey design aims at what is happening, seeks new insights, asks questions and assess" phenomenon in new light According to Kalinger (1986), a descriptive survey is used when collecting information about people's opinions and social issues such as education. A survey was chosen because it was appropriate for educational fact finding and yields a great deal of information.

## 3.3 Population

Kathiani has 202 registered E.C.D.E centers; 168 are public and 34 are private. From this population, 40 centers were selected for the study. Therefore this study consisted of 40 teachers from different E.C.D.E centers. Teachers from those schools participated in filling questionnaires. They also participated in an observation schedule. The 40 pre-

school were randomly selected in order to give an equal representation. This population was considered effective in providing adequate and accurate information regarding the area of concern.

### 3.4 Sampling technique and sample size

A stratified random sampling technique was used to select teachers from the gross population of E.C.D.E centers within Kathiani district. The technique was used to select the study population in relation to the ratio of the public and private centers. This means that 33 pubic and 7 private E.C.D.E centers were selected for the study. A teacher from each of the 33 public and 7 private E.C.D.E centers randomly selected was involved in the study. This technique was chosen as it was where every member had an equal chance of being selected and advocated for representation of each population category (Mugenda, 2003). The sampling technique also yielded research data that could be generalized to a larger population (Mugenda, 2003). It provided an opportunity of selection for each elements of the population and reduced bias. The sample size was 40 E.C.D.E teachers and this sample was a representative of the whole population.

### 3.5 Research Instruments

Questionnaires were used to establish the teacher characteristics influencing children participation in number work activities. They were open-ended and closed-ended items. According to (Mugenda, 1999), a questionnaire enables a researcher to gather information from a number of respondents. Closed ended questionnaire posed questions and possible responses for the respondents to select from. They were easy to administer,

analyze and save the respondent's time. Open ended questionnaires gave the respondents a chance of free expression.

An observation was also carried out in order to observe children participation. It was suitable in order to obtain firsthand information of what was really happening on the ground and promoted a social interaction. In this study, a structured observation was used. In a structured observation, the observer is an on looker. The observation required the researcher to be clear on behavior being observed. This tool was considered effective in finding facts on behavior patterns such as children participation. This was as sited by Kombo, (2006).

### 3.6 Validity Qf instruments

Validity of a research instrument is the degree to which it measures what it is intended by the research. A questionnaire is valid when it is actually responded to. To enhance validity, the researcher had the research instrument- approved by the experts which included the lecturers

A pilot study was conducted on a population resembling the target group. The pilot study was done in 2 pre-schools and involved 2 teachers, 1 from each pre-school. The responses to the instrument were used to determine whether the items were drawing consistent responses. Unsustainable items were discarded and modified so as to improve the quality of the instrument thereby increasing their validity. New items were also incorporated to achieve the instrument validity.

### 3.7 Reliability of instruments

This is the degree of consistency that the instrument demonstrates. The researcher sought to find out whether the instrument could be counted upon to meet expectations and continued to do so. The reliability of this research was established through a test re-test technique. The same test was administered twice at different times and the results of the two were compared. The results agreed and the chances of the instrument being reliable were high. This was done on the same respondent.

### 3.8 Data collection procedure

A researcher authorization letter was secured. Those teachers involved in the study were informed. The researcher delivered the questionnaires both during the pilot and the main study. The researcher administered the research instruments to the teachers of the sampled schools. The date to collect back the questionnaire was agreed upon at the time of administration of the questionnaires. To measure children participation, the researcher administered an observation on the children of the selected pre-schools as they participated on number work activities. The researcher ensured that before collecting the completed questionnaires all the items had been answered.

### 3.9 Data analysis procedure

Data analysis is examining what has been collected in survey and making deduction and inferences. It involved uncovering of underlying structures, extracting important variables, detecting any anomalies and testing any underlying assumptions. The researcher analyzed data by breaking down the information gathered into constituent parts to obtain answers to research questions. The researcher scrutinized the acquired

information from the questionnaires and the observation schedule and made inferences. The items were compared and various responses analyzed quantitatively and qualitatively. The quantitative data was analyzed by use of statistical tools such as frequencies and percentages. Qualitative data was analyzed thematically using content analysis. The researcher then used a simple description analysis by first categorizing data into classes based on the independent variables. The results were thereafter interpreted and tabulated in order to provide an in-depth view of the research.

# CHAPTER FOUR

# DATA COLLECTION, ANALYSIS AND INTERPRETATION

## 4.1 Introduction

This chapter presents the findings of the study. It begins with information on return rate, demographic information of the respondents and then the main findings of the study in relation to the research objectives.

## 4.2 Overview of data collected: response rate

In a bid to collect primary data, questionnaires were distributed to all the 40 teachers sampled for the study. All the questionnaires were filled and returned as presented in Table 1

**Table 1: Response Rate**

| **Category** | **Questionnaires Distributed** | **Questionnaire Returned** | **Response Rate** |
|---|---|---|---|
| Public | 33 | 33 | 100 |
| Private | 7 | 7 | 100 |
| Total | 40 | 40 | 100 a |

This means that 100 percent of the respondents filled and returned their questionnaires.

## 4.3 Demographic Information

### 4.3.1Teacher's gender

In order to gather information on the population of study, the respondents were required to indicate their gender, whether male or female. This is shown in the following table 2.

**Tabic 2: Teacher's gender**

| Gender | Frequency | Percentage |
|---|---|---|
| Female | 40 | 100 |
| Male | 0 | 0 |
| Total | 40 | 100 |

From the table 2, 100 percent of the respondents were female while 0 percentage was male. This means that all the E.C.D.E teachers are female. It therefore means that there is gender bias in the teaching of the early childhood children in Kathiani district.

### 4.3.2 Teachers' Age

The study further sought to gather information concerning the teachers' ages. The information was presented in table 3.

**Table 3: Teacher's age**

| Age | Frequency | Percentage |
|---|---|---|
| 18-30 | 12 | 30 |
| 31-42 | 22 | 55 |
| 43-60 | 6 | 15 |
| Over 60 | 0 | 0 |

From the table 3, majority of the teachers are at the ages between 31 to 42 years forming 55 percent, followed by those at the ages between 18 to 30 years with 30 percent. The remaining 15 percent is formed by teachers at the ages between 43 to 60 years.

### 4.4.1 Teacher's level of education

The first objective of the study was to establish whether the teacher's level of education has any impact on children participation in number work activities. It was assumed that teachers' level of education has an influence on children participation in number work activities. A number of questions were presented that required the teachers to indicate whether their education level influences children participation in number work activities.

