

**FACTORS INFLUENCING PRE-PRIMARY SCHOOL CHILDREN'S ACADEMIC
PERFORMANCE IN SCIENCE ACTIVITIES IN IGEMBE SOUTH SUB-COUNTY IN
MERU COUNTY**

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REG NO.E57/73766/2014

**RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT
FOR THE AWARD OF A MASTERS DEGREE IN EARLY CHILDHOOD EDUCATION
(ECE) IN THE DEPARTMENT OF EDUCATIONAL, COMMUNICATION AND
TECHNOLOGY IN THE UNIVERSITY OF NAIROBI**

SEPTEMBER 2020

DECLARATION

I Kaane Jerusha Nkatha declare that this is my original work. It has not been submitted to any other university for the award of a Master's degree.

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ABSTRACT

Children's academic performance depends on the nature of academic delivery by the children's teachers. Pre-primary school children's academic performance in science activities in Igembe south sub-county in Meru County has been below average despite various efforts to improve teachers experience, working conditions and teachers' workload. This study therefore sought to establish the extent to which teacher's experiences, workload and working conditions influences pre-primary school children academic performance in science activities. The objectives of the study were: to establish the extent to which teacher's experience, teacher's working conditions and teacher's workload affects pre-primary school children's academic performance in science activities. The study was anchored on Frederick Herzberg's Two –Factor Theory. The target population of the study was the 120 head teachers, 120 pre-primary school teachers and 120 children in pre-primary schools in the 4 zones that make up Igembe South sub-county. Kerlinger guideline was used to determine the sample size of 36 head teachers, 36 pre-primary school teachers and 36 children while respondents were selected using stratified random sampling technique. Questionnaires and interview schedules were used to collect primary data while test scores were used to collect secondary data. Data analysis was done through frequencies, percentages, correlation analyses and multiple linear regression with the aid of Statistical Packages for Social Sciences (SPSS). The correlations coefficients and P values obtained established by the study indicated that there is a strong relationship between teachers experience (correlations coefficient of 796 with p –value 0.000), teachers working conditions correlation coefficient was .893 with p -value 0.000), teachers' workload (correlation coefficient was 0.706 with p-value 0.000) and children's academic performance in science activities in Igembe south sub-county in Meru County. Further regression analysis revealed teachers experience, teachers working conditions and teachers workload had a statistically positive significant effect on children's academic performance in science activities in Igembe south sub-county in Meru County with coefficients of 0.7941, 0.675 and 0.833 with p-values of 0.000, 0.000 and 0.000 respectively. The study is expected to form the basis for policy formulation in the field of early childhood education management and enhance service delivery among pre-primary schools in Kenya.

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LIST OF ABBREBRATIONS AND ACCRONYMS

KICD- Kenya Institute of curriculum Development

CSO – Curriculum Support Officer

MOE – Ministry of Education

MDG- Millennium Development Goals

EFA- Education for All

USAID – United State Agency for International Development

UNESCO – United Nations Educational Scientific and Cultural Organization

ECDE – Early Childhood Development Education

SDG – Sustainable Development Goals

SCDE - Sub- County Director of Education

UN – United Nations

GOK-Government of Kenya

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In order for any nation to function effectively in terms of socio-political and economic viability, education is fundamental. Education improves people's life and reduces poverty by making people become more productive. According to World Bank (2014) education enhances the availability of various forms of employment thus, promoting the economy of any nation. Education helps in improving people's way of life due to increased income levels due to wide variety of jobs worldwide. UNESCO (2013) found that education helps people to lead healthy lives, be more versed with their democratic rights, and creates awareness on the ways of protecting the environment. Kenya's philosophy of education has put education at the center of the country's human and economic development strategies. The Ministry of Education Strategic Plan (2012-2018) focuses on providing lifelong learning to Kenyans. The aim is to provide holistic, quality education and training.

Ministry of Education strategic plan 2012-2018 posits that Kenya focuses on attaining universal primary education. Sustainable Development Goal (SDG's) 4 is geared towards ensuring inclusive and equitable quality education that will encourage learning to all. United Nations declarations of 2015 states that there is a commitment to provide equitable quality education for all at all levels. Therefore it is important to provide children and youths a favorable environment to ensure they realize their rights and abilities. Kenya's Vision 2030 aims at ensuring that Early Childhood Development and Pre-primary education is accessible to all.

Education for all (EFA) goal is to ensure expansion and improvement of ECCE. A country's future lies with the children, therefore they need to be well educated, equipped with the knowledge and skills to make them prosperous citizens. Good quality Early Childhood Programme includes programmes that provide learning, health and nutrition. Education for all Global Monitoring Report Policy paper 3, April 2012 notes that pre-primary education significantly increases smooth transition of the young children to primary school level. These children have already acquired the readiness to read and write, that is, the ability to learn. Attending pre-primary school education enhances the cognitive and non-cognitive

skills that acquires the young children with basic skills that are required in future to seek for job opportunities. Ministry of Education strategic plan 2012-2018 had that by 2015 all government should advocate for learners being taught by teachers who are qualified, have gone through professional trainings are motivated and well supported. Qualified teachers provide quality education.

According to United Nations Educational Scientific and Cultural Organization (UNESCO, 2013), quality education encourages economic growth, promotes democracy and good governance. Teachers are powerful tools in improving education through effective classroom teaching. According to Bess (1997) the fundamental factor that promotes effective classroom practice is motivation. Consequently, motivating teachers plays a major role where there is need for a change in an education system. Motivated teachers have the will and ability to encourage their children to participate in classroom learning. This is a way of implementing education reforms. A motivated teacher has also increased self-efficacy and has that sense of self fulfillment and satisfaction. Some factors that shows a motivated child include persistence, choice of challenge, the amount of dependency on an adult and emotions (Muasya, 2014). Motivated pre-primary school teachers encourage children to love to be in school and learn, raises their self-esteem and create in them a feeling of wanting to continue pursuing their education to higher levels. Bishay (1996) noted that the teaching profession has contributed too many being successful in today's society. Teachers have mentored and shaped lives of many people, therefore the need to have them prepared to take up their task with passion and diligence.

Webb, 2013, Ostroff, 2014 and Vansteenkiste, 2005 argues that, teachers may not deliver their best if not supported or motivated in their work. In addition, teachers who are highly supported remain in school for a long time. They are not likely to change the teaching profession for other careers, unlike those who are not satisfied with their working environment (Lieberman, 1993). Dai and Stenberg (2004) denotes that there are factors that influence motivation and job performance negatively. These include high job dissatisfaction levels, stress and burn out.

According to Bishay (1996), Muasya (2014) and World Teacher Experience Institute Report (2018), the fundamental factors that affect academic performance are management driven factors which include proper school plans, proper allocation of responsibilities, proper job descriptions, support from the management needed to complete the tasks and training of teachers. Bishay (1996), Muasya (2014) and World Teacher Experience Institute Report (2018), concludes that children's academic performance is ultimately determined by teachers' motivation in terms of teachers experience, working conditions and teachers' workload.

1.2 Statement of the Problem

Teachers encounter job performance challenges in Kenya just like other developing countries. This has been explained by irregular work attendance, inconsistency preparation of professional documents, ignorance in supervising school, activities, inadequate work given in class, minimal learner's attendance, Odul 2012. In order to achieve improved student's academic performance attempts to increase teacher's job performance in classroom instruction delivery is critical Koech 2012 indicated that working conditions must be improved to facilitate work productivity. Where sacrifices has been minimal, most learning institutions have been experiencing perennial poor academic performance. Thus factors such as teachers' working conditions, workload and experience are important aspects that influences children's academic performance.

Pre-primary school children's' academic performance in science activities is attributed to many factors which may be related to children themselves, the teacher or the family (Jeyness, 2002). In this study the researcher chose to research on influence of pre-primary school teachers working condition, workload and experience on pre-primary school children's academic performance in science activities. Successive reports by the ministry of education, 2015-2018 indicate that students' academic performance in science activities is below average. Igembe South Constituency has been registering under performance in science in KCPE for the last 4 years. Sub-County education meetings held at the beginning of every year to analyze general school academic performance for all the classes show that science activities for lower primary classes have average performance. Therefore the major concern of the researcher to find out whether the poor performance in science has its' root

cause from the children's academic performance in science activities at the pre-primary school level. Thus, the importance of this study on factors that influence pre-primary school children's academic performance in science activities. The key issues in the study is to find out the extent to which factors such as teacher's experience, working conditions and workload impact on pre-school academic performance in science activities

1.3 Purpose of the Study

The purpose of the study was to establish the extent to which teacher's experiences, workload and working conditions n influences pre-primary school children academic performance in science activities.

1.4 Research Objectives

This study was guided by the following specific objective:

- i. To establish the extent to which teacher's experience affects pre-primary school children's academic performance in science activities.
- ii. To investigate the extent to which teacher's working conditions affect pre-primary school children's academic performance in science activities.
- iii. To establish the extent to which teacher's workload affects pre-primary school children's academic performance in science activities.

1.5 Research Questions

The study was guided by the following research questions:

- i. To what extent does teacher's experience affects pre-primary school children's academic performance in science activities?
- ii. To what extent does teacher's working conditions affect pre-primary school children's academic performance in science activities?
- iii. To what extent does teacher's workload affects pre-primary school children's academic performance in science activities?

1.6 Significance of the Study

The study findings are expected to inform the school management on the fundamental factors (teachers' workload, working conditions and experiences) that affect children's

academic performance in science activities. . The findings will help other researchers with the information that will make them carry out research in other sub counties and investigate further pre-primary school children's related factors that influence their academic performance in academic activities and other activity areas. This study is also expected to enlighten the experiences teachers have in schools and how curriculum can be modified to improve teachers classroom instruction delivery especially with the recently rolled out competency based curriculum. The Ministry of Education (MOE) through the Quality and Standards Assurance department would benefit in matters concerning supervision of ECDE centers and advice pre-primary school stakeholders accordingly.

1.7 Limitation of the Study

According to Best and Khan (1993), limitations situation not under the control of the researcher that may restrict the study findings and hinder their application to other situations. Some head teachers were reluctant to provide information on matters concerning their support for pre-primary school teachers. However, the researcher assured them that the information needed was only to be used in this study.

1.8 Delimitation of the Study

Only pre-primary school teachers in public pre-primary schools were involved in the study because the working conditions in private pre-primary schools are better. In private schools, issues of teachers experience and work load are easily addressed as private schools manage themselves and are always in pursuit for excellence due to the fact they are business oriented. Three factors which are teacher related, that is teachers' experience, work load and working conditions were studied whereas there are other factors which could child-related or family-related that influence children's academic performance in science activities. Another delimitation is the scope of study. Only Igembe South Sub-County was studied therefore, the study findings cannot be generalized for the whole of Meru County or Kenya as a whole.

1.9 Basic Assumptions

The study was based on the following basic assumptions; children's academic performance in science activities directly related to teachers' working condition, workload and

experience. Respondents would give information truthfully and objectively. The sample selection procedures adopted would realize a final sample that would reflect the true characteristics of the target population and the data collection instruments would be valid and reliable.

1.10 Operational Definition of Terms

Motivation	An incentive or reason for doing something. It is an internal or external state or condition that activates or energizes behavior and gives direction.
Science Performance	The accomplishment of a given task measured against preset known standards of accuracy, completeness, cost and speed. Refers to the mean score after an examination.
Effects	Result or outcome of a cause.
Remuneration	Something given in exchange of goods or services. The amount of money an employee gets at the end of the month.
Resources	Refers to all those object, people, buildings and environment that will enhance teachers' and children's performance.
Teaching	Refers to provision of information and all activities assigned to facilitate learning.
Experience	Refers to the accumulation of knowledge or skills those results from direct participation in events or activities.
Zone	Area distinguished on the basis of particular characteristics, use or restriction.
Educational outcome	This is the result of children's learning experiences.
Workload	This refers to the amount of work assigned to a particular teacher, normally in a specified period of time-day/week/year
Working conditions	The situations in which an individual or staff works, including but not limited to such things as amenities, physical environment, stress, noise and degree of safety or danger.
Science activities	Activities that seek knowledge about or study of the natural world

based on facts learned through experiments and observation.

Teaching experience Interactions, course, program in which teaching takes place.

Evaluation The act of determining the extent to which instructional objectives have been achieved

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The chapter covers studies done on the teacher related factors that is working conditions, workload and experiences that influence pre-primary school children's academic performance in science activities. Theoretical and conceptual frame works related to teacher related factors and academic performance in science activities is presented in this chapter.

2.2 Teacher Related Factors and Pre-Primary School Children's Academic Performance

According to Cole (2016), Yankson (2017) and World Teacher Experience Institute Report (2018) the fundamental factors that affect teacher's classroom instruction delivery are teacher's experience, teacher's working conditions and teacher's workload. Providing favorable work climate in a pre-primary school is assumed that the teacher will be motivated to work and consequently enhance children's academic performance in science activities. The assumption is that suitable working environment will ensure high level teachers effort towards good job performance.

According to Michaelowa 2002, teacher motivation refers to having the readiness, ambition or passion to take part in good teaching which results to classroom instruction delivery effectiveness. This means the adherence to professional requirements and effort of a teacher that will enable the children study what they are expected to. Motivation of teachers encompasses the teacher's desire to tale active role in the education process. Motivation is taken as being influential to a person's behavior and performance while working. UNESCO, 2014, supports that in order to solve problems experienced during learning, all children must be taught by trained teachers who are motivated and teachers with passion. These are the teachers who have the ability to single out weak learners and assist them.