The first question was on the teachers' opinion on whether their level of education influences children participation in number work activities. They were to indicate with either "Yes" or "No". The responses were presented in the chart below.

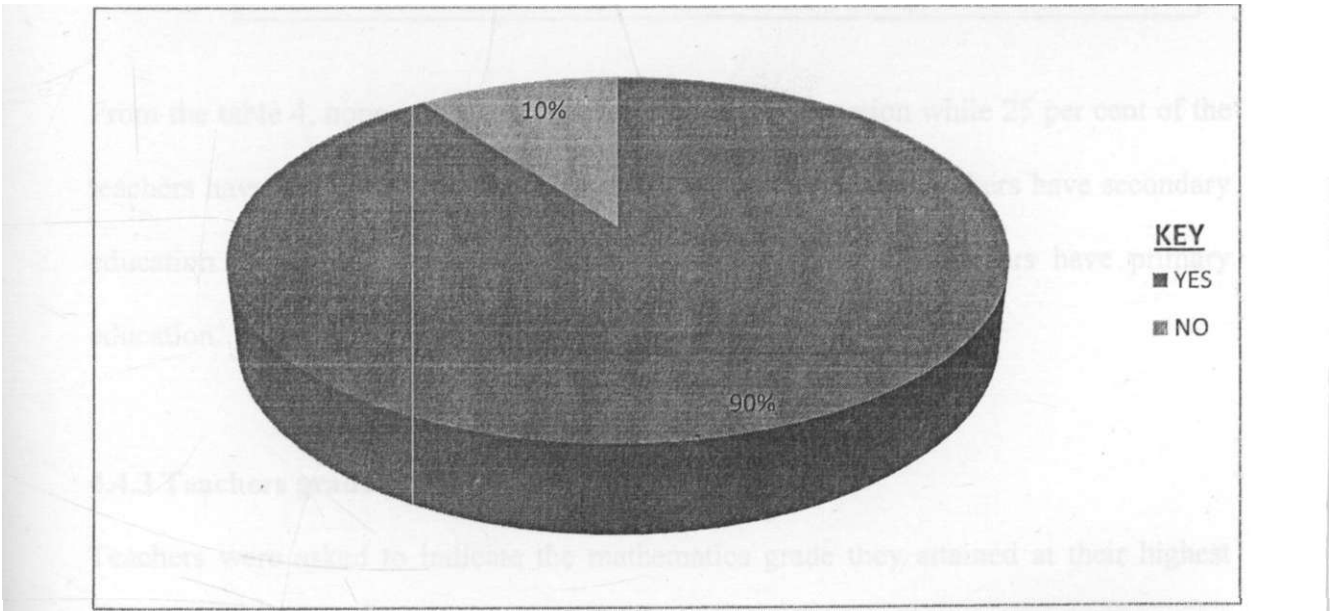


**Figure2 Teachers' opinion on the influence of education on children participation.**

From the pie chart, 90 percent of the teachers indicated that their education level influences children participation in number work activities. 10 percent of the respondents felt that their level of education had no influence on children participaiioxi

### 4.4.2 Highest level of education

Teachers were then required to indicate their highest level of education. The table 4 below was used to present the primary data collected.

**Table4: Teachers' level of education**

| **Education level** | **Frequency** | **Percentage** |
|---|---|---|
| University | 0 | 0 |
| Tertiary(college) | 10 | 25 |
| Secondary | 29 | 72.5 |
| Primary | 1 | 2.5 |
| Non | 0 | 0 |
| **Total** | **40** | **100** |

From the table 4, none of the teachers has university education while 25 per cent of the teachers have tertiary (college) education. The majority of the teachers have secondary education forming 72.5 per cent while 2.5 per cent of the teachers have primary education.

### 4.4.3 Teachers grade in mathematics

Teachers were asked to indicate the mathematics grade they attained at their highest levels of education. The assumption was that the grade had an influence on the teacher's interest in the teaching of number work activities. The analysis was done based on the teachers' highest education level. They were grouped into three categories of 10 teachers with tertiary education, 29 teachers with secondary education and 1 teacher who had primary education as the highest level of education.

**Category 1: Teachers with tertiary education.** There emerged **4** grades for the teachers with tertiary education.In this category, one teacher had a distinction, three had a credit and six had a pass while none had a fail. The data was shown in table 5.

**Category 2:Teachers with secondary education**

This category comprised of teachers who attained a mean grade of C and above, D+, D and E. The teachers who had scored a grade C and above were eight while those who scored D+ were twelve. Six had attained D plain while three had grade E. The data was analyzed as shown in table 5.

**Category 3: Teachers with primary education**

This category comprised of teachers who had primary school as the highest level of education. There was only one teacher in this category out of the 40 respondents. This teacher formed 2.5 percent of the respondents. The teacher had a B in primary mathematics. The data is shown in table 5.

**Table 5: Summary of teacher's grade in mathematics.**

| Category | Grade | Frequency | Percentage |
|---|---|---|---|
| Tertiary | Distinction | 1 | 2.5 |
| | Credit | 3 | 7.5 |
| | Pass | 6 | 15.0 |
| | Fail | 0 | 0 |
| Secondary | C and above | 8 | 2 |
| | D+ | 12 | 30 |
| | D | 6 | 15 |
| | E | 3 | 7.5 |
| Primary | **B** | 1 | 2.5 |
| **Total** | | **40** | 100 |

From the table, 2.5 per cent had distinction in mathematics, 7.5 percent had a credit while 15 per cent had a pass for those teachers who had tertiary education. For the teachers who had secondary education,20 per cent had a C and above ,30 per cent had D plus ,15 per cent had a D plain while 7.5 per cent had E. The remaining 7.5 per cent was formed by a teacher who had primary education. This teacher had a B in primary mathematics.

### 4.4.4 Teacher's interest in teaching of number work activities.

Another question required the teachers whether they felt interested in teaching of number work activities. 90 percent of the teachers said Yes, 5 percent said No, while 5 per cent where not sure.

The information was then shown in the graph below.

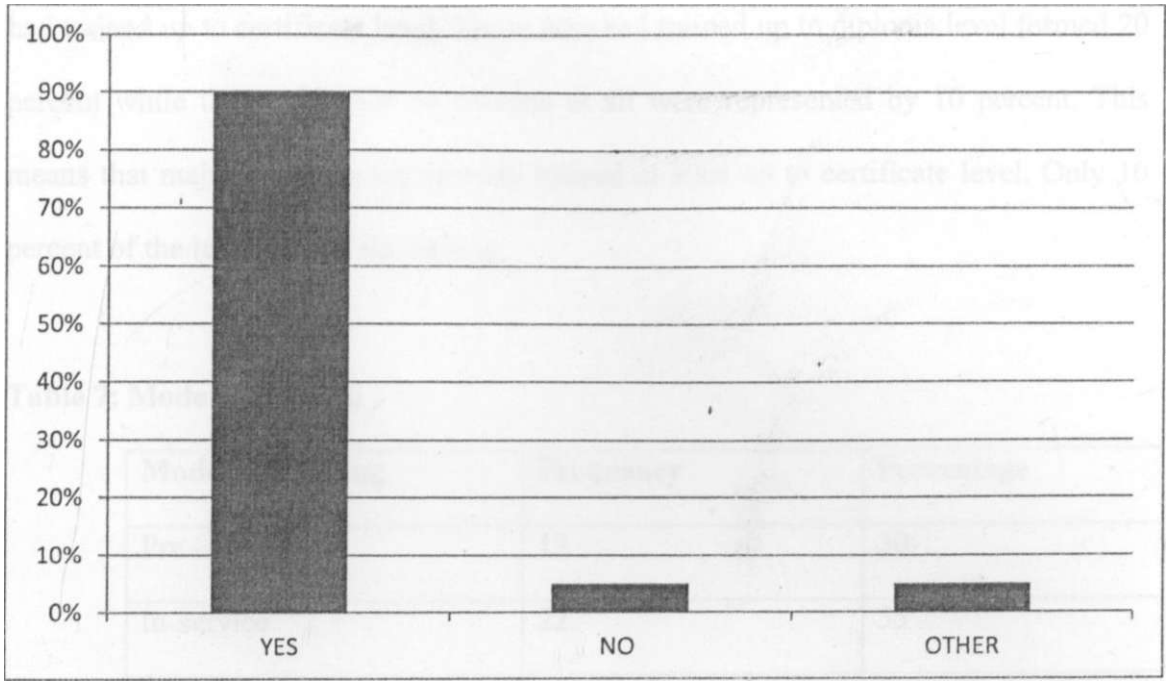


**Figure 3 Teacher's interest in teaching of number work activities.**

### 4.4.5 Teachers' Training.

The study also assumed that training is a factor on teacher's education level. Teaches were required to give information concerning their level and mode of training.

**Table 6: Teachers level of training**

| **Level of Training** | **Frequency** | **Percentage** |
|---|---|---|
| Degree | 0 | 0 |
| Diploma | 18 | 20 ^ |
| Certificate | 28 | 70 |
| Non | 4 | 10 |
| **Total** | **40** | **100** |

From the table 6, no teacher had trained up to degree level.70 percent of the teachers had trained up to certificate level. Those who had trained up to diploma level formed 20 percent while those who had no training at all were represented by 10 percent. This means that majority of the teachers are trained at least up to certificate level. Only 10 percent of the teachers had no training.

**Table 7: Mode of training**

| Mode of Training | Frequency | Percentage |
|---|---|---|
| Pre -service | 12 | 30 |
| In-service | 22 | 55 |
| Other | 2 | 5 |
| None | 4 | 10 |

From the table 7, 55 per cent had in-service training while30 per cent had pre-service training .5 per cent had other training that included seminars and refresher courses. Those who had no training at all formed 10 per cent.

### 4.5 Teacher's Teaching Experience

The second objective was to examine whether teachers' teaching experience has a direct influence on children participation in number work activities. The study assumed that teacher's experience has an influence on children participation. Primary data on teachers' experience was collected from the teachers at two levels. The first level was the years of experience as a teacher. The second level was the length of teaching in the

same school. The table 8 and table 9 were used to analyze the data based on years c experience and years of teaching in the same school respectively.

### 4.5.1 Years of experience in teaching of number work.

**Table 8: Years of experience**

| **Experience** | **Frequency** | **Percentage** |
|---|---|---|
| 1-10 [1] | 10 | 25 |
| 11-20 | 24 | 60 |
| 21-30 | 6 | .15 |
| Above 30 | 0 | 0 |
| **Total** | **40** | **100** |

From table 8, it can be noted that teachers with a teaching experience of between 1- years formed 10 percent. Those with a teaching experience of between 10-20 ye formed 60 per cent, while 30 per cent was formed by teachers with a teach experience of between 21 to 30 years. No teacher has an experience of over 30 years.

### 4.5.2 Years of teaching in the same school.

**Table 9: Years of Teaching in the same school**

| Years in same school | Frequency | Percentage |
|---|---|---|
| 1-2 | 4 | 10 |
| 3-5 | 9 | 22..5 |
| 6-9 | 12 | 30 |
| 10 and above | 15 | 37.5 |
| **Total** | **40** | **100** |

Table 9 shows the length of teaching in the school. 10 percent represents the teachers i who had stayed in the same school between 1 year and 2 Years. Those who had been in the same school between 3 to 5 years was formed by 22.5 per cent, while 30 formed the group that had stayed in the same school between 6 to 9 years. 37.5 per cent was formed by those teachers who had stayed in the school for 10 years and above. This meant that majority had stayed in the same school for more than 10 years.

### 4.5.3 Influence of teachers' experience on children participation.

Teachers were then required to state whether their experience and the length of stay did influence children participation in number work activities. This was based on the teacher's feelings. The information was tabulated in the following table 10.

**Table 10: Influence of teacher's experience on children participation**

| Response | Frequency | Percentage |
|---|---|---|
| Yes | 32 | 80 |
| No | 6 • | 15 |
| Other (do not know) | 2 | 5 |
| **Total** | **40** | **100** |

From the table 10, majority felt that teachers experience influences children participation in number work activities. Those who said Yes formed 80 per cent while 15 percent was formed by those who felt that their experience had no influence at all on children participation. Those who indicated "do not know" formed 5 percent. The same information was interpreted in the followingpie chart. -