Polly (2009) studies how pre-primary school academic performance is influenced by motivation in Rwanda and concluded that teachers require the sense of self-respect and recognition which enhanced their desire to work best for the schools. A study done in Tanzania by Noor and Maad, (2009) on the relationship between job performance and

learners' academic performance in national exams concluded that various factors, working in interplay, were found to impact on academic results. These factors were fundamentally related to teachers but with motivational aspect. They inducted teachers' in service training, better pay, material rewards and favorable working climate.

According to Koech Commission (1999) the country requires qualified and highly motivated teachers who share the ability to understand the learner's needs and curriculum requirements. This will improve the standards of education. Thus, pre-primary school learning environment as part of teacher related factors should be put into consideration in order to improve the children's academic performance. Orphlins (2002) viewed motivated teachers as always being in a position to engage in better ways to involve their learners during teaching to ensure quality and productive education. These three factors under study, that is working conditions, workload and experience come under extrinsic form of motivation. According to Luthan (1998) extrinsic motivation results from receiving 'tangible benefit' such as fringe benefits, physical conditions, the amount of work and the facilities available for doing the work. Extrinsic motivators such as schools policies, administration, and technical supervision, relationships with supervisors, peers and subordinate staff affect the external motivation of a teacher (Dornyei, 2001). Extrinsic motivation is associated with undertakings to attain an end state that is separate from the actual behavior, (Muller, 2004). Extrinsic factors that affect teacher motivation emanates from the school. These include working conditions, security of the job, relationships with the head teacher, school board of management and peers. Extrinsic motivation is beneficial in that it induces interest and participation in something in which the individual had no initial interest. It motivates children to acquire new skills or knowledge

2.3 Studies on Pre-primary school Teacher's Work load and Children's Academic Performance

Teacher's professional practice and satisfaction with the job are the issues of work load. Ensuring access to education for all increases the work load and challenges faced by teachers. Education for All combined with population growth often requires deployment of teachers, large class sizes, multiple teaching shifts, or multiple grade levels within a single class. Teaching workload may results from time spent teaching, the number of lessons

taught per day and enrollment of children in class. The amount of time a teacher is engaged in teaching is largely determined by the teachers' efficiency, enthusiasm and commitment on top of the school requirements. Teacher workload may include teacher having increased professional, pastoral and administrative duties. Teachers require autonomy over their own planning and decision making. Many demands and pressure from outside reduces their sense of control of their classroom management and relationships.

Michaelowa and Katharina (2002), notes challenges resulting from workload positively correlated to absenteeism and correlates negatively with teachers' satisfaction of their job in Africa. In Africa increased workload leads to teachers' resistance to engaging new teaching techniques and reduces their effort in teaching (Bennell and Akyeampong 2007). Therefore teachers with increased workload may require adequate support that will ensure sustainability of their effort and professional practices in the job. If teacher's work load is greater than teacher's motivational supports, teachers' effort towards job performance may be threatened. On the other hand if teacher's workload is reasonable and motivational supports match or exceed this workload, teacher's effort towards job performance may be supported rather than threatened.

A study by Oredein and Oleyede (2007) noted that effective teachers should be able to manage children's homework and assignments. This positively impacts on learner's achievement. The assignment should be well explained and corrected after marking and reviewed as a feedback to learners. Ramachandran and Pal (2005). Many studies have revealed that use of practical work is an evidence in effective practice. For instance, White and Gunstone's (1992) posit that students should manipulate ideas and resources in the school. It is believed that if children are allowed to participate in practical work, they acquire ownership of their learning and this increases their job performance.

According to Momanyi (2015), normal teachers' workload leads to greater ability and fewer discipline problems as the teacher will have concentration on every child and is able to identify problems in performance in pre-primary school activities earlier and on time. This study posits that class size and duties of the teacher have demonstrable effects on student performance while teacher quality (in form of skills, knowledge and qualification) have a

role to play in students' progress and achievements. However this study failed to show what programs pre-primary schools have put in place to ensure teachers are not overloaded; further, the study did not show how pre-primary school children performance in science activities was measured. This research however presented a gap in that it would be important to test the actual influence of teachers' workload on pre-primary school children performance in science activities. In relation to many challenges that emanates from increased teachers' workload, this study sought to establish how the increased workload of pre-primary school teachers influences children's academic performance in science activities.

2.4 Studies on Pre-primary School Teachers' Working Conditions and Children's Academic Performance

Studies done by authors (Bry and Schneider, 2002, Johnson 1985, MC Laoghlin, 2003 and Taiber, 1995) have concluded that teachers' working conditions have an impact on their job satisfaction, retention and school performance in general. Fundamental working conditions related to material resources and physical facilities have been examined by researchers (Johnson, Kraft and Papay, 2012 Ladd, 2010). Other working conditions studied include the amount of professional development acquired by teachers, time allowed for planning their teaching and the opportunity to collaborate with fellow teachers (Johnson, Kraft and Papay, 2012). Therefore many researchers are in agreement that environment has an impact in motivating employees. Creating a working environment which is friendly and sustainable motivates teachers (Nelson, 1966). Kazeem (1999) opines that excellent working conditions also increase teacher's motivational levels.

In a study done by Mwangi (2002) on factors influencing morale of Agriculture teachers in Machakos revealed that teachers' morale is affected by dissatisfaction with the school authority, low teacher turnover and constant shortage, insufficient pay, poor school facilities and relationship with the head teacher, pupils, and other people that they work with. These studies support the purpose of the study in that it would be important to investigate how these conditions influences performance of pre-primary school children in science activities.

To attain high quality education, schools showed improvement in their working conditions so as to develop and retain effective teachers. The school environment should assure teachers of safety, support and adequate compensation. Teachers working conditions are important to the teachers and the children themselves. Working conditions identified in this study includes provision of teaching and learning resources like textbooks, exercise books, and physical facilities such as classrooms, furniture and play items, and support for professional development such as refresher classes. Supervision and recognition of pre-primary school teachers is a vital working conditions. In Africa, Michaelowa (2002) concludes sufficient availability of textbooks can increase teacher job performance and improve children academic performance. According to (Limuli 2009), availability of appropriate teaching and learning resources improves the quality and relevance of transmitting the learning experience to learners. Juma (2011) links examination outcomes to the conditions of teaching and learning resources available in the schools. Neill (2001), children's' academic performance largely depends on whether the learning resources are available and relevant. This is due to the fact that children will develop scientific skills by using materials as they manipulate them while tackling science activities tasks. Devoting enough resources to education is paramount. Resources should keep pace with children's enrollment.

The extent to which teachers participate in decisions about school policies and issues and the autonomy that teachers have in the classroom may have an effect on school climate, a critical aspect of teacher's working condition. Holdaway (1978), Friesen and Rice (1984) and Johnson (1985) in their studies outlined that head teachers have a role to play in motivating teachers so as to enhance their service delivery. Most importantly providing a supportive school climate that enable the teacher to participate in decision making concerning school policies and issues and allow the autonomy in their classrooms. It is the role of the head teacher to acknowledge teachers' effort in the job done, offer supportive supervision and facilitate teachers' professional development. They should show fairness to all the teachers through their actions by providing adequate resources required by the teachers. The teachers will trust them and feel secure while working under them. Education goals and objectives will only be realized by taking care of the physical and emotional needs

of both the teachers and children. The leadership of the school influences the teachers' perceptions and affects their willingness to put effort.

The relationship between pre-primary school teachers and the school administration impacts on pre-primary school education outcomes. Blamires (1985) confirms that tight administrative policies reduces the authority and participation of the teachers' (P. 166); whereas inspiring leadership can mould the sympathetic purposes of individual persons into a common pattern of an activity, potent and harmonious (p. 167). Many aspects of teachers' working conditions are controlled by the head teacher. These include assigning children to teachers and ensuring the teaching and learning resources are available. This counts much on teacher's motivation when they realize that they are given recognition and acceptance.

Mank and King (1994) noted that higher teachers' relationships, satisfaction and effectiveness can be seen where the school leadership allows teachers to collaborate and support each other. On that line the teachers increase their own efficiency and effectiveness as they share teaching experience with colleagues who maybe could be more capable and willing to help. This is likely to increase their job performance standards. Teachers' collegial intonations range from discussions on classroom management practices, preparation of professional documents like lessons plans and schemes of work, preparation of teaching/learning resources among many. Interaction of teachers could improve their teaching practice through the sharing of effective teaching techniques. Teachers also collaborate in problem solving. There is a significant differences in performances between school where teachers interact and those where they do not. Rosenholtz (1991) revealed significant differences in progress on reforms between schools where teachers collaborated and those where they did not. These findings conclude that teachers' collaboration may enhance school wide improvement. When teachers work more collaboratively, children outcomes can improve, teachers can be more satisfied in their job and teacher turnover can decrease.

Classroom environment cannot be taken for granted. It should be noted that children who learn in schools with suitable learning environment achieve more academically that those who do not. The environment teachers create; increase their children's ability to learn.

According to Sheryl (2018) suitable classroom environment helps children feel safe, secure and important. This raises their self-esteem and the children are encouraged to actively participate in their learning. This in turn motivates the pre-primary school teachers who will then be in a position to work with pre-primary school children who are ready to take up responsibility. According to (Nafukho, 1991), a pre-primary school with less classrooms will be forced to overcrowd children in the few classrooms available. This results to high teacher-child ratio which amounts to increased workload. Science activities will therefore, adapt to teaching the theory part of science due to the challenge of resources. This affects the children's ability to acquire scientific knowledge and skills which are acquired through practicals and experiments thus reducing their competitiveness (Limuli, 2009)

Chimombe (2011) conducted a research on the effects of the school environment on teacher motivation and found out that poor school environment led to slow motivation of teachers hence underperformance. The working environment is often a pressure in itself with lack of suitable space for children as they perform their science activities both inside the classroom and within the school compound. Mayama, 2012 posits that complains about physical working conditions are sometimes a manifestation of deeper frustration such as personal problems and anxiety.

Nwaogu (1986) opined that 'supervision of instruction in the school entails guiding and co-ordination of teachers work and learning that will be facilitated'. Eze (2002) noted that in order to achieve possible best results; the school administration should ensure adequate supervision of the teachers so as to make sure various tasks assigned to them are carried out effectively. Eze, (2002) and Mayama, (2012) recommend that it is important for a study to be carried out to determine whether teachers working conditions influences children performance in science activities.

2.5 Studies on Pre-primary School Teacher's Experience and Children's Academic Performance

Teaching is a task that is demanding and require one to have specialized skills, knowledge and competencies in order to give children the best earning. According to teachers and administrators and experienced teacher is one who has taught for two years and above, can

motivate children and make them remain attentive throughout the lesson, can manage their classrooms and take advantage of any learning opportunities to enhance children's learning, (Bastick 2002, Atay 2008, Bivona 2002). An experienced teacher is different from non-experienced teachers. Such teachers have acquired much knowledge, experience and intuitive judgment they have cultivated during their teaching. Teaching experience does not necessarily result in expertise (Bastick 2002, Atay 2008, Bivona 2002). Experienced teachers take advantage of opportunities and enhance their knowledge and refresh their enthusiasm for teaching.

A study done by Musili (2015) on influence of teacher related factors on students' performance in Kibwezi, concluded that, teacher experience influenced children's academic performance. This is because majority of teachers have an opportunity to attend various in-service courses, hence had an opportunity to utilize their skills and talents acquired. These teachers feel competent and their abilities and classroom instruction improve. The study further ascertains that experienced teachers, find their job more enjoyable, meaningful and perform their job effectively thus improving children's performance. Furthermore, they are more satisfied when they have challenging opportunities at work and are better placed to handle them and commit their time to teaching their children for improved performance. Filak and Sheldon, (2003) denotes that, professional knowledge, skills and competencies can be seen when one is undertaking a challenge tasks aimed at improving educational success and performance. Bastick (2002) found that experienced teachers in Jamaica were less extrinsically motivated (e.g. motivated by salary) and significantly more intrinsically motivated (e.g. motivated by the emotional rewards of working with children) than were novice teacher trainees. Similarly, Bivona's (2002) Study of K-12 teachers' attitudes found that teachers with more than 10 years of experience had more positive attitudes towards teaching than did less experienced teachers.

Teachers who were not experienced (those with below two years in teaching) are typically not effective than those with teaching experience (Musili, 2015). However, the benefits of experience appear to level off after about five years .A review of 140 studies found that in only 30% of the studies teacher experience influenced with student's academic achievement. Experienced teachers influence children's achievement in several ways (Dalling, 2018).

Experienced teachers practice better classroom management strategies and adequate teaching methods that enhance children autonomy and reduced custodial control (Guskey 1998) thus taking responsibilities for students learning requirements, managing classroom challenges and maintaining children focused on task (Chacon, 2005). In addition, Martin, Yin and Mayall (2006) noted that teachers with more experience organized their classrooms more effectively than those with less experience. Teachers with experience exercised more control than novice teachers in establishing classroom routines and supervising children while doing group work. In a study conducted by Mendez (2011) ‘inquest of teaching quality in pre-primary school science, concerning initiatives for personal professional upgrading’, teachers are of the view that when they participate in a work group which allows them to collaborate with subject specialists and engage in activities like making of instructional resources, doing some research, interacting and communicating with the other teachers in the group and reflecting together will upgrade their personal professional development. This in turn may increase teachers’ creativity and varied teaching methodology.

An experienced teacher has had more time to test different teaching techniques on learners with different abilities therefore effectively delivers classroom instructions (Mendez, 2011). An experienced teacher may be able to identify general indicators of a motivated child and this serves as a guideline to pre-primary school teachers on what activities or tasks children should be involved with. Motivated children require little amount of dependency on the teacher (Dalling, 2018). They do not need constant attention; they are ready to take up challenging tasks and seem to enjoy the activities. This in turn motivates the teacher when the children display commitment to learning which is crucial for academic, social and emotional development (White MC Nulty, Patrikakou, and Weisberg, 2005).

The existing literature is deficient in explaining the effects of teacher motivation on pre-primary school children academic performance in science activities in Kenya. The studies have mainly focused on the challenges in teacher motivation, awareness on work policies. The researchers have not provided a good perspective on how teacher’s experience, teacher’s working conditions, teacher’s workload affects pre-primary school children’s academic performance in science activities. The link between the teachers’ effort towards

high job performance and pre-primary school children's academic performance in science activities (interest and participation in science activities) is not properly correlated in studies. This research therefore undertakes to find out the influence of pre-primary school teachers' experience on academic performance for children in science activities in Igembe South Sub-county though it has been studied elsewhere.

2.6 Pre- Primary School Children Academic Performance in Science Activities

Science activities help children acquire science skills arousing their future interest in science and giving them the tools they need before school entry. (Dalling, 2018). Pre-primary school children's academic performance in science activities is a challenge especially with inadequate resources and support (UNESCO, 2013). To enhance children's academic performance in science activities, pre-primary schools have introduced programs aimed at improving teachers experience, enhance teacher's working conditions and teacher's workload. Despite of these programs being there, school children's academic performance in science activities remains below average (Ministry of Education (MOE) report, 2018). Science experiments, projects and excursions require a great deal of preparation and resources. The work and living environment of pre-primary school teachers may be poor and this is demotivating. Therefore teacher motivation may be enhanced by favorable working conditions that facilitate effective teaching and learning. This study looks at how teacher related factors influences pre-primary school children's performance in science activities. Performance of pre-primary school children in science activities will be determined by checking the participation rates of the children/why not test scores in science activities.

2.7 Theoretical Framework

2.7.1 Herzberg's Two –Factor Theory

Frederick Herzberg (1923-2000), was a clinical psychologist and a pioneer of job enrichment. He is taken as one of the great original proponents in the theories of management and motivational. According to Herzberg (1978) motivation is the psychological process that arouse, direct and maintained behaviour towards a goal. He was the first to reveal that satisfication and dissatification at work was caused by different factors and which were not simply opposing reactions to the same factors as had always

previously been believed. According to Herzberg (1966) individuals are more motivated to work in order to acquire achievement, recognition and advancement. They are also encouraged by the work itself and engage in taking responsibility bestowed upon them.

Herzberg (1964) analyzed some interviews with some workers. He realized that the type of work that an individual is doing has the capacity to satisfy that individual's needs of achievement, competency, status, personal worth and self-actualization. Those are job characteristics related to individual's nature of work. They make the person happy and satisfied. Herzberg continues to say that lack of these satisfying job related characteristics does not result to individual being unhappy and unsatisfied. Instead an individual will be dissatisfied with unfavorable assessment of factors related to job such as policies, management, technical, challenges, pay, relationships at work place and working conditions. Therefore in order for the management to increase job satisfaction, it is fundamental to get concerned with the nature of work the employees are engaged in. This involves offer the employee's opportunities that will help them gain status, take responsibilities and reach their actualization in life. To reduce dissatisfaction in the job, the management should focus on the working environment, work guidelines and principles supervisory roles and the employees working conditions. Okumbe (1992) supports that Herzberg's motivational theory can result to teachers' increased effort, thus improving the performance of job. This can be made possible if the head teacher provides clear school policies, give regular feedback on teachers' performance, allow teachers autonomy in performing their tasks and advocate for suitable work environment that will facilitate teachers to acquire different job procedures. Herzberg's findings shows that teachers exert effort to gain salary, status, security, good working conditions and rescue with supervisors (head teachers/ managers), but once they are gratified the impact diminishes. This means that satisfaction can be temporary.

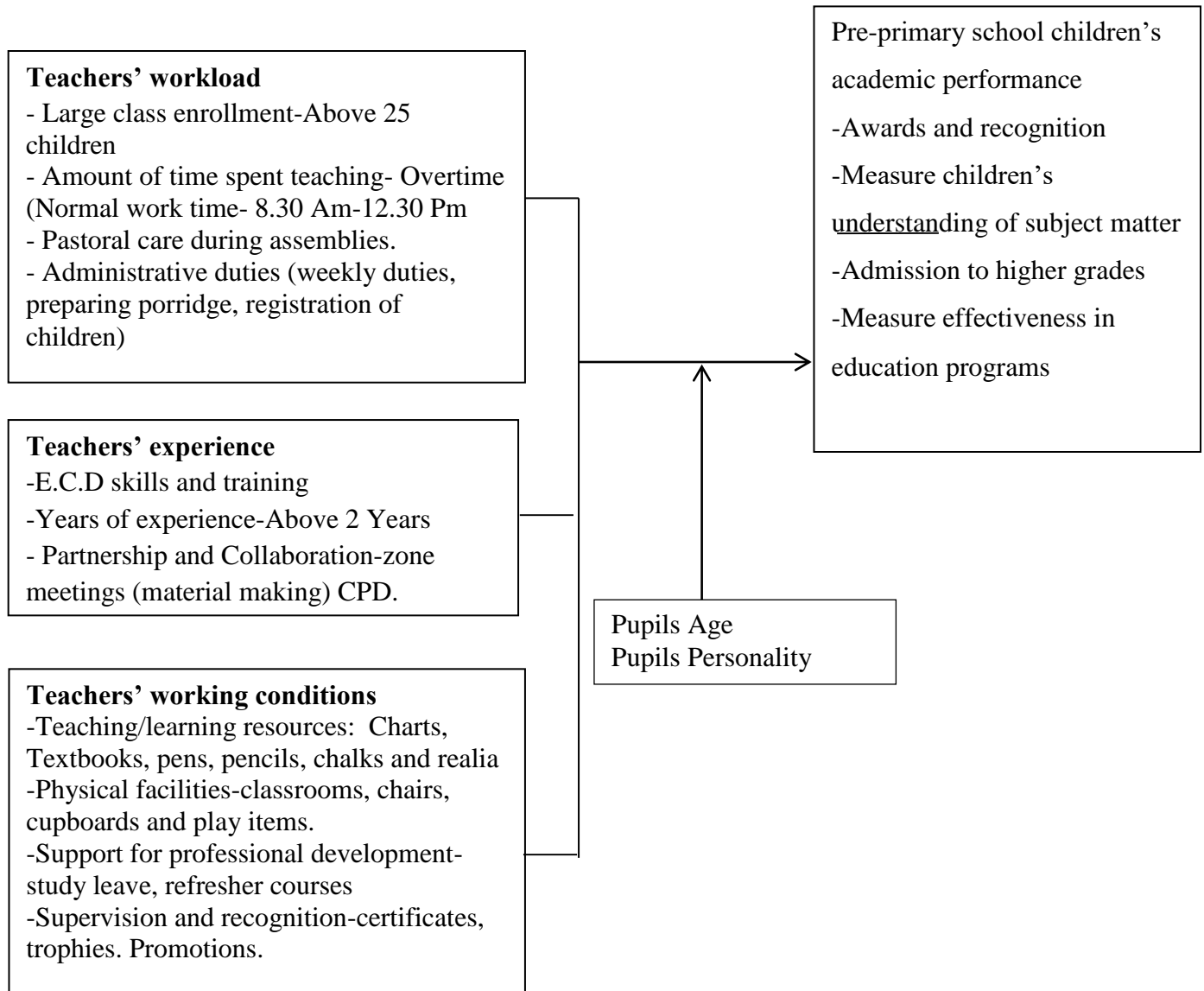
Herzberg argues that the management must put special emphasis on unconditional commitment to sufficiently provide the hygiene factors to keep away employees from being dissatisfied with their work by making sure that the work is interesting and rewarding so as to increase their motivation hence increase performance by working harder. According to Herzberg, only intrinsic elements of motivation can energize behaviour. Extrinsic factors

only eliminates the job dissatisfier. Debbie (2007) research findings were found to confirm with the views by Herzberg (1966) that salary is a hygiene factor rather than a motivator. The moment people feel they have had enough of what they are paid, any pay increment will have less impact. If there are other factors encouraging the individual to quit from work, individuals only feel motivated when enabled to satisfy those factors Herzberg outlined to be the actual motivating or satisfiers like achievement, advancement, job satisfaction, recognition and responsibility. These factors lead to heightened meaning and fulfillment. Motivators or satisfiers exist from within the individuals, or arise from working conditions. One should not think that by increasing teachers effort in job performance, dissatisfaction in the job is decreased. On the same note reducing satisfaction does not directly results to increasing dissatisfaction. What brings about dissatisfaction at work will not results to satisfaction. Dissatisfaction will also not be eliminated by increasing satisfiers.

Carlisle (1982) argued that managers and administrators have the sole responsibility to encourage their employees to work effectively and efficiently. Mullins (1996), maintains that satisfaction with the job one is doing is the biggest motivation that results to increase in level of performance. High levels of job satisfaction is influenced by the positive attitudes towards that job. Peters (1992) denotes that, head teachers must ensure suitable institutional climate that guarantees teachers attainment of own goals as they work towards achieving. It is imperative that ECDE center managers know what increases teacher performance and direct their efforts towards them. Its all about finding the right balance between motivators and demotivators. The general concept is that in order to motivate a teacher, remove the demotivating factors and improve/augment the satisfying factors. ECDE teachers need favourable working conditions, manageable workload and experience in classroom instruction delivery so as to engage pre-primary school learners appropriately resulting to effective teaching and learning. For managers to eliminate job dissatisfaction, they need to set school climate that is supportive. That is, facilitate good working relationships, encourage team work and regard for colleague teachers, and assure teachers of their job. Stability and effective leadership supports the teaching and learning process. To create conditions for job satisfaction ECDE managers should create opportunities for achievement. It should be their role to provide recognition and feed back for teacher's contributions, delegate responsibility to all teachers to avoid a scenario that certain teachers

are more valued than others. The pre-primary school managers should also provide opportunities for all teachers to undergo training where possible to enhance teachers professional growth and support them to advance to their aspired positions.

2.8 Conceptual Framework



Independent variable

Intervening variable

Dependent variable

Figure 1: Relationship between Independent Variables and Dependent Variable

In this study, pre-primary school children's academic performance is conceived being dependable on the working vonditions, workload and teacher experience. The appropriateness of teacher's working conditions like adequate teaching materials and physical facilities, the amount of work load like small manageable class sizes of 25 children and below, and teacher's experience like having adequate pre-pirmary education skills and training influences children's academic performance in terms of their participation and

performance in science activities. The conceptual frame work requires balancing of teachers inputs adn outputs. This will lead to increased job performance hence improve children's academic performance as seen in their commitment in completion of assigned tasks, preparedness and team work.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents information based on the research design, target population, sample size, research instruments, data collection and data analysis methods used in this study. Details on the validity and the reliability of research instruments and ethical considerations are presented.

3.2 Research Design

In this study, descriptive survey design was adopted. Descriptive survey design is a method of gathering information which involves interviewing or giving questionnaires to a representative sample of individuals (Orodho, 2003). It is regarded as the most appropriate method that is used by scientists and other educators' who are undertaking the exercise of collecting original data to be used to describe a large population which is difficult to observe in their natural set up. The rationale of using descriptive survey design is that they are used to gather facts or get relevant and logical information about the present position of a phenomenon and whenever possible make possible judgement from the facts gathered. The choice of descriptive survey design is due to the fact that the researcher would not manipulate variables. This involved collecting information from respondents concerning their attitudes, opinions, knowledge and the skills as they prevailed in public ECDE centers in relation to the topic. The descriptive survey method gave detailed description of the pre-primary schools teacher related factors and how they influence children's academic outcomes in science activities in Igembe south sub-county in Meru County, Kenya.

3.3 Target Population

The research population was made up of the 120 prep-primary in the 4 zones that make up Igembe South sub-county (Akachiu, Kangeta, Maua and Kiengu. The study will target head teachers, pre-primary school teachers and children. The target population included: 120 head teachers; 120 pre-primary school teachers and 120 children.

Table 1: Target Population per Zone

Zone	Target population (primary schools per zone)	Head teachers	Pre-school teachers	Pre-school children	Total
Akachiu	43	43	43	43	129
Kangeta	28	28	28	28	84
Maua	24	24	24	24	72
Kiengu	25	25	25	25	75
Total	120	120	120	120	360

3.4 Sampling Techniques

Sampling refers to the selection of a given number of subjects from a defined population as a representative of that population. The researcher adopted simple random sampling technique to sample pre-primary schools. The reason as to why simple random sampling was suitable, is due to the fact that the whole population was comparatively large, diverse and sparsely distributed. The method is also cost effective in administration. Those selected randomly represents the interests of the population. The findings from the study are thereafter generalized to the whole population that was targeted.

The researcher started by making a list of all the schools in each zone. Then assigned a sequential number to each zone (1,2,3...n). The researcher then used a random number generator to choose the sample using the size of the population from the previous step and the desired sample size which is 30% of the population size. The same procedure was repeated in schools which had more than 1 pre-primary school teacher to sample the teachers and also when sampling pre-primary school children in that specific school. This was done in order to accord each of the potential respondents in the population equivalent chances of being included in the study.

3.5 Sample Size

A sample is a group of respondents' chosen from a larger population to be used in the survey. From a population of 120 pre-primary schools in Igembe South sub-county, a sample of 36 pre-primary schools was obtained. The study selected one pre-primary school

teacher and head teacher in each of the sampled pre-primary schools. This represented 30% of the population. Kerlinger (1983) and Mugenda and Mugenda (1999) opined that a representative sample of 30% is used in research to represent the whole population. The table below shows how the population was distributed.