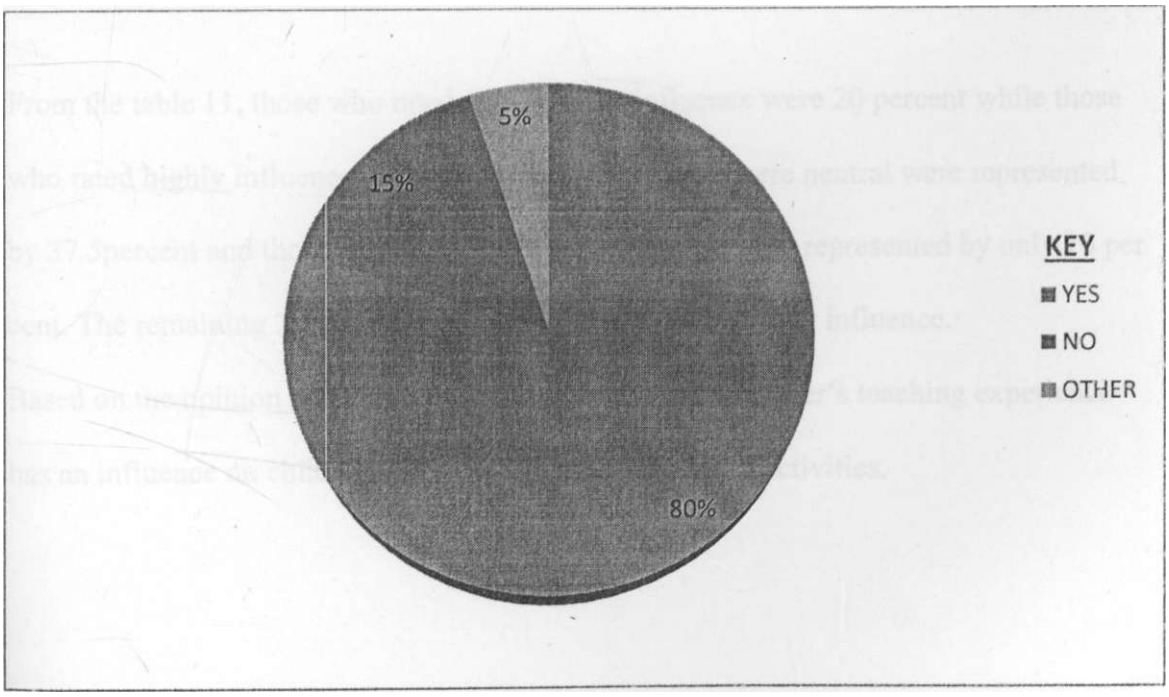


**Figure influence of teachers' experience on children participation.**

### 4.5.4 Rating of teachers teaching experience on children participation

The teachers were again required to rate how their experience influenced children participation in number work activities. The analysis used Linkert's five point rating scale of 5 very highly, 4 highly, 3 neutral, 2 low andlpoor.The information was tabulated in the table 11 that follows.

**Table 11: Rating of teachers' experience on children participation**

| Rate | Frequency | Percentage |
|---|---|---|
| 5 (very high) | 8 | 20 |
| 4 (highly) | 12 | 30 |
| 3 (neutral) | 15 | 37.5 |
| 2 (low) | 4 | 10 |
| 1 (poor) | 1 | '2.5 |

From the table 11, those who rated very highly influence were 20 percent while those who rated highly influence were 30 percent. Those who were neutral were represented by 37.5percent and those who indicated a low influence were represented by only 10 per cent. The remaining 2.5 percent formed those who cited a poor influence.

Based on the opinion it can therefore be interpreted that teacher's teaching experience has an influence on children participation in number work activities.

### 4.6 Teacher's creativity

The third objective was to determine whether teacher's creativity has any impact on children participation in number work activities. The assumption was that teacher's creativity influences children participation in number work activities.

A question required the responds to write down their understanding of teacher creativity.

In response to the question "what is creativity" 40 percent defined creativity as to bring something into existence that is new and original. 25 percent cited that creativity is accomplishing something according to ones thoughts, without any restriction. 15 percent said it is to generate an idea freely from ones inner world applying individual taste and many means of expressions. Another 10 percent said that it is to imagine in an abstract way and expressing feelings. 5 percent cited creativity as the use of skills together with imagination to bring ideas into existence while the remaining 5 percent indicated that creativity is a sense of aesthetics. The following table 12 shows the content analysis of the meaning of creativity as cited by the respondents.

### 4.6.1 Definition of creativity

**Tablel2: Definition of creativity.**

| Definition of creativity | Frequency | Percentage |
|---|---|---|
| 1. To bring something into existence from ones idea or sensation, which is new and original | 16 | 40 |
| 2. To accomplish something according to ones thoughts | 10 | 25 |
| 3. To generate an idea freely from ones inner world, and free expression. | 6 | 15 |
| 4. To imagine in an abstract way, expressing feelings | 4 | 10 |
| 5. To use skills and imagination to bring ideas into existence | 2 | 5 |
| 6. To apply a sense of aesthetics | 2 . | 5 |

From the content analysis, all the respondents seemed to understand the meaning of creativity. This showed an understanding of creativity as a form of originality that is as a way to bring something new into being. The teacher comment is similar to Torrace's (1962) comments on creativity as "the process of bringing something new into existence".

Another teacher commented: from nothing to create something that is with value to humans", which showed that this teacher also understood creativity as a form of originality that is valuable. Her comments connects with Quarkirbush's (1960)

explanation that creativity is the capacity of the individual to avoid the usual volatile conventional way of thinking and doing things and producing a quality of ideas which are original, novel and which are workable. Also the ideas about creativity being "the art of teaching" were evident.

The following comments are examples from the participants: "creativity is in relation to personal ideas, thinking and knowledge." Another one commented on creativity as a new thought while another commend "creativity as unique self-idea from ones thinking," Wallach and Kogan's (1991) ideas are evident as they viewed creativity as individual's capacity or ability to . generate cognitive associates in quality and uniqueness.

### 4.6.2 Personal characteristics of creative teachers in number work

The study also assumed that the teacher's personal characteristics can influence in one way of another on their interaction with the children in the learning of number work activities. A question required the teachers to list down some characteristics of teachers in the teaching of number work activities, from the teacher's responses the common elements that were commented included :-Enthusiasmand personal commitment, a clear set of personal value, willingness to be intuitive and introspective, a deep curiosity or questioning ability and has a sense of humor.

The table shows the teachers' personal characteristics that are important in the teaching of number work activities as suggested by the teachers. The analysis was based on the contents of the respondents understanding and practices in the classroom interaction with the children.

**Table 13: Characteristics of creative teachers of number work activities.**

| Comment on Personal characteristics | Frequency | Percentage |
|---|---|---|
| 1. Enthusiastic and committed | 8 | 20 |
| 2. Sense of humor | 10 | 25 |
| 3. Risk taking | 2 | 5 |
| 4. Deep curiosity | 6 | 15 |
| 5. Active interaction | 8 | 20 |
| 6. Creates space, time and freedom | 6 | 15 |

From the table 13, 15percent commented teachers who are creative as those who create space, time and freedom. 20 per cent said that creative teachers are enthusiastic and committed 25 per cent commented that creative teachers have a sense of humor while another 15 per cent cited that creative teachers have deep curiosity. The remaining 5 per cent said that creativity in risk taking. All had something to say concerning teacher creativity. This meant that the teachers did know what creativity is.