Table 2: Sampled Schools as Per Education Zones

Zone	Target population (primary schools per region)	Sample Size	Head teachers	Pre-school teachers	Pre-school children	Total
Akachiu	43	13	13	13	13	39
Kangeta	28	8	8	8	8	24
Maua	24	7	7	7	7	21
Kiengu	25	8	8	8	8	24
Total	120	36	36	36	36	108

3.6 Research Instruments

The research adopted the use of questionnaire and interview schedule to collect data. The type of data to be collected, the time, available and the objectives of the study guided the tools to be used in the study.

3.6.1 Questionnaires

Questionnaires were presented to pre-primary school teachers and head teachers of the schools under study. Orodho (2004) stated that use of questionnaire gives the researcher an opportunity to collect much information in a reasonable period of time. Questionnaires assure anonymity and provide an opportunity to reach out for respondents who are densely distributed geographically consists of standardized questions that can be understood easily. The questionnaires for head teachers and pre-primary school teachers consisted of both structured and unstructured questions. Head teachers' questionnaire section A sought for background information of the respondents and schools, while section B sought for information concerning the head teachers' influence in the management of the school in relation to pre-primary school teachers' working conditions, workload and experience and

their influence on the children's academic performance of the children in science activities. Section A of the pre-primary school teachers' questionnaire sought for background information of the teachers while section B was looking for information concerning pre-primary school teachers' workload, teachers' experience and teachers' working conditions.

Use of questionnaires provides the opportunity to maintain uniformity to obtain in the way respondents answer the question asked. This ensures that the responses are compatible to greater degree. It was important to use this instrument to the head teachers and pre-primary school teachers' because they can read, understand and respond to the questions by writing their responses without undue influence. Closed-ended questions were used largely because they were easy to administer, analyze and not time consuming while the unstructured questions provided the respondents an opportunity to express their feelings by giving more information freely without coercion. The researcher was able to understand the respondents at death.

3.6.2 Test Scores Analysis

Children's test scores indicating academic performance in science activities for the period 2016 to 2018 were analyzed.

3.6.3 Interview Schedule Guide

Interviewing allowed the researcher to penetrate the feelings and the thinking of the ECD children. Siedman (1998) notes that interviews are used to uncover the meanings of central themes in the life world of the children from their own point of view. Therefore it was a way to enter into social interaction with the pre-school children.

The children's interview schedule guide elicited information concerning their academic performance and their sentiments on the various aspects of their learning of science activities that could be related to pre-school teachers' working conditions, workload and experience. The interview schedule also sought for information concerning how children get involved in the learning of science activities such as science field trips and their physical learning environment such as the pre-primary school classroom and science activities display corners.

3.7 Reliability

The research instrument should measure a concept and deliver the exact same results over each time. Mugenda and Mugenda (2003) defines reliability as the extent to which instruments used in research produce results or data which is consistent after figuring it out repeatedly. This means that a reliable instrument will yield the same results when it is used repeatedly on the same respondents to measure a characteristic or concept from same respondents even by the researchers. The researcher used parallel method of testing reliability. The researcher prepared questionnaires for head teachers and pre-primary school teachers' and an interview schedule guide for pre-primary school children both guided by the research objectives. These different instruments were administered to the identified sample from the main population and the results were generalized to the whole population.

3.8 Validity

Validity refers to how accurate is the truthfulness or the soundness of a research. The validity of an instrument is checked by the accuracy of the data got from the variables under study. Mugenda and Mugenda (2003) refer to validity as the extent to which an instrument measures what it is supposed to measure or designed to measure. According to Kothari (2004) validity is all about establishing whether the research instrument measures what it is intended to measure. The study will test content validity. This is to ensure every objective is addressed. Validity of instruments is checked through theoretical and conceptual constructs. This was attained by being subjecting them to the judgement of the supervisor, an expert in the field of Educational Research. To attain content validity instruments used in research were based on the research questions. Scholars who have done research at master's levels also offered professional advice.

3.9 Data Collection Procedures

Collecting data refers to the act of collecting information that will be analyzed and interpreted in order to conclude facts from a research study. The researcher got an introduction letter from the University of Nairobi, school of Education. The researcher used the letter to secure permission for data collection in the sampled pre-primary schools of Igembe South sub-county. The Sub- County Director of Education (SCDE) and the head teachers of the sampled institutions were contacted before data collection to legitimize this

activity, after which the schools were visited to collect data. The researcher later went to the schools to explain the nature of the study to the respondents and pointed out what was expected of them. The researcher promised the respondents that the information they give will be confidential, in that it will only be used for the research activity. The researcher administered the questionnaire to the head teachers and science pre-primary school teachers. The completed questionnaires were collected two weeks thereafter. The researcher presented the interview schedule guide to the pre-primary school children by reading the questions to them and the children answered orally.

3.10 Data Analysis

Data analysis is done by preparing data collected from the field where it is analyzed and presented statistically. Kothari (2004) and Mugenda and Mugenda(2003),noted that it is vital to analyze data especially in scientific and social science research so as to capture all relevant data in order to make comparisons. Analyzing means narrowing the information to a usable size. After collecting raw data it is categorized and serially arranged for easy identification. Descriptive statistics were used to analyze quantitative data that is, use of frequencies, percentages and graphs. The relationships between independent variables (teachers' working conditions, teachers' workload and teachers' experience and their impact on pre-primary school children's academic performance in science activities was tested using Pearson's product-moment correlation. Analysis of qualitative data was done in narrative form as was presented in the questionnaire and interview schedule guide. In the event where items provided many responses, the researcher formulated categories of possible responses. For open-ended questions the researcher categorized all responses given and assigned numerals to them.

For the data to make sense and for it to be easily interpreted the researcher presented it in tabula form using frequency distributions and graphs. This entailed tallying the categories of responses, calculating frequencies and percentages and drawing circle graphs. In order to measure relationship between independent and dependent variable for the purpose of generalizing results, the researcher used correlation analysis.

3.11 Ethical Considerations

The researcher consulted the Sub-County Director of Education and the head teachers of the sampled schools on visiting the sampled institutions to legitimize the activity. The purpose of the study was explained to the respondents to ensure they willingly participate in the research without coercion. All the respondents were assured of confidentiality of information they gave. The researcher keenly carried out the research and in the situation where there was reference to other people's work, the authors were acknowledged. The respondents were asked not to disclose their names or names of their schools.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter comprises of the findings and discussion of the collected data concerning factors affecting pre-primary school children's academic performance in science activities that are related to pre-primary school teachers. The chapter presents information on the response rate followed by demographic descriptions of respondents who participated in this study. The three teacher related factors include; teachers' working conditions like physical facilities, teacher's professional development and head teacher's involvement in pre-primary school learning. Teachers' experience aspects discussed include teaching experience in years, pre-primary school children's assessment criterion, retention rate and their academic performance and the teachers' workload such as large class sizes, extra duties assigned by the head teacher. The correlation between teachers' experience, teachers' working conditions and teachers' workload and pre-primary school children's academic performance in science activities has been discussed.

4.2 Questionnaire Return Rate

The study targeted thirty six pre-primary school teachers and thirty six head teachers of thirty six sampled schools in Igembe south constituency out of one hundred and twenty schools. Information on questionnaire return rate is given in the table below.

Table 3: Questionnaire Return Rate

Respondent	Target population	Returns	Percentage
Pre-primary school teachers	36	36	100
Head teachers	36	35	97

From Table above, it can be observed that the response rate for pre-primary school teachers was 100% and response rate for head teachers was 97%. Mugenda and Mugenda (2003) noted if the rate of response is 50% it is considered to be adequate, if it is 60% it is good and when the rate of response is above of 70% it is rated very well. In this case the rate of response is very good

4.3 Demographic information

To achieve the main objective of the study it was paramount for researcher to seek personal information concerning the pre-primary school teachers. The background information included teacher's gender, academic and professional qualification, which was presented in frequencies and percentages as shown in table 4.

Table 4: Background Information of the Pre-primary school Teachers

Variable	Category	Frequency	Percentage (%)
Gender	Male	3	8.33
	Female	33	91.67
	Total	36	100
Level of education	O Level	32	88.9
	A Level	4	11.1
	Total	36	100
Level of professional training	Certificate in ECE	8	22.22
	Diploma in ECE	25	69.44
	B.Ed in ECE	3	8.33
	Total	36	100
TOTAL		n=36	100

The information from the table above shows representation of pre-primary school teachers according to gender, level of education and professional training. Majority of the pre-primary school teachers, that is, 91.67% (n=33) were females while 8.33% (n=3) were males. This revealed there is gender disparity and most boys do not have a role model from male teachers in pre-primary schools. Makuna and Mutsotso (2012) carried out a study on Early Childhood Development Education in Narok, Kenya and gender imbalance in the teaching profession which concluded that gender imbalance and feminization in pre-primary school is a common practice worldwide.

The table also indicates the level of pre-primary school teachers' education. It shows that 88.9% (n=32) of the pre-primary school teachers' are O-levels while 11.1% (n=4) are A-levels. According to the levels of profession training, 22.22% (n=8) of the pre-primary school teachers are certificate holders, 8.33% (n=3) have bachelor in education while

majority, that is, 69.44% (n=25) are diploma holders in Early Childhood Education. Higher profession training is paramount in that such teachers show high profession knowledge, skills and competences in handling education tasks. 80% of the teachers teaching science had good qualifications. Karuga (2010) notes that education advancement improves the teaching quality and reduces the problem of teachers. Karuga (2010) maintains that adequately trained teachers feel energized to teach.

4.4 Pre-primary school teachers’ working conditions and pre-primary school children’s academic performance in science activities

This section is intended to establish how the aspects of pre-primary school teachers working conditions, that is, teaching/learning resources, physical facilities, support for professional development, supervision and recognition affect pre-primary school children’s academic performance in science activities.

4.4.1 Physical facilities

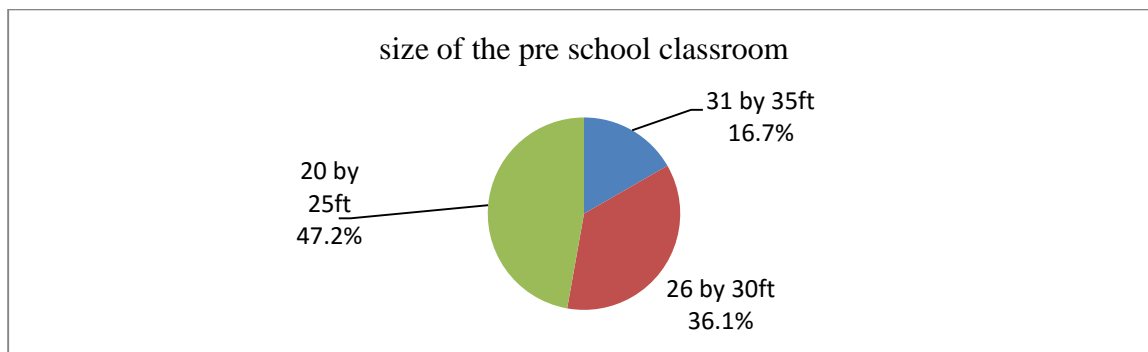


Figure 2: Size of the Pre-primary school Classroom

The figure above shows the size of pre-primary school classrooms visited by the researcher. Standard size pre- primary school classrooms according to GoK 2017, should be 30.25 ft for every 25 pre-primary school children. It was found that most classrooms have inadequate space for children movement especially during science activities experiments which are critical to science activities lesson. Out of the schools visited only 16.7% (6) had the standard size classroom. Two of these schools had the pre-primary school classrooms built by the Meru county government. Most of the schools 47.2% (17) had very small classrooms. Children had very limited space for free choice activities and movement during science practical lessons. 36.1% (13) of the schools had average size classrooms which also

did not provide enough space especially for children’s display of their work of art when it came to drawing and modeling. Grouping of pupils was also a challenge due to limited space.

Pre-primary school teachers had a challenge to move round the classrooms assisting the children as they perform science activities experiments and practical. It was noted that most teachers ask the children to move to the front so as to have their work checked. The slow learners were always left behind as they did not bother having their work checked due to the fact that teacher’s movement was limited hence out of the teacher’s reach .Findings from the interview schedule indicated that there were no science corners for science activities display due to the small classroom sizes. .It was noted that children had no chance to observe and review their previous work which in most cases boost’s their self-esteem .The children also indicated that group work was not done often due to limited space that allows movement during group activities. This affected the teachers who would make the children repeat the previous work if it was related to the current lesson, thus further influence pre-primary school children’s academic performance in science activities.

4.4.2 Resources for Science Activities

Table 5: Provision of teaching and learning materials for science activities

Activity	Frequency	Percentage
Teachers make teaching/learning materials	24	66.7%
Parents purchase teaching/learning materials	5	13.8%
Head teachers provide teaching/learning materials	6	16.7%
Teachers purchase teaching/learning materials	1	2.8%
Total	36	100%

Pre-primary school teachers were asked about the sources of instructional resources and provided the above responses. 24(66.7%) of pre-primary school teachers agreed that they make the teaching/learning materials themselves from locally available materials whereas 5(13.8%) agreed that pre-primary school of parents buy learning materials for their children. 6(16.7%) of pre-primary school teachers said that the teaching/learning materials are provided by the head teacher while 1(2.8%) of the teachers purchase the teaching/learning

materials themselves to facilitate their teaching .From the interview schedule pre-primary school children indicated that their parents assist them in doing science activities homework and also provide them with few learning materials .The children also indicated that they had not been given an opportunity to go for any science trips .These findings therefore show little parental participation required in the learning of science activities for their children.

From the findings, it is clear that pre-primary school teacher has another burden of making the teaching and learning materials. To some extent the teacher is also left with the responsibility of purchasing the materials that are not locally available. In some pre-primary schools there were no copies of science activities textbooks and the teachers were using ‘Targeter series’ revision books .The findings revealed that pre-primary school teachers had a challenge in preparing science schemes of work and lesson plans because there were no reference books.

The findings also revealed that there is very little involvement of the head teachers and the parents themselves and the two should play a greater role in provision of the required teaching/learning materials. This increased responsibility of the pre-primary school teachers and impacted negatively on the teacher motivation and could in turn affect the pre-primary school children’s academic performance in science activities. This is supported by Limuli (2009) who noted that, adequate provision of learning equipment and materials and human resources facilitate the skills improvement. The teaching and learning of science activities requires more materials than other activity areas because it requires more of doing experiments and performing practicals both by the pre-primary school teacher and pre-primary school children .Therefore the pre-primary school management should ensure there is adequate provision of science activities textbooks and other teaching and learning for effective instructional delivery to the children.

4.4.3 Professional development and refresher courses in science activities for pre-primary school teachers

The table below indicates the participation of pre-primary school teachers in science activities refresher courses.

Extent of attendance	Frequency	%
Most often	2	5.6
Not often	9	25
When funds are available	14	38.8
No time	11	30.6
Total	36	100.0

Table 6: Professional development courses attendance

The researcher found out that 5.6% (2) pre-primary school teachers attended refresher courses in science activities most often when called upon to attend, 25% of the pre-primary school teachers attended rarely whereas 38.8% (14) attended only when the school had funds to finance the science refresher courses and 30.6% (11) had not attended any science refresher course. This indicates that most teachers either attended the courses when funds were available or never attended. It is important for pre-primary school teachers to attend science activities workshops and seminars as was confirmed in the literature review by Holdaway (1978) and Johnson (1985) as one of the factors related to the head teachers that motivates teachers. Such courses help the pre-primary school teachers to improve their teaching methodology by learning new techniques or rather doing things differently from the old. Without these trainings their teaching performance is affected negatively hence results in poor performance of children in science activities.

4.4.4 Supervision and recognition of pre-primary school teachers by head teachers

From the head teachers' questionnaire, the head teacher was requested to give his/her views concerning commitment of pre-primary school teacher in teaching science activities. Further the head teachers were asked to comment on their supervision and recognition of pre-primary school teachers. The following responses were given.

Table 7: Activities to show head teachers' support for pre-primary school teachers

Item	Yes (%)	No (%)
Pre-primary school teachers committed to teaching science activities	55%	45%
Pre-primary school teachers arrive to school and attend science activities in time	70%	30%
Pre-primary school teachers involved in decision making.	65%	35%
Pre-primary school teachers prepare science activities schemes of work and lesson plan	50%	50%
Pre-primary school teachers recover lost science activities lessons	50%	50%
Pre-school primary teachers are awarded for good performance in science activities	30%	70%
Pre-primary school teachers facilitated to attend professional development courses.	25%	75%
Pre-primary Head teachers and teachers discuss science activities results and organize science activities competition.	25%	75%

From the table above 55% of the head teachers agreed that the pre-primary school teachers are committed to teaching of science activities, 70% arrive to school in time and attend their lessons in time 50% prepare schemes of work and lesson plans for science activities, while 65% are allowed to make decisions in the management of the pre-primary schools. Head teachers also agreed that 50% of the pre-primary school teachers recover lost lessons, 30% are awarded for good performance, 25% are facilitated to attend professional development courses and 25% discuss science activities.

These findings indicate that there is much of pre-primary school teachers' commitment to their work. The head teachers' involvement is inadequate. They have to improve on their role to ensure adequate support for the teachers in order to boost their motivation that will increase their work performance. In the literature review, Holdaway (1978) and et al pointed out that there are factors related to head teachers that changes teachers' work performance includes head teachers' supportiveness, supervision and recognition of teachers' work. In

conclusion teachers largely influences children’s academic performance, especially in science activities. .

4.4.5 Head Teacher’s involvement in pre-primary school children’s learning

This study sought to establish head teacher’s involvement in pre-primary school. Data was presented in percentages. Head teacher’s involvement in the learning of pre-primary school children’s science activities was rated as shown below.

Table 8: Head teachers’ involvement activities

Activity	SA	A	UN	DA	SDA	Mean	SD
Provision of adequate science activities teaching/learning materials and physical facilities.	48%	31%	7%	5%	9%	4.0	1.30
Management of feeding program	47%	30%	17%	4%	2%	4.2	0.98
Rewarding of pre-primary children’s academic performance	48%	26%	18%	5%	3%	4.1	1.05
Admission of pre-primary school children	20%	42%	25%	9%	4%	3.6	1.02
Organizing pre-primary parents’ meetings	21%	46%	24%	8%	1%	3.8	0.90
Making science activities examinations	43%	39%	11%	4%	3%	4.2	0.97

Results in Table 8 indicated that majority (48%) head teachers were involved in buying science activities books. Majority of (47%) indicated that head teachers were involved in school feeding programs. Majority agreed that head teachers were involved in rewarding of ECD children. Respondents further agreed (42%) that head teachers were involved in admission of pre-primary school children. 46% of the respondents agreed that parents attended pre-primary children’s parents’ meetings. 43% of the respondents also agreed that head teachers were involved in making of pre-primary school exams. The study concludes that head teachers are involved in the majority of the pre-primary activities hence this may help boost the performance of children.

The mean computations of the results indicated that there was head teacher involvement in all activities in pre-schools. These results are contrary to Gichuki (2010) that in Kenya, there is minimal head teacher involvement in pre-primary school activities and this is affecting the performance of children in pre-primary schools negatively. Head teacher involvement in pre-primary school activities demonstrates commitment on his part and the teacher is likely to get motivated to work harder as a result of head teacher's support. Head teachers' involvement increase the effectiveness of the teachers hence enhancing performance of children in science activities.

4.5 Findings on pre-primary school teachers work experience and children's academic performance in science activities

Sheldon (2003) noted that experienced teachers are able to utilize their skills and talents acquired over time through practice and participation in refresher courses. Teaching experience has been observed as critical in handling pre-primary school children. On the role of teaching strategies, science is largely a doing subject and children learn more from what they do than what they hear. Assessment of pre-primary school children as they perform science activities practical requires teacher experience. From the conceptual framework, teachers experience has been outlined under pre-primary school teachers' skills and training, years of experience, partnership and collaboration.

4.5.1 Pre-primary school Teacher's Training Levels

During the study the researcher found it paramount to seek information of the pre-primary school teachers training levels. The information was tabulated in terms of frequency and percentage as shown below.

Table 9: Pre-primary school Teachers training levels.

Variable	Category	Frequency	Percentage (%)
Level of professional training	Certificate (E.C.E)	8	22.22
	Diploma (E.C.E)	25	69.44
	BED in (E.C.E)	3	8.33
	Total	36	100

Information from table 9 shows representation of pre-primary school teachers according to professional training. . Majority 69.44% (25) of the pre-primary school teachers had diploma training in Early Childhood Education, 22.22 % had attained certificate level training while 8.33 % had trained to B.E.D level. This indicates that more of the teachers had been trained in teaching in pre-primary school hence they were able to rate how teachers teaching efforts affected pre-primary school children's academic performance.

These results are in line with the findings of Karuga (2010) who noted that 80% of science teachers were qualified and the problem of teachers can be improved by improving teachers working conditions. Karuga (2010) opines that a well-trained teacher feels motivated to teach. A teacher who is not supported may always feel that the syllabus is wide and difficult to finish in time. Ladd (2010) noted that teachers who have undergone professional training have made positive contribution to learning effectively than those teachers who are not trained. This is the reason as to why there is training of teachers as one of the major components of the education system everywhere in the world. Hence this study can conclude that teacher professional qualification influences the implementation of science activities in pre-primary schools. High professional qualification raises the teachers' self-esteem and the teaching morale will remain high even when other factors that increase their efforts are minimal.

To some extent, teacher's academic qualification is effective at identifying teachers who improve the achievements of children (Musili, 2015).Pre-primary school teachers are getting encouraged to train to higher levels. This could be explained by either the fact that the county government has offered employment to a few pre-primary school teachers while others are also hoping to be employed or due to the liberalization of the education sector resulting to mushrooming of training institutions and private education institutions which are offering employment. Therefore, training in early childhood education to many including teachers, head teachers and school managers is vital in improvement of pre-primary services.

4.5.2 Distribution of pre-primary school teachers by their teaching experience in teaching

Pre-primary school teachers were asked to say the length of time they had been teaching science activities in a pre-primary school class.

Table 10: Pre-primary school Teachers Teaching Experience in Years

Teaching experience	Frequency	Percentage
0-5 Years	18	50%
6-10 Years	9	25%
11-15 Years	3	8.33%
16-20 Years	6	16.67%
Total	36	100%

From the findings, 18(50%) of the respondents said they had been teaching for 0-5 years, 9 (25%) of the respondents said they had been teaching 6-10 years and 3 (8.3%) had been teaching for 11-15 years whereas 6(16.7%) of the respondents said they have been teaching for 16-20 years.

The findings also concluded that half of pre-primary school teachers under study had taught for a period of 5 years and below .As was cited in the literature review, long experienced teachers engage in appropriate approaches in managing the classroom instruction where they involve suitable teaching methodology that enhances children autonomy (Guskey 1998) and hence improved academic performance.

4.5.3 Pre-primary school teachers' collaboration and partnership

Using the following scale say how you collaborate with your colleague pre-primary school teachers in sharing ideas on all matters concerning teaching/learning science?

Key ;strongly agree(SA),agree(A),Undecided(U),Disagree(D),Strongly disagree(SD).

Table 11: Collaboration and partnership activities

Item	SA	A	U	D	SD	Mean
Making teaching/ learning resources	2.7	21.6	7.9	36.0	31.8	3.72
Making schemes of work and lesson plan	3.4	24.3	14.0	36.3	21.9	3.48
Peer teaching	3.4	20.5	17.8	32.2	26.0	3.56
Capacity building workshops	4.8	26.0	14.7	34.9	19.5	3.38
Refresher courses	8.9	27.4	26.0	21.9	15.8	3.08

Respondents disagree and strongly disagree;36.0% and 31.8% respectively, that they collaborate with their colleague pre-primary school teachers in making teaching learning resources,21.6% agree to that and least percentage(2.7%) strongly agree while 7.9% didn't take any sides.

Making schemes of work and lesson plans as a way of collaborating and sharing ideas with other pre-primary school teachers was strongly agreed with 3.4%.24.3% only agreed while 14% of the respondents were undecided, 36.3% and 21.9% represented those who disagreed and strongly disagreed respectively to this statement. 3.4% and 20.5% Strongly agreed and agreed respectively that they apply peer teaching in sharing ideas on all matters concerning teaching/learning science with their colleague teachers.32.2% disagreed as 26.0% strongly disagreed this gives 17.8% of undecided respondents. The research showed that 3.4% of the respondents strongly agreed as 20.5% agreed that they collaborate in capacity building workshops in sharing ideas on all matters concerning teaching/learning science with their colleague teachers.32.2% and 19.5% disagreed and strongly disagreed respectively to that while some 14.7% did not have a stand.

A greater percentage of respondents 26.0% were undecided about refresher courses in sharing ideas on all matters concerning teaching/learning science with their colleague teachers while 27.4% and 8.9% agreed and strongly agree respectively that they collaborate in sharing ideas on all matters concerning teaching/learning science with their colleague teachers as 21.9% and 15.8% disagree and strongly disagree about that. According to the mean values making teaching learning resources achieved a mean of 3.72 interpreting that they disagree that they collaborate in sharing ideas on all matters concerning teaching/learning science with their colleague teachers.

These findings indicate that there is little collaboration, and this could probably affect children’s academic performance in science activities which varied consultations which involve sharing of ideas in science. From literature review, it was noted that school leadership that allows collaboration and support for colleagues enhance good teachers relations and efficiency as was pointed out by Mank and King (1994). Teachers therefore should be given the opportunity to freely interact with other pre-primary school teachers and empowered to work together. Head teachers and pre-primary school managers should play an active role in provision of physical facilities including classrooms and learning resources, facilitate teachers to attend professional development courses, supervise and recognize pre-primary school teachers’ effort.

4.5.4 Pre-primary school teacher’s teaching experience and children’s academic performance in science activities.

The following are some of the characteristics of a pre-primary school teacher that shows teaching experience that may affect their levels of performance in their work. Kindly rate item appropriately

Key: strongly agree (SA) agree (A) undecided (U) disagree (D) strongly disagree(SD)

Table 6: Characteristics of pre-primary school teachers with teaching experience

Item	SA	A	U	D	SD	Mean
Higher professional development qualification	2.7	21.6	7.9	36.0	31.8	3.72
Frequent attendance of refresher courses	24.3	24.0	3.4	26.3	21.9	3.48
Better classroom management approaches	24.8	26.0	4.7	24.9	19.5	3.38
Encourage children autonomy in learning	26.0	27.4	8.9	21.9	15.8	3.08
Establishing class routine and monitoring group work	25.8	24.3	8.9	20.4	20.5	3.57

Higher professional development qualification don’t very much affect the levels of working as 36.0% ,31.8%;Disagree and strongly Disagree respectively.21.6% of the teachers agreed while 2.7% Strongly agreed that Higher professional development qualification affects the

level of job performance efforts. Only 7.9% did not have a stand and were undecided on these matters.

According to the respondents, 24.3% Strongly Agreed that frequent attendance of refresher courses affect levels of education, 24.0% agreed to that as 3.4% were undecided. 26.3% were against this and 21.9% disagreed and strongly disagreed respectively that frequent attendance of refresher courses affect the levels of job performance. Results indicate that 24.8% and 26.0% strongly agree and agree respectively that better classroom management approaches affect their performance levels, 4.7% did not have a side on that whereas 24.9% disagreed and 19.5% strongly disagreed.