### 4.6.3 Teaching techniques.

Teaching techniques were also assumed to impact on the level of teacher creativity. The teachers were required to indicate the frequency in which they varied their teaching techniques. The primary data was analyzed as in the table 16 .Teaching techniques are here counted as factors of creativity in children participation in number work activities. These teaching techniques are believed to engage children into participating activities and hence thought to be factors that can influence teachers' creativity on children participation in number work.

Teachers were asked to state any two ways in which they engage children in participation in the classroom. This was in order to ascertain children participation in number work activities. The response was categorized in respect of the frequency in which each technique was quoted by the teachers.

The data is shown in table 14 and table 15.

**Tablel4: Teaching techniques used.**

| **Techniques** | **Frequency** | **Percentage** |
|---|---|---|
| Discussed in groups | 10 | 25 |
| Pairing | 4 | 10 |
| Individuality | 6 | 15 |
| Play/game/music | 20 | 50 |

The table 14 shows that majority of the teachers prefer play, games and music in the teaching of number work activities. This formed 50 per cent. Group discussions formed 25 per cent. Individual teaching formed 15 per cent while pairing formed 10 per cent.

**Table 15: Variation of teaching techniques**

| **Level of variation** | **Frequency** | **Percentage** |
|---|---|---|
| Frequently | 36 | 90 |
| Most frequently | 4 | 10 |

The table 15 shows the variation of teaching techniques. Majority said that they frequently varied their teaching techniques in the teaching of number work activities.

This was represented by 90 percent. Only 10 percent did not vary their teaching techniques.

### 4.6.4 Rating of teaching techniques

Teachers were given three teaching techniques that were thought useful when teaching of number work activities to children and were required to rate their importance in enhancing children participation. The table below was used to analyze the primary data collected from the respondents.

**Table 16: Rating of teaching techniques.**

| Technique | Very important | Important | Neutral | Least important | Not important |
|---|---|---|---|---|---|
| Individual | 10 | 15 | 10 | 5 | 0 |
| Group work | 12 | 16 | 8 | 4 | 0 |
| Play | 20 | 16 | 4 | 0 | 0 |

A graph was used to interpret the data. From the graph, about 25percent cited individual teaching as very important, 37.5percent said was Important, another 25percent were neutral while 12.5percent said that it was least important.

On group work, 25percent said it was very important 37.5pereent rated it as important, 25percent were neutral while 12.5 per cent rated it as least important. Concerning the use of play in teaching 50percent rated it as very important, 37.5percent rated it as important while 12.5percent were neutral on the use of play

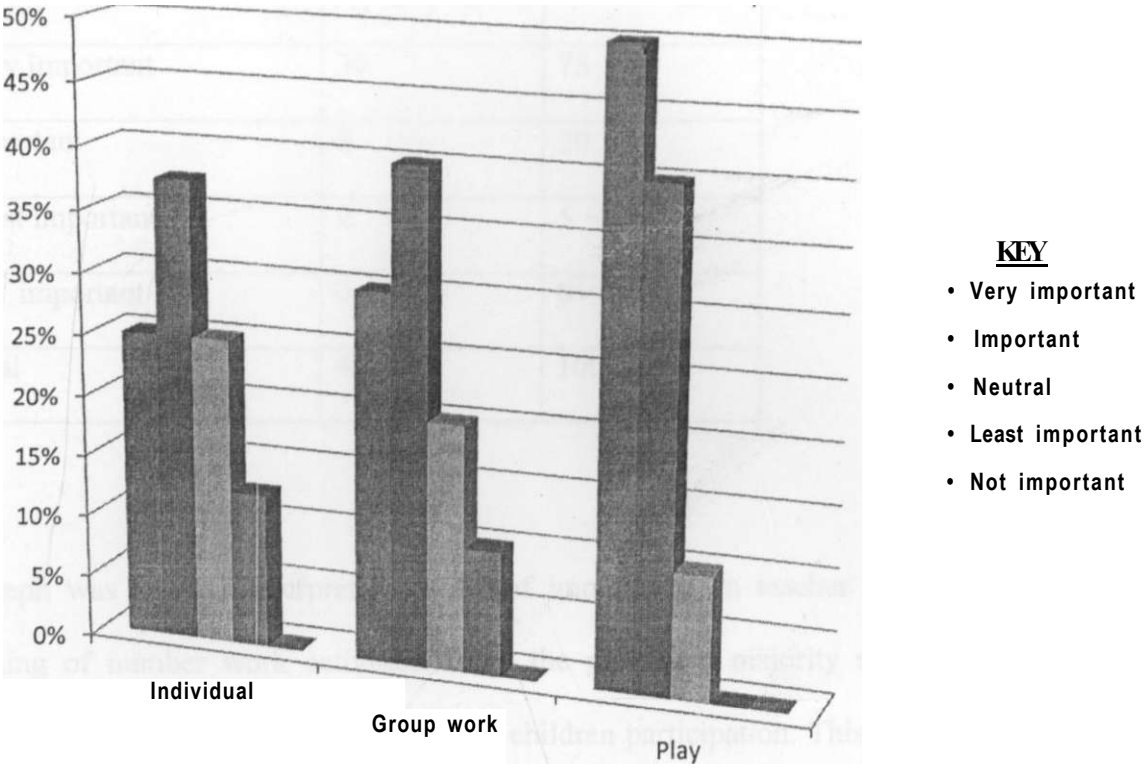


**Figure 5 Rating of teaching techniques.**

### 4.6.5 Level of significance on teacher creativity on children participation.

The respondents were also required to show the level of importance of creativity as influencing children participation. The table 17 below shows the analysis from the questionnaires which were filled and returned.

**Table 17: Level of significance of teacher creativity.**

| Level of importance | Frequency | Percentage |
|---|---|---|
| Very important | 30 | 75 |
| Important | 8 | 20 • |
| Least important | 2 | 5 |
| Not important | 0 | 0 |
| Total | 40 | 100 |

A graph was used to interpret the level of importance on teacher creativity in the teaching of number work activities. From the pie chart, majority said that teacher creativity is very important as it influences children participation. This was cited by 75 of the respondents. 20 said it is important which only 5 cited that it is least important. This means that 95 of the responds do attach teachers' creativity as having an influence on children participation. At least all the respondents do attach some importance on teacher creativity since no teacher gave a not important response.