The result indicate that 26.0% of the respondents strongly agree that encouraging children autonomy in learning affects the level of their teacher performance, as 27.4% agree, 8.9% were undecided while a part disagreed (21.9%) and strongly disagreed (15.8%). The study found that establishing class routine and monitoring group work affects the level of teachers' classroom instruction delivery differently as 20.5% strongly disagreed as 20.4% disagreed. 24.3% of the respondents agreed it affects whereas 25.8% strongly agreed to that. Those who were undecided totaled to 8.9%.

The study established that experienced teachers feel competent, their abilities and classroom instruction improve and are more satisfied with challenging opportunities just as was concluded by Musili (2015) in the literature review. This has been arrived at by respondents who strongly agreed and those that agreed teacher experience influenced better classroom management approaches, encouraged children's autonomy in learning and helped teachers in establishing class routine and monitoring group work, thus improves children academic performance.

4.5.5 Pre-primary school Children's Academic Performance

This study aimed to determine pre-primary school children academic performance in science activities. To ascertain this, the science activities mean scores of randomly selected 36 children distributed across various schools in Igembe South was recorded for the period 2016 to 2018. The results are presented in table 13.

Table 7: Pre-primary school Children's mean scores in science activities

Year	Zone	Science Mean Score	
2016	Kangeta	Term 1	34.25
		Term 2	38.17
		Term 3	37.53
	Kiengu	Term 1	33.75
		Term 2	35.37
		Term 3	39.71
	Akachiu	Term 1	40.00
		Term 2	41.88
		Term 3	44.26
	Maua	Term 1	36.85
		Term 2	39.11
		Term 3	40.19
2017	Kangeta	Term 1	39.37
		Term 2	40.15
		Term 3	36.25
	Kiengu	Term 1	36.73
		Term 2	39.49
		Term 3	40.11
	Akachiu	Term 1	39.98

		Term 2	43.85
		Term 3	42.74
	Maua	Term 1	37.94
		Term 2	35.78
		Term 3	45.71
2018	Kangeta	Term 1	37.50
		Term 2	40.17
		Term 3	36.00
	Kiengu	Term 1	34.75
		Term 2	37.00
		Term 3	40.50
	Akachiu	Term 1	42.30
		Term 2	40.77
		Term 3	43.03
	Maua	Term 1	35.71
		Term 2	38.29
		Term 3	41.14

The results showed that children's academic performance in science activities for the four zones under study was between 33.75 and 45.71 in mean scores. Generally the results showed a slightly above average mean but in most cases mean scores of 30 were realized which is below average.

Further, Pre-primary school teachers were asked to rate the performance of pre-primary school children in science activities .The following responses were given.

Table 8: Assessment Ratings

Performance rating	Frequency	Percentage
Below expectations	15	41.7%
Approaching expectations	11	30.5%
Met expectations	10	27.8%
Total	36	100%

From the table, 14 (41.7%) of the pre-primary school teacher's rated their pre-primary schools children's academic performance in science activities as below expectations, 11 (30.5%) rated the performance as approaching expectations and 10 (27.8%) agreed that the pre-primary school children's met teachers expectations. This shows that school children's academic performance in science activities is average.

Pre-primary school teachers were to indicate assessment strategies used to determine the acquisition of scientific knowledge and skills in the pre-primary school children .They gave these response.

Table 9: Strategies they use to assess acquisition of scientific knowledge and skills

Criterion	Frequency	%
Exam results	9	25
Observation during science activities practical	9	25
Oral questions	4	11.1
All of the above	4	11.1
Total	36	100.0

The table above shows that 25% (9) of the pre-primary school teachers allowed children perform science activities and rated them through observation which is a very effective strategy to assess children's academic performance in science activities. Most of pre-primary school teachers 27.78% (10) simply considered age, 25% (9) relied on exam results while 11.1% (4) used interviews. The rest that is, 11.1% used all the criteria above.

Children's learning abilities are achieved at different stages of development, therefore evaluation of pre-primary school children's academic performance should be done frequently and almost every day, not just at the end of the term which are summative and may give a wrong impression rather than relying on pre-primary school children sitting for a written exam. There are moments when a teacher has to evaluate children even during science activities lesson as the children perform tasks. Therefore pre-primary school teachers should engage various evaluation techniques such as use of observation schedules, use of checklist, use of scaling systems like strong, not strong, weak, and very weak and use of questionnaires related to specific instructional objectives. The educational outcomes assist the pre-primary school teacher to plan the instructional programs best to suit the pre-primary school children's learning requirements.

The study established that, those experienced teachers are effectively involved in engaging learners despite the shortcomings of the unfavorable learning environment that pre-primary school teachers work in. The study also established that experienced teachers were able to improvise science activities teaching/learning resources from the environment as the pre-primary school management was not able to provide. Experienced teachers also used teaching / learning resources appropriately and effectively. This attributed to high percentage retention rate for pre-primary school children.

4.6 Pre-primary school teacher's workload and Children's academic performance in Science Activities

Pre-primary school teachers workload has been expressed in terms of large enrollment, amount of times spent teaching and other administrative duties such as pastoral care, registration of children, meals preparation among others.

4.6.1 Pre-primary school children enrolment by age and gender

The two questionnaires of both the head teacher and the pre-primary school teacher sought information concerning the enrollment of all the pre-primary school classes in the school. The table below shows the pre-primary school enrolment by age and gender.

Table 10: Children’s enrollment by Age and Gender

Age	3years	4years	5years	6years	Above 6years	Total
Boys	9	7	7	5	1	29
Girls	9	8	10	2	7	36
Total	18	14	18	7	8	65

The mean of children’s enrollment was computed with respect to their age and gender. The means enrolment for boys was found to be slightly lower than that of girls especially with those children above age 6 years. However the mean enrolment of both boys and girls were similar among the children aged 3-4 years. The findings show that there were relatively high gender disparities in gender among the children enrolled in the pre-primary schools during the study period. Therefore equity in education should be embraced for both genders to allow Education for All (EFA).

The study results further indicate that many pre-primary school classes were overcrowded due to large number of children. According to GoK, 2017 a pre-primary school class should have a maximum of 25 children. These results indicate that on average most pre-primary schools had over 60 children (both boys and girls) in one pre-primary school class. In relation to class enrolment, the study established that the pre-primary school teacher had many children to take care of. This resulted to challenges in grouping them and marking their assignments. The study established that the pre-primary school teachers planned for make shift teaching to ensure smaller manageable classes at a time which amounts to increased teacher workload.

4.6.2 Pre-primary school teachers’ responsibilities that may influence children’s academic performance in science activities

The following are pre-primary school teachers’ responsibilities that may increase teachers’ workload. Kindly rate them.

Key: strongly agree (SA) agree (A) undecided (U) strongly disagree (SD)

Table 11: Pre-primary school teachers Workload

Item	SA	A	U	D	SD	Mean
Admitting children into pre-primary school	21.9	34.6	12.3	19.2	12.0	2.64
Large number of children in a class	17.8	20.9	12.3	34.2	14.7	3.07
Assigned duties outside classroom teaching	8.2	25.7	25.7	27.4	13.0	3.11
Multi-grade or multi-shift teaching if any	11.3	25.7	22.3	20.2	20.5	3.13
High expectations from society	9.6	27.7	19.2	30.5	13.0	3.10

Respondents were asked about their different opinion on how different aspects of pre-primary school teachers' workload may affect children's performance. Results from the Table 17 shows that that 34.6% just Agree that admitting children into pre-primary school could influence children's performance in science activities. Results also indicated 21.9% agree strongly on that while 12.3% were undecided. Some had a different view where they disagreed and strongly disagreed; 19.2% and 12.0% respectively. 34.2% of the respondents disagreed that numbers of children in the class affect their efficiency in teaching, whereas 20.9% and 17.8% agreed and strongly agreed respectively. Least of them were undecided (12.3%) and 14.7% strongly disagreed to this statement. Results also indicate only 8.2% of the respondents Strongly agree that assignment of duties outside the class affect their classroom instruction delivery, The undecided and those who agreed had a draw at their percentage i.e. 25.7% while a higher percentage 27.4% disagreed with these.13.0% of the respondents strongly disagreed that it affects their teaching. 11.3% and 25.7%, Strongly Agree and Agree respectively that multi grade or multi shift teaching affects performance among teachers, 22.3% of the respondents didn't have a decision while 20.2% disagree as 20.5% strongly disagreed that multi grade teaching have an effect on their work performance.

High expectations from the society affects teachers' effort levels relatively since 9.6% and 27.7% of the respondents strongly agreed and agreed respectively, 19.2% were undecided about this matter while 30.5% disagreed whereas 13.0% strongly felt that high expectations from the society doesn't affect their work.

The findings shows that the work of admitting ECD children into the school recorded a mean of 2.64 showing that the respondents had a neutral feeling about admitting exercise increasing their workload. A greater percentage disagree that large number of children in their classes increase their workload as a mean of 3.07 was recorded. Respondents also disagreed that assignment of duties outside classroom and Multi-grade teaching actually affects their classroom delivery. Same case was felt as they didn't much agree that high expectations from the society affect their teaching as a mean of 3.10 was recorded.

4.6.3 Head teachers' role in supporting pre-primary school teachers

Section B of the head teachers' questionnaire provided information concerning transition of pre-primary school children from pre-primary school to standard one class and the retention rate after they proceed to standard one and the criteria of promotion. The section sought information concerning head teachers involvement in the teaching and learning of science activities in the pre-primary school class. The table below consists of various aspects of head teachers' involvement in pre-primary school education ranging from teaching requirements, supervision and support for pre-primary school teachers.

Table 12: Head Teachers' Involvement in Pre-primary schools Management

Activity	Yes	No
Head teachers checks pre-primary teachers professional documents science schemes of work, science lesson plans and children progress records in sciences	34%	66%
School hold science competitions where pre-primary teachers and children are recognized for any remarkable improvement made in science activities	12%	88%
The school supports pre-primary schools teachers in their professional development in science activities	31%	69%
There is a relationship between teachers motivation and children's academic performance	88%	12%
School holds educational meetings with pre-primary school parents	38%	62%
Head teacher initiates discussions on science activities result	20%	80%

From the table 34% of the head teachers were concerned with the pre-primary school teachers' preparation of professional documents, 12% hold science activities competition and recognize science activities performance while 31% support pre-primary school teachers' professional development. Only 38% of the head teacher invites pre-primary school parents to discuss issues pertaining to their children.

The head teacher's questionnaire also contained important information on how schools are involved in supporting the pre-primary school teacher's to help them teach effectively. This included the prevailing working conditions such as the physical facilities like classroom, teaching / learning science resources and ways of motivating pre-primary school teacher's. The study was interested in seeking the head teacher's opinion on the importance of teacher's motivation and the support given to teachers by head teachers that ensure pre-primary school children learn at their best. The findings of the study showed that head teachers role in pre-primary school learning was minimal through they agreed that well supported teachers are highly motivated and this enhances children's performance academically.

4.7 Pearson Correlations

To determine the degree or strength of linear relationship among the variables, the researcher used Pearson correlation (r). Linearity increases the predictive power of the model and the validity of the estimated coefficients. The study was aimed at determining the correlation between the variable so as to establish the magnitude of the relationship at 1% significance level. A correlation of $r > +0.7$ implies that the variable are strongly related negatively or positively.

Table 13: Correlation between factors that are related to the teacher (working conditions, teaching experience and workload) influence and pre-primary school children academic performance in science activities

		Pearson Correlations			
		Y	X1	X2	X3
Pearson Correlation	Pre-primary school academic performance	1.000	.796	.893	.706
	Teachers Experience	.796	1.000	.857	.752
	Teachers working conditions	.893	.857	1.000	.766
	Teachers workload	.706	.752	.766	1.000
Sig. (2-tailed)	Pre-primary school academic performance	.	.000	.000	.000
	Teachers Experience	.000	.	.000	.000
	Teachers working conditions	.000	.000	.	.000
	Teachers workload	.000	.000	.000	.

Y stand for the dependent variable (Pre-school children academic performance), X1 stand for teachers' experience, X2 represent teachers' working conditions and X3 teachers' workload.

Correlation is significant at the 0.01 level (2-tailed).

4.7.1 Correlation between teachers experience and pre-primary -school children's academic performance

The study used Person correlation to find out the relationship between teachers experience and children's academic performance in science activities in Igembe south sub-county in Meru County. The correlation coefficient was .796 with p -value (0.000). This was

concluded that it was significant at 1% significance level. Therefore there is a strong relationship between teachers experience and children's academic performance in science activities in Igembe south sub-county in Meru County. An increase in teachers' experience in Igembe south sub-county in Meru county will lead to an increase in children's academic performance in science activities in Igembe south sub-county in Meru County. The results agree with Razzaque (2013), understanding that raise working morale for teachers who were joining Pre-service teaching in Pakistan, that pre-primary school children academic performance improves depending on teachers' experiences. . Razzaque's results suggested that pre-primary schools had employed programs aimed to ensure that teaching and learning was achieved.

4.7.2 Correlation between teachers working conditions and pre-primary -primary school children's academic performance.

The study used Pearson correlation to find out whether teaching conditions have a relationship with pre-primary school children's academic performance in science activities in Igembe South Sub-County in Meru County. The correlation coefficient was .893 with p - value (0.000). This means it was significant at 1 % significance level which implies that teachers working conditions have a relationship with pre-primary school children's academic performance in science activities in Igembe South Sub-County in Meru County. An improvement in teachers working conditions will lead to improved pre-primary school children's academic performance in science activities in Igembe South Sub-County in Meru County. The results were in consistent Ostroff, (2014) that studied the relationship between satisfaction, attitudes of teachers and performance in children. The results found out that improving teachers working conditions through safe, well organized all-inclusive and simulative classrooms have helped boost teaching and learning in public primary school as learners are able to focus on studying and learning by observing and contributing in class.

4.7.3 Correlation between teachers workload and pre -primary school children's academic performance

To find out the relationship between teachers' workload and pre-primary school children's academic performance in science activities in Igembe South Sub-County in Meru County Pearson correlation was used. The correlation coefficient was 0.706 with p-value (0.000)

which was found to be significant at 1% significance level. Therefore it was concluded that there was a strong positive relationship between teachers' workload and pre-primary school children's academic performance in science activities in Igembe South Sub-County in Meru County. The findings were supported by (Kairo, 2013) in his study on strategies applied by secondary school to improve teaching and learning. The results support findings by ministry of education report, 2016 that there are extra work for teachers and some teachers may concentrate on it more rather than teaching. The results showed there was a significant relationship between teachers' workload and children's academic performance in science activities

4.8 Regression Analysis for the Study Variables

Regression analysis helps in describing as well as evaluating the relationship between the independent and the independent variable. The study, aimed at establishing whether there is any influence of pre-primary teachers' experience, teachers working conditions and teachers workload on children's academic performance in science activities. The regression findings are presented in table 20.

Table 14: Summary of the Regression Model

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
1- teachers experience	.838 ^a	.701	.701	.445
1- teachers working conditions	.938 ^a	.881	.880	.28228
1- teachers workload	.819 ^a	.670	.669	.46925

a. Predictors: (Constant), teachers experience, teachers working conditions and teachers workload b. Dependent Variable: children's academic performance in science activities

As indicated in Table 20 the study shows the value of R-squared obtained for teachers experience was 0.701 at a probability value 0.000, which is less than significance value of 0.05. The R-squared 0.701% obtained in this study implies that 70.1 % of the variations in Children's academic performance in science activities can be explained by the independent variable teacher experience while 29.9% of variations in children's academic performance in science activities is explained by random error or other factors.

Results further found that the value of R-Squared obtained for teachers working conditions was 0.881. This result implies that 88.1% of the variations in children's academic performance in science activities is explained by the independent variable teachers working conditions while 11.9 % of variations in children's academic performance in science activities is explained by random error or other factors.

Finally the study obtained a coefficient of determination R-Squared (R^2) of 0.670. This result implies that 67% of the variations in children's academic performance in science activities are explained by the independent variable teachers' workload while 33 % of variations in children's academic performance in science is explained by random error or other factors.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The information in this chapter is based on summary, conclusions and recommendations drawn from the findings on teachers' working conditions, work load and experience and how they influence pre-primary school children's academic performance in science activities.

5.2 Summary of the Research Findings

The research findings summary is presented in reference to the three research objectives section provides a summary of the findings of the three research objectives of the study.

5.2.1 The summary of the findings on the extent to which pre-primary school teacher's experience influences pre-primary school children's academic performance in science activities

The study established the following concerning the pre-primary school teachers training levels in Early Childhood Education .That 8(22.2%) pre-primary school teachers had certificates, 25 (69.44%) were diploma holders while 3(8.33%) had bachelor of Education degree in Early Childhood Education. It was noted that professionally trained teachers contribute more positively to effective teaching than untrained teachers.

The teaching experience in years was recorded as follows; 18 (50%) respondents had taught for between 0 and 5 years,9 (25%) had taught for 6-10 years,3(8.3%) had taught for 11-15 years while 6 (16.7%) had taught for 16-20 years. The conclusion made was that teachers who had taught for long period had more experience in teaching. This is because they were conversant with appropriate approaches required in the management of their classrooms and used adequate methodologies in teaching their children. Therefore children's academic performance in science activities is seen to improve.

The study also established that partnership and collaboration among pre-primary school teachers' is an important component in gaining teaching experience. The pre-primary school teachers collaborated in making teaching/learning resources (2.75 and 21.6% strongly

agreed and agreed respectively.)3.4% of the teachers strongly agreed and 20.5% agreed that they collaborate and share ideas in making science schemes of work and lesson plans. Pre-primary school teachers also combine effort in peer teaching .this was strongly agreed by 3.4% while 20.5% agreed the same. Capacity building workshops and refresher courses also enabled pre-primary school teachers to partner together.

Generally, majority of the respondents agreed that teachers' experience influences pre-primary school children's academic performance in science activities in Igembe South sub-county in Meru County, Kenya. Results obtained through Pearson correlation coefficient revealed teachers experience significantly influenced children's academic performance in science activities. An increase in pre-primary school teachers working experience will lead to an increase in pre-school children's academic performance in science activities. Therefore the conclusion was drawn that there was a significant relationship between pre-primary school teachers experience and children's academic performance in science activities.

The R-squared obtained by the study for teachers experience implies that 70.1 % of the variations in children's academic performance in science activities largely depends on the teacher's experiences.

5.2.2 The summary of the findings on the extent to which pre-primary school teacher's working conditions influence children's academic performance in science activities

Availability of physical facilities ,that is, a pre-primary school classroom with adequate space was rated as follows.6(16.7%) of schools visited had a classroom of standard size of 31 by 25 feet according to the regulations of the Ministry of Education.17(42.7%) had very small classrooms of 20 by 25 feet while 13(36%) schools had average sized classroom of 26 by 30 feet .The study therefore found out that inadequate classroom space hindered free movement of both the teacher and the pre-primary school children hence a challenge in performing science activities experiments. Majority of the respondents agreed that teacher's working conditions affect pre-primary school children's academic performance in science activities.

Regarding teaching/ learning materials it was seen that 24 teachers made the materials themselves from locally available materials, 5 teachers agreed that parents provided while 6 teachers agreed that head teachers provided the materials .One respondent agreed that teachers buy materials themselves. In conclusion it was found that much of the teaching /learning were made by the teacher and little support is got from parents .This affects teachers' efficiency in that other stakeholders are not actively involved and especially the parents who should be at the fore front .Therefore parents need a constant reminder that provision for pre-primary school is not a responsibility of the government like for the primary section which is funded by the national government

Concerning supervision and recognition of teachers, the study found out monitoring the teachers arrival time to school and punctuality in attendance of science activities lessons was the role of the head teachers. It was also noted that head teachers (60%) involve pre-primary school teachers in decision making, 30% award pre-primary school teachers for good performance and 25% discussed the results, 50% monitor teacher preparation of professional documents used in planning for teaching and during the actual teaching.

Pre-primary school teachers' attendance to science activities refresher courses shows, 2(5.6%) of the respondents agreed that they attend most often when called upon to attend,9 (25%) attend rarely,14(38.8%) attend when facilitation funds were available and 15(30.6%) had not attended .Attendance of science activities workshops help teachers to improve teaching methodology by learning new techniques. This improves teachers' classroom instruction practice thus improves children's academic performance in science activities. Majority of the respondents agreed that teacher's workload influence pre-school children's academic performance in science activities.

Pearson correlation coefficient was significant at 1% significance level. This means that teacher's workload had a strong relationship between teacher's working conditions and pre-primary school children's academic performance in science activities. An increase in better teacher's working conditions influences pre-primary school children's academic performance in science activities. This is because teachers are highly encouraged to work hence they are able to give the children what is best for them. This inadequacy in good

working conditions for teachers could result to poor performance of pre-primary school children in science activities.

Based on the regression R Squared the conclusion of this study from the results is that working conditions should be effective so as to enable teachers meet expectations and this ultimately influences pre-primary school children academic performance in science activities. Therefore, lack of good working conditions for teachers may lead to decreased pre-primary school children academic performance in science activities

5.2.3 Summary of the findings on the extent to which teacher's workload influences pre-primary school children's academic performance in science activities.

Large pre-primary enrolment was seen from the data analyzed where, 34.6% of the pre-primary school teachers agreed while 21.9% strongly agreed. 12.3% had no idea, 19.2% and 12% disagreed and strongly disagreed respectively that increased workload affects teachers performance in teaching. It was concluded that large numbers of children in a class affected the grouping of learners which is a very effective technique in teaching young children.

Another aspect of teachers' workload was the amount of time spent teaching .The study found that large enrolment led to multi grade teaching as was strongly agreed by 11.3% and agreed by 25% of the respondents.22.3% had no idea on this .20.2% disagreed while 20.5% of the respondents strongly disagreed that this extra time teaching affected their classroom delivery. Concerning extra duties given to the pre-primary school teachers, 8.2% of the respondents strongly agreed while 25.7% agreed that their teaching time is interfered with. 27.4% disagreed while 13% strongly disagreed that extra duties outside classroom teaching had an. The study concluded that the increased workload of extra duties may reduce the teachers' effort of class teaching due to divided attention.

Pearson correlation coefficient which was found to be significant at 1% significance level, implies that there exists a strong positive relationship between teacher's workload and pre-school children's academic performance in science activities. An increase in teacher's workload will lead to and decrease in pre-school children's academic performance in science activities.

The regression R squared revealed that variations in pre-primary school children academic performance in science activities can be explained by independent variable teachers' workload. These Findings are in agreement with the finds of other studies done in Kenya on teacher satisfaction and motivation. A study by Ndani and Kimani (2010) found out that pre-primary school teachers are motivated by recognition by the community for work well done, workload that is manageable and fringe benefits. Makoti (2005) found that good working conditions are a source of teacher motivation. Karugu (1980) and Ngaroga (1985) specifically found that working near home and good relationship with children and other teachers satisfy teachers in Kigumo Division and Nairobi County respectively. Their findings are in harmony with the three factors influencing children's learning discussed in this study. They are in agreement that those factors increase pre-primary school teacher's job performance levels which in turn impact positively in children's academic performance in science activities.

5.3 Conclusion

The study came up with the following conclusions that teaching experience influence pre-primary school teachers' job performance which in turn influences pre-primary school children's academic performance in science activities .This was got from the analysis done concerning teachers training levels, long time serving teachers and partnership and collaboration of pre-primary school teachers with the others. It was concluded that professionally trained teachers with long teaching experience use better classroom management strategies and effectively give their teaching instructions.

The study also concluded that there is a strong positive relationship between teachers working conditions and children's academic performance .It was noted that availability of equipment and the supply of teaching / learning materials also contribute to teacher's satisfaction with the physical environment hence lifting their effort levels which in turn improves children's academic performance due to increased teacher's commitment and enthusiasm. Teachers engaged in good teaching resulting from the support from the school administration.

The third conclusion made was that increased workload affects teachers' classroom delivery because of over loading. The teacher is left with inadequate time for classwork. The teacher requires manageable workload to enable them concentrate on children's class work. Pre-primary school teachers should be engaged in matters concerning making teaching /learning resources where possible, making science schemes of work and lesson plans, matters concerning pre-primary school assessments and other classroom practices. Manageable workload results to increased teacher work effort which consequently improves pre-primary school children's academic performance in science activities.

5.4 Recommendations

In light of findings of this study, the researcher would like to make the following recommendations

- i. There is a positive correlation between teacher related factors, namely workload, experience and working conditions and children's academic performance in science activities.
- ii. Pre-primary schools Board of Managements and parents should be supply adequate teaching and learning resources, spacious classrooms and furniture required in pre-primary schools. Pre-primary teachers should be funded to enable them attend refresher courses, be allowed to partner and collaborate with other teachers to improve their instructional delivery methodologies.
- iii. More specific policies with regard to teacher employment, supervision and provision of teaching / learning resources should be promulgated to understand who plays what role in pre-primary school education.
- iv. Ministry of Education to conduct workshops and in-service sessions for head teachers' and pre-primary school managers so that they can be guided on how to participate satisfactorily in learning so as to assist pre-primary school teachers perform better for the best interest of pre-primary school child.
- v. County government to employ all trained pre-primary school teachers, construct 1 classes and provide teaching-learning resources now that pre-primary school education is under the county government.

5.5 Recommendations for further research

The study found out that there is need for further research in the following areas:

1. This study should be replicated to a wider population of pre-primary schools in Igembe South Sub county and other parts of the Meru County to compare the factors influencing children's academic performance in science activities. s.
2. Further research should be done to find out whether factors of such as participation of other stake holders, full involvement of the county government in the provision of ECDE services influences children academic performance in science activities.
3. Other researchers to be done in other counties in Kenya on factors influencing pre-primary school children's performance not only in science activities but in other activity areas.

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APPENDICES

APPENDIX A

LETTER OF INTRODUCTION

UNIVERSITY OF NAIROBI

C.E.E.S

P.O BOX 92,

KIKUYU

Date.....

The Head Teacher

Dear Sir/Madam

RE: PERMISSION TO CARRY OUT RESEARCH IN YOUR SCHOOL

I am a student at the University of Nairobi pursuing a Master's degree in Early Childhood Education. I am carrying out a research on Teacher's Motivation and its effects on Pre-primary school children's academic performance in Science activities in Igembe South Sub-county in Meru County.

I hereby wish to request you to allow me to carry out a research in your school. All information gathered will be treated with utmost confidentiality and used only for the purpose of research.

Thanks in advance

Yours faithfully

Jerusha Nkatha Kaane

APPENDIX B

QUESTIONNAIRE FOR THE HEADTEACHER

This questionnaire is intended to help in an investigation into the Teacher's Motivation and its effect on Pre-primary school Children's academic performance in science activities in Igembe South Sub County in Meru County.

You are kindly requested to complete this questionnaire, indicating your honest responses by placing a tick (✓) against your choice and filling the blank spaces (–) by giving as much details as you can. All the information given in this questionnaire will be treated with strict confidentiality and therefore **DO NOT WRITE YOUR NAME OR THAT OF YOUR SCHOOL** anywhere in this questionnaire.

Please respond to all questions items as instructed. Your co-operation will be highly appreciated.

SECTION A

1 What is your gender?

Male () b) Female ()

2 What is your age bracket?

30-40 years () b) 41- 50 years () c) over 50 years ()

3 Which of the following preschool class levels are in your school and how many streams?

Baby Class () Number of streams.....