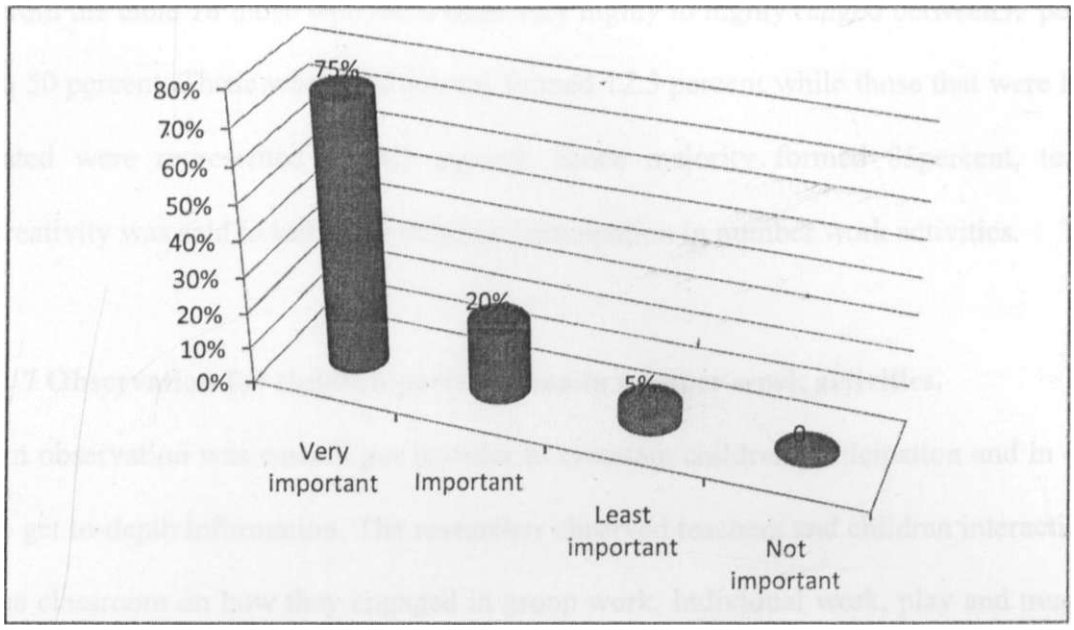


**Figure 6: Level of significance of teacher creativity.**

### 4.6.6 Rating for teacher creativity

The respondents were then required to rate their level of creativity and whether it influences positively the children participation in number work activities. From the responses 50 per cent of the respondents rated very highly 35 per cent rated highly while 12.5per cent of were neutral. 2.5 per cent rated low and only Oper cent rated poorly. This is shown on the table below.

**Table 18: Rating for teacher creativity**

| Rating | Frequency | Percentage | Influence |
|---|---|---|---|
| Very Highly | 20 | 50 | Positive |
| Highly | 14 | 35 | Positive |
| Neutral | 5 | 12.5 | Positive |
| Low | 1 | 2.5 | Negative |
| Total | 40 | 100 | |

From the table 18 those who rated from very highly to highly ranged between35 percent to 50 percent. Those who rated neutral formed 12.5 percent while those that were lowly rated were represented by 2.5 percent. Since majority formed 85percent, teacher creativity was said to influence children participation in number work activities.

**4. 7 Observation for children participation in number work activities.**

An observation was carried out in order to ascertain children participation and in order to get in-depth information. The researcher observed teachers and children interaction in the classroom on how they engaged in group work, Individual work, play and music in learning of number work activities. The researcher observed and recorded information based on how best the children responded to various techniques as used by the teachers in the teaching of number work activities. The table below indicates the ratings of the children's participation to the four frequently used techniques by the teachers in the classroom interaction.

**Table 19: Children participation in number work activities.**

| Technique | Excellent | Very good | Good | Fair | Poor |
|---|---|---|---|---|---|
| Group work | 8 | 10 | 12 | 10 | 0 |
| Individual work | 2 | 8 | 10 | 10 | 10 |
| Play | 10 | 18 | 8 | 4 | 0 |
| Music | 12 | 20 | 8 | 0 | 0 |

The information was then interpreted using a graph. From the graph below majority of children responded well to music and play in the learning of number work activities which formed the greatest percentage of excellent response. They were represented by 30 percent and 25 percent respectively. They also formed the greatest proportion in the category of very good response with music forming 50 percent followed by play with 45 percent. Group work followed in the category of excellent and very good with 20 percent and 25 percent respectively. Individual work technique rated poorly taking the greatest proportion of poorest response with 25 percent. This implied that children responded better to play and music than to group work and individual work.

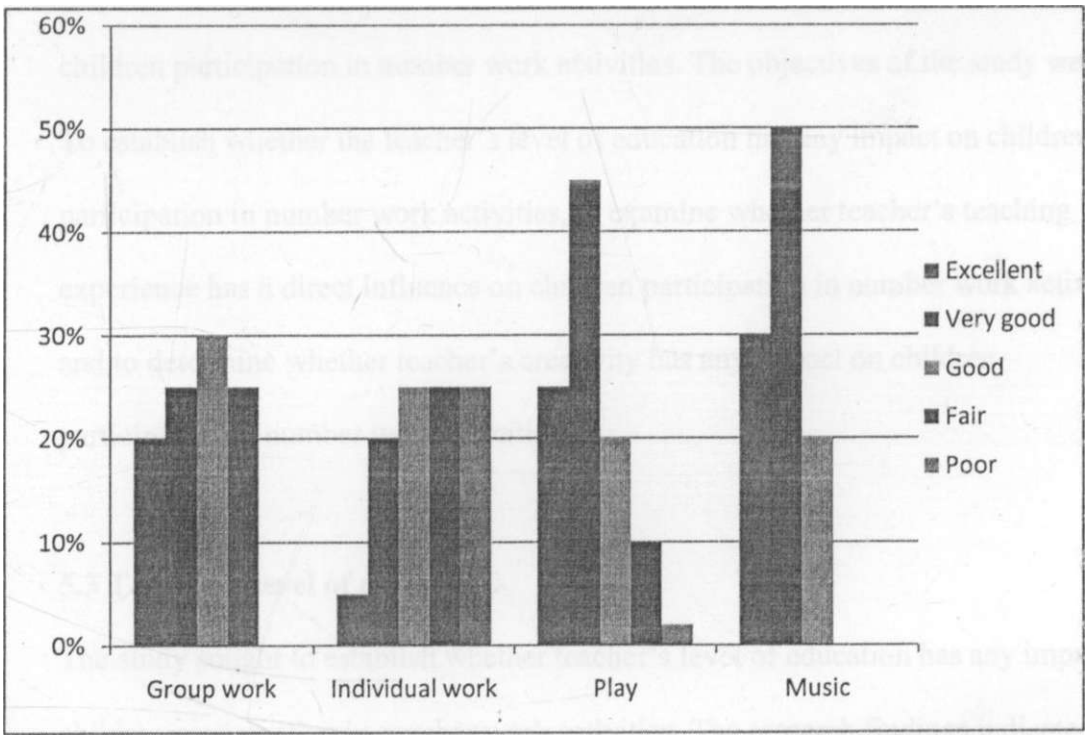


**Figure 7 Children participation in number work activities**

# CHAPTER FIVE

# SUMMARY, CONLUSION AND RECOMMENTATIONS

## 5.1 Introduction

This chapter discusses summary of the findings, conclusions, recommendations and suggestion for further research. The research sought to find out the influence of teacher characteristics on children participation in number work activities in Kathiani district. The summary is given as per the research objectives.