Nursery () Number of streams.....

Pre-unit () Number of streams.....

4 What is the size of your pre-primary school classroom?

20-25ft () 25-30ft () 30-35 ft ()

5 What is the enrolment of pre-primary school children in each of the above levels by gender?

	Girls	Boys	Total
Baby class			
Nursery			
Pre unit			
Total			

SECTION B

1) In your own opinion, is your pre-primary school teacher committed to teaching science activities to your pre-primary school children?

Not committed () slightly () moderately committed () extremely committed ()

2) What is the extent of the level of involvement of the pre-primary school teachers' in the management of the pre-primary school?

3) Does the pre-primary school teacher(s) share with you the challenges he/she encounter in teaching science activities?

Often () no time () not often ()

If YES, how do you get involved in the solutions to these challenges? -----

4 a) As the supervisor at the pre-primary school level, do you check pre-primary school teacher's professional documents he/she has prepared in readiness to teaching science including the science schemes of work, science lesson plans and children's progress records in science ? YES () NO ()

a) If they are not available, how do you help the teacher?

Report to CSO () advice to have them model ()

5. What measures have you put in place to ensure teacher's punctuality in science lesson attendance and recovery of any science lesson not taught for whatever reasons?

Time table adherence () checking children's work books ()

Recovery schedule time table () lesson observation ()

6. Do your school hold science competitions where pre-primary school teachers and children are recognized for any remarkable achievement made in science? YES () NO ()

Explain.....

7. In your own opinion, do you think there is a relationship between teacher's motivation and children's performance? YES () NO () .

Explain you answer -----

8. What are the ways you have adopted for motivating your preschool science teachers?

Presents () salary increment relieve of some duties ()

Verbal praises () taken to a capacity building workshop ()

9. Are the science teaching/ learning materials adequate for the pre-primary school children?

Most adequate () not adequate () moderately adequate () scarce ()

10. In your own opinion, do you think it is important to support pre-primary school teachers in their professional development in science activities? YES () NO ()

If yes, how do you support them? -----

11. a) How often do you check pre-primary school science results?

Daily () Weekly () Monthly () Termly ()

b) In case the results are not forthcoming, how do you address the poor performance to ensure improvement? Involve science panel members () plan for building workshop ()

Discuss with present parents () make children repeat a class ()

12. Do you allow your pre-primary school teachers to attend science refresher courses? YES () NO ()

If yes, who pays for facilitation? Most often () not often()
when funds are available() no time ()

Thanks for your cooperation.

APPENDIX C

QUESTIONNAIRE FOR PRE-PRIMARY SCHOOL TEACHERS

This questionnaire will be filled by the pre-primary school teachers of Igembe South Sub County, Meru County.

Kindly complete the questionnaire by indicating your honest response by placing a tick (\checkmark) against your choice and filling the blank spaces (-) by giving as much details as you can.

The information revealed will be treated with confidentiality. **DO NOT WRITE YOUR NAME OR THAT OF YOUR SCHOOL** anywhere in this questionnaire.

Please respond to all question items.

SECTION A

BACKGROUND INFORMATION

1 Please indicates your gender.

a) Male () b) Female ()

2 What is your age in years?

a) 25-30 () b) 31-40 () c) 41-50 () d) over 50 ()

3 What is the enrolment of your pre-primary school class where you teach science activities? Girls-----Boys-----Total-----

4 What is your highest level of training in Early Childhood Education?

a) Certificate () b) Diploma () c) Degree () d) Others specify-----

5 Kindly select your highest level of education

(I)O level () (II) A level (III) others specify-----

6 How long have you taught science activities in a pre-primary school class? -----

0-5 years () 6-10 years () 11-15 years () 16-20 years ()

SECTION B

(i) TEACHER'S WORKLOAD

What is the enrolment of your pre-primary school children in gender and ages?

age	3years	4years	5years	6years	Above 6 years
Boys					
Girls					
Total					

2 (i) what is the total number of science lessons you teach per week? -----

(ii) In your own opinion, is the time allocated per lesson adequate to perform science experiments and projects?

Most adequate () moderately () not adequate ()

If no, explain how you manage the deficiency.....

3 Does the school provide adequate teaching/ learning Science resources? Yes () NO ()

If No, how do you address the problem/shortage? -----

4. Which part of teaching science activities do your children enjoy most?

Theory () practical guided by the teacher () field visits () own activity ()

5.If the science activities results do not reflect your expectations, what do you think could be the possible reasons? -----

6. The following are aspects of pre-primary school teachers’ workload that may affect teacher motivation. Rate them accordingly

factors	Strongly agree	agree	undecided	disagree	Strongly disagree
The ECD admitting into the school					
Number of children in your class					
Assigned duties outside classroom teaching					
Multi-grade or multi-shift teaching if any					
High expectations from society					

7 Are you given any extra duty by the school except teaching Science activities in the pre-primary school class? YES () NO ()

8 In your own opinion, do you think increased teacher's workload affect your children's performance in Science? YES () NO ()

9 Enumerate some areas of support that the school gives you as pre-primary school teachers that might have an influence in academic performance of pre-primary school children in Science activities.....

10 In your own opinion, what other forms of support from the school would help you improve the pre-primary school children's academic performance
.....

TEACHER'S WORKING CONDITIONS

1 Is the size of your pre-primary school classroom adequate to accommodate science working tables for all the children during science activities? Yes () No ()

If no, how do you arrange for science activities to cater for experiments and practical?

2 a) Are the science teaching/learning resources adequate for all the pre-primary school children? Most adequate () moderately adequate () scarce ()

b) Comment on the security and suitability of the pre-primary school classroom concerning the display of children's work after performing science experiments and practical's?

Suitable () not suitable () others, specify.....

3 a) Using the following scale say how you collaborate with your colleague pre-primary school teachers in sharing ideas on all matters concerning teaching/learning science?

Strongly agree (sa) agree (a)
strongly disagree (sd) disagree (d) undecided (u)

Making teaching	Strongly	Agree	undecided	Strongly	disagree
-----------------	----------	-------	-----------	----------	----------

learning resources	agree			disagree	
making schemes of work and lesson plan					
Peer teaching					
capacity building workshops					
Refresher courses					

b) Does the head teacher give any assistance to facilitate the above activity? Yes () No ()

c) Does your teaming up as pre-primary school science teachers influence the children academic performance in science? YES () NO ()

How?

4 Does the school administration involve you in decision making on matters pertaining to science especially in purchasing materials and planning for science field trips? YES () NO () Explain how?

5 What type of motivation is given to teachers and children in appreciation of good performance in science activities

Rewards () verbal praises () given responsibilities () others, specify.....

6. In your own opinion what are other working conditions that affect your classroom teaching of science activities ?.....

(iii) TEACHER'S EXPERIENCE

1. a) How have your pre-primary school children been performing in science activities for the last three years?

	Frequency	Percentage
90-100		
80-90		
70-80		
60-70		
50-60		
40-50		
30-40		
20-30		
10-20		
0-10		

Comment on the results and give possible reason where applicable.....

b) Which are the appropriate assessment strategies you use to assess the acquisition of scientific knowledge and skills?

Exams () Observation checklist () Rating scales () others, specify.....

2.Out of your own teaching experience, do you think there is a relationship between teaching methods used and the children’s academic performance in science?

Strongly agree () Agree () Disagree () strongly disagree ()

3.What are your set expectations for teaching science?

4.What do you think are the benefits of pre-primary school teachers attending science refresher courses?

Certificates () gain more expertise () others, specify.....

5 a) Do children enjoy using science instructional materials availed to them during science activities? YES () NO ()

b) At what stage of lesson presentation do you display your science instructional material?

At the beginning () at the end of the lesson ()

At the middle () others, specify.....

6 a) How often does your head teacher assess/monitor the teaching/learning of science activities in your pre-primary school class

Regularly () sometimes () no time () others, specify ()

b) Do you discuss the feedback together to effect changes that would result to improvement in science? YES () NO ()

Explain.....

7. The following are aspects of teacher's teaching experience that may affect their levels of motivation. Kindly rate item appropriately

Factors	SA	A	U	D	SD
Higher professional development qualification					
Frequent attendance of refresher courses					
better classroom management					

approaches					
Encourage children autonomy in learning					
Establishing class routine and monitoring group work					

Thanks for your co-operation

APPENDIX D

INTERVIEW SCHEDULE FOR CHILDREN

1 Does your teacher give you science homework? YES () NO ()

If yes, does he/she mark the science assignment? YES () NO ()

2 Do your parent (s) check your science homework given by the teacher when you go home? Yes () No ()

3 Do your parent(s) assist you in doing your science homework? YES () NO ()

4 Do your parent(s)/guardian pay for your science trips? YES () NO ()

5 Where do you display your science work after you perform your science experiments.....

- 6 Do you enjoy learning science? YES () NO () Why?
- 7 What does your teacher teach you in science activities that you enjoy most
- 8 a) Does your class room have a science corner? YES () NO ()
- b) What is the use of the science corner in your class?
- 9 a) Do you go for science field trips? YES () NO ()
- b) How do record what you learn during the field trips?
- 10 Do you enjoy working with your friends when your teacher put you in groups?
- Explain how you perform group activities during science lessons.....
- 11 Are science textbooks enough for all of you? YES () NO ()
- 12 How many marks did you get in science activities in the last exam

Thanks for your co-operation

APPENDIX E

CHILDREN'S SCIENCE ACTIVITIES RESULTS FOR 2016 to 2018

YEAR	ZONE	SCIENCE MEAN SCORE	
2016	KANGETA	TERM 1	
		TERM 2	
		TERM 3	
	KIENGU	TERM 1	
		TERM 2	
		TERM 3	
	AKACHIU	TERM 1	
		TERM 2	
		TERM 3	
	MAUA	TERM 1	

		TERM 2	
		TERM 3	
2017	KANGETA	TERM 1	
		TERM 2	
		TERM 3	
	KIENGU	TERM 1	
		TERM 2	
		TERM 3	
	AKACHIU	TERM 1	
		TERM 2	
		TERM 3	
	MAUA	TERM 1	
		TERM 2	
		TERM 3	
2018	KANGETA	TERM 1	
		TERM 2	
		TERM 3	
	KIENGU	TERM 1	
		TERM 2	
		TERM 3	
	AKACHIU	TERM 1	
		TERM 2	
		TERM 3	
	MAUA	TERM 1	
		TERM 2	
		TERM 3	

APPENDIX F
IGEMBE SOUTH SUB COUNTY MEAN RESULTS ANALYSIS FOR GRADE 1
YEAR 2015-2018

2015						
Zone	Subjects					Total
	English	Kiswahili	Mathematics	Science	SSRE	
Akachiu	48	55	50.82	39.08	49.37	242.27
Kangeta	45.66	49.28	40.24	40.86	50.34	226.38
Maua	47.34	52.38	50	40.02	56.36	246.1
Kiengu	48.66	47.3	39.98	36	50.28	222.22
Total	189.66	203.96	181.04	155.96	206.35	936.97
Average	47.415	50.99	45.26	38.99	51.5875	234.2425
2016						
Zone	Subjects					Total
	English	Kiswahili	Mathematics	Science	SSRE	
Akachiu	40.36	49.9	60.1	40.96	45.36	236.68
Kangeta	45.26	50.18	53.1	38.24	43.02	229.8
Maua	50	47.6	43	42	50.28	232.88
Kiengu	48.32	50.36	49	32.96	50.18	230.82
Total	183.94	198.04	205.2	154.16	188.84	930.18
Average	45.985	49.51	51.3	38.54	47.21	232.545
2017						
Zone	Subjects					Total
	English	Kiswahili	Mathematics	Science	SSRE	
Akachiu	43.54	57.25	52.63	37.74	45.26	236.42
Kangeta	46.03	52.51	55.7	50.3	45.42	249.96
Maua	48	52	49.48	33.38	50.18	233.04
Kiengu	50.18	43.38	56.7	41.22	50	241.48
Total	187.75	205.14	214.51	162.64	190.86	960.9
Average	46.9375	51.285	53.6275	40.66	47.715	240.225
2018						

Zone	Subjects					Total
	English	Kiswahili	Mathematics	Science	SSRE	
Akachiu	43.54	51.25	43.02	37.74	55.26	230.81
Kangeta	40.07	50.91	53.1	37.52	53.02	234.62
Maua	34.61	39.15	57.15	44.69	44.07	219.67
Kiengu	45.34	41.04	61.04	40.88	50.2	238.5
Total	163.56	182.35	214.31	160.83	202.55	923.6
Average	40.89	45.5875	53.5775	40.2075	50.6375	230.9

Source ; Igembe Sub county Education office

APPENDIX G
RESEARCH AUTHORIZATION



UNIVERSITY OF NAIROBI
COLLEGE OF EDUCATION AND EXTERNAL STUDIES
DEPARTMENT OF EDUCATIONAL COMMUNICATION AND TECHNOLOGY

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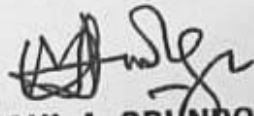
14th December 2015

TO WHOM IT MAY CONCERN

SUBJECT: KAANE JERUSHA NKATHA. - REG. NO. E57/73766/2014

This is to certify that **KAANE JERUSHA NKATHA - REG. NO. E57/73766/2014** is a student at the University of Nairobi, College of Education and External Studies in the School of Education, Department of Educational Communication and Technology. She is pursuing a course in Master of Education in Early Childhood Education Programme. Her Project title is "Impact of Motivation of Teachers on Academic Performance of Preschool Children in Igembe South Sub-County of Meru County."

Any assistance accorded to her will be highly appreciated.


Prof. **PAUL A. ODUNDO**
CHAIRMAN, DEPT. OF EDUCATIONAL COMMUNICATION & TECHNOLOGY