## 5.2Summary of the study

This research was designed to find out the influence of teacher characteristics on children participation in number work activities. The objectives of the study were: To establish whether the teacher's level of education has any impact on children participation in number work activities, to examine whether teacher's teaching experience has a direct influence on children participation in number work activities and to determine whether teacher's creativity has any impact on children participation in number work activities.

## 5.3 Teacher's level of education.

The study sought to establish whether teacher's level of education has any impact on children participation in number work activities. The research findings indicated that majority of the teachers were agreeing that their education level influences children participation in number work activities. Their view concurred with Howe's (1997) results of her research which showed that teachers with the most advanced education and training appeared to be more effective than those with less advanced education.

Since majority of the teachers are trained up to certificate level forming Ninety per cent, the researcher concluded that they had the best knowledge and skills to use in the teaching of number work activities.

From the observation, majority of the teachers whose education level was high produced a good result of child teacher-interaction. The children seemed interested and they participated well since the teachers came to their attention especially when they reached the zone of proximal development. Only a small number of the teachers observed could not scaffold the children to continue with number work. This formed the Ten per cent that was not trained.

**5.4 Teacher's teaching experience.**

The research also sought to examine whether teacher's teaching experience has an influence on children participation in number work activities. From the research, majority of the teachers agreed that teacher experience influences their way of interaction with the children. Those experienced teachers had a good interaction with the children as they participated in number work activities.

It was also evident from the observation that children taught by teachers with an experience of between eleven to thirty years, who formed seventy five per cent of the sample were actively involved in their learning. Those experienced teachers created fun therefore making learning interesting. They also allowed children to explore in the world of numbers and therefore made number work a normal experience to the children. The young teachers had little experience in the teaching

of number work activities. In the observation, these young teachers seemed to get annoyed when called by children seeking their attention. From the teachers' responses and the observation, the researcher concluded that teacher's teaching experience had an influence on children participation in number work activities. These findings were in contrast to Hanushek's (2000) studies who found no correlation between teacher's experience and learner participation even though his study involved older children.

**5.5 Teacher's creativity.**

The research also assumed that teacher creativity had an impact on children participation in number work activities. The researcher found out that teacher creativity influences children participation in number work activities. From the research, all the teachers agreed that creativity influences their interaction with the children. From the observation, children participated well in classes where the teachers made the lessons lively by creating fun. The teachers who were creative used a variety of teaching techniques. They also attended to the children's needs.

Majority of the teachers rated the use of songs and play games as very important. Such teachers made learning a fun and diverted from the old traditional methods of teaching. The use of songs and play enabled the children to discover and could work out numbers easily. This was in agreement with Quarckirbush (1960) ideas that creativity is the capacity of the individual to avoid the usual volatile conventional way of thinking and doing things and producing a quality of ideas which are original, novel and which are Workable. From the teacher's responses on the

characteristics of creative teachers, humour was exhibit in the observation. Majority of those teachers who were creative had a sense of humour in their teaching of number work to the children.

### 5.6 Conclusion.

From the research analysis in respect to the objectives of the study, the findings of the study established that out of the forty teachers sampled, all were female. This showed that all the preschools are dominated by female teachers. This may be due to the feeling that only female teachers can teach young children. Majority of the teachers have secondary education. The findings revealed that children participation in number work activities is influenced by the teacher's level of education since participation was high in the classes taught by highly educated teachers. These teachers had also trained up to certificate and diploma levels. Their education influenced their professionalism and children participated well in their classes when learning number work activities.

The findings also revealed that teacher's teaching experience influences children participation in number work activities in Kathiani district. Teachers who had a higher experience interacted well with the children and had them participating highly.

It was also found that teacher creativity had an impact on children participation in number work activities. The more creative the teacher is the better the children participation in number work activities. This was possible through the use of songs

and play games in the teaching. It was therefore concluded that teacher creativity influenced children participation in number work activities. From the study, it was concluded that the teacher characteristics have a positive influence on children participation in number work activities in Kathiani district. The teacher characteristics are teacher's level of education, teacher's teaching experience and teacher's creativity.

**5.7Research Recommendations.**

Based on the research findings, the following are recommendations of the study:

The policy makers should ensure that they improve educational standards. They can do this by ensuring that all teachers have acquired at least a two year diploma and specialized training. Conditions should be set that all elementary education teachers take up major specialized mathematics courses. They should also design programs enabling current early education teachers get a diploma in order to enhance teachers professional training.

All early childhood education teachers should take up additional courses in teaching methods, having supervised teaching experiences and who have passed a test of teaching knowledge and skills. Teacher education and training should be enhanced for teachers to learn teaching related behaviors in order to improve their interaction with the children in the learning process.

Early education teachers are advised to be attending workshops, seminars and refresher courses to make them aware of the current development in number work activities.

State policies should also ensure that more capable teachers are maximizing their effectiveness in the classroom.

There is alsoa need to ensure that colleges and universities prepare new teachers and provide a sustained professional development for those already teaching based on the best mathematics grade they attained at their secondary education.

Finally, programs operated by both private and public schools should ensure they employ the best educated teacher. These are teachers who have teaching credentials beyond certificate level.

**5.8 Suggestion for further research**

The research was only limited to the teacher characteristics influencing children participation in number work activities. Further research can also be carried out on the influence of. the teacher characteristics on other activities in the early childhood programme. It is also recommended that a further research be conducted on the children social environment backgrounds and their participation in school activities.

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APPENDIXIV

REPUBLIC OF KENYA


# NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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Website: www.ncst.go.ke

Our Ref: **NCST/RCD/14/012/1049**

Date: **25th July 2012**

Thomas Mutinda Kiilu
University of Nairobi
P.O.Box 30197-00100
Nairobi.

**RE; RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on *"The influence of teacher characteristics on children participation in nnmberwork activities in selected pre-schools in Kathiani District," 1* am pleased to inform you that you have been authorized to undertake research in **Kathiani District** for a period ending 30th **September,** *2012.*

You are advised to report to **the District Commissioner and the District Education Officer, Kathiani District** before embarking on the research project.

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

**DR. M. K. R U G U ^ ^ I ^ ^ ^ S C ^ ^ ^**

**DEPUTY COUNCIL SECRETARY**

Copy to:

The District Commissioner
The District Education Officer
Kathiani District.

## APPENDIX II

### Teachers Questionnaire

Your school has been selected for this study. The purpose of this study is to identify teacher characteristics influencing children participation in number work activities in Kathiani district. Please answer as honestly as possible. Your response and identity will be confidential. Therefore do not write your name.

**Section A**

1. Name of school__

2. Nature of the school

Public ^ Private •

3. Designation of respondents.___

4. Gender

Male EZ3 Female ••

5. Age of the teacher

18-30 years • 31-42 years •

43-60 years • Others(specify)

**Section B**

a) Does teacher's level of education influence children participation in number work activities?

Yes • No | |

b) Which is your highest level of education?

University ^ tertiary ^ Secondary ^

Other (specify)_____1

c) What grade did you attain at your highest level of education in (a) above?

d) Are you interested in the teaching of number work activities?

Yes • No

e) Are you a trained teacher? (Tick /)

Yes • No •

f) What is your highest level of training?

Degree •• Diploma Certificate EZH

Others (specify)

g) What was the mode of training?

Pre-service ' 1 In-service ' '

h) How has training enhanced children participation in number work activities?

**Section C**

a) How long have you taught as a teacher? (Tick *J)*

1-10 years • 10-20 years •

20-30 years • over 30 years ••

b) How long have you been in your school?

Above 10 Years ^ 6-9 years |—|

3-5 years ^ 1-2 years ^

c) Does your experience influence children's participation in number work activities?

Yes 1 1 No

d) How do you rate your level of experience as influencing children participation in number work activities? Use key l.Very high 2. High 3.Neutral 4.Low 5.Poor

**Section D**

a) What do you understand by teacher creativity?

b) List any two personal characteristics of creative teachers in number work activities that you value as important.

(0_____1

(ii).

c) List down two ways in which a teacher can portray creativity when teaching number work activities.

(>)

(ii)

d) List down any two teaching techniques that you use to enhance children participation when teaching number work activities.

(i)

(ii)

e) How often do you vary your teaching techniques?

Highly Frequent I I Moderate [____| Never

Frequent Less frequent

f) How do you rate the following techniques in the teaching of number work activities? (Use key below)

1. Very important 2.Important 3. Neutral 4.Least important 5. Not important

Individual approach

Group work

Play games

g) How do you rate your creativity as influencing children participation in number work activities?

Very high | High Neutral Low Poor

APPENDIX III

**Observation schedule for children participation in number work activities (to be filled by the researcher)**

1)

| **ACTIVITY** | **Excellent** | **Very good** | **Good** | **Fair** | **Poor** |
|---|---|---|---|---|---|
| Children response to group work activities | | | | | |
| Individual work | | | | | |
| Play | | | | | |
| Music | | | | | |

(2) General rating of children participation in number .work activities (from researcher's observation)

Excellent Very good Good | Average Low

APPENDIX IV

**Population of study**

| Pre-School | Category of Pre school | Teacher's Gender |
|---|---|---|
| Isooni | Public | Female |
| Mithanga | Public | Female |
| Nzaikoni | Public | Female |
| Kombu | Public | Female |
| Kisovo | Public | Female |
| Kwangolya | Public | Female |
| Kalunga . | Public | Female |
| Kaviani | Public | Female |
| Kaewa | Public | Female |
| Mutumbini | Public | Female |
| Kithinguini | Public | Female |
| Kyamwee | Public | Female |
| Kathalani | Public | Female |
| Kathiani | Public | Female |
| Iveti | Public | Female |
| Isyukoni | Public | Female |
| Ikoleni | Public | Female |
| Yanzong'a | Public | Female |
| Ithaeni | Public | Female |

## APPENDIX IV

### Population of study

| Pre-School | Category of Pre school | Teacher's Gender |
|---|---|---|
| Isooni | Public | Female |
| Mithanga | Public | Female |
| Nzaikoni | Public | Female |
| Kombu | Public | Female |
| Kisovo | Public | Female |
| Kwangolya | Public | Female |
| Kalunga . | Public | Female |
| Kaviani | Public | Female |
| Kaewa | Public | Female |
| Mutumbini | Public | Female |
| Kithinguini | Public | Female |
| Kyamwee | Public | Female |
| Kathalani | Public | Female |
| Kathiani | Public | Female |
| Iveti | Public | Female |
| Isyukoni | Public | Female |
| Ikoleni | Public | Female |
| Yanzong'a | Public | Female |
| Ithaeni | Public | Female |

| | | |
|---|---|---|
| Mutondoni | Public | Female |
| Gen Mulinge | Public | Female |
| Kitie | Public | Female- |
| Mathunya | Public | Female |
| Katulya | Public | Female |
| Mang'aani | Public | Female |
| Kauti | Public | Female |
| Kikombi | Public | Female |
| Imilini | Public | Female |
| Kaiani | Public | Female |
| Kyuluni | Public | Female |
| Kaliluni | Public | Female |
| Mbee | Public | Female |
| Thinu | Public | Female |
| Ebeneezer | Private | Female |
| Free Pentecostal | Private | Female |
| Kaviani A.I.C | Private | Female |
| A.C Kithunguini | Private | Female |
| Premese Academy | Private | Female |
| Mwangu | Private | Female |
| Top Achievers | Private | Female |
| Total | 40 | 40 |

*0. Box 30i?*

| | | |
|---|---|---|
| Mutondoni | Public | Female |
| Gen Mulinge | Public | Female |
| Kitie | Public | Female |
| Mathunya | Public | Female |
| Katulya | Public | Female |
| Mang'aani | Public | Female |
| Kauti | Public | Female |
| Kikombi | Public | Female |
| Imilini | •Public | Female |
| Kaiani | Public | Female |
| Kyuluni | Public | Female |
| Kaliluni | Public | Female |
| Mbee | Public | Female |
| Thinu | Public | Female |
| Ebeneezer | Private | Female |
| Free Pentecostal | Private | Female |
| Kaviani A.I.C | Private | Female |
| A.C Kithunguini | Private | Female |
| Premese Academy | Private | Female |
| iMwangu | Private | Female |
| Top Achievers | Private | Female |
| Total | 40 | 40 |