

**INFLUENCE OF CLASSROOM BASED LEARNING RESOURCES ON
PERFORMANCE IN SCIENCE FOR PRE-SCHOOL CHILDREN IN
MUKURU SLUM IN MAKADARA SUB-COUNTY, NAIROBI COUNTY,
KENYA**

BY

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DECLARATION

This research project is my original idea and it has not been used for the award of degree in any other university.

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DEDICATION

This research project is dedicated to God the giver of life and my enabler. Special appreciation goes to my dear husband Thomas Mackenzie whose support has been beyond measure. I also thank my parents for giving me educational foundation without which I could not reach this level. Last but not least my sons Timothy and Richard for being there for me any time I needed them.

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ABSTRACT

The main objective of the study was to establish the influence of classroom based learning resources on performance in science for pre-school children. The study was guided by the following specific objectives that included to examine the influence of textbooks on performance of pre-school children in Science, to investigate the influence of play materials on performance of pre-school children in Science, to determine the influence of learning corners (centers) on performance of pre-school children in Science and to assess the influence of writing materials on performance of pre-school children in Science. The study was carried out in Mukuru slum in Makadara sub-county, Nairobi County, Kenya. The target population of the study consisted of ten (n=10) pre-schools, four hundred (n=400) pre-school children, twenty (n=20) pre-school teachers and ten (n=10) head teachers of Mukuru Slum pre-schools of Makadara Sub-county Nairobi County. The study used an interview guide for the head teachers to collect information on availability, importance, choosing criteria, use, sponsorship, organization and arrangement of classroom based learning resources. The study used closed ended questionnaire to gather information from the pre-school teachers on quantity and variety of classroom based learning resources in the sampled pre-schools. The study used observation schedule to determine the quantity and adequacy of the available classroom based learning resources. Conclusions were made that children who learnt science with aid of textbooks, play materials, learning centers (corners) and adequate writing material performed better than those who learnt without. The difference in performance was due to treatment or interventions done to the experimental group. Classroom based learning resource should therefore be availed in large numbers for better science performance in pre-school. The ministry of education and other stakeholders should consider as a policy issue, providing adequate classroom based learning resources in pre-schools to be used by both pre-school teachers and pre-school children when teaching/learning in order to improve in science performance.

ACRONYMS ABBREVIATIONS

AIDS:	ACQUIRED IMMUNODEFICIENCY SYNDROME
CBR:	CLASSROOM BASED LEARNING RESOURCES
ECE:	EARLY CHOLDHOOD EDUCATION
ECED:	EARLY CHILDHOOD EDUCATION DEVELOPMENT
EFA:	EDUCATION FOR ALL
HIV:	HUMAN IMMONODEFIENCY VIRUS
K.C.P.E:	KENYA CERTOFICATE OF PRIMARY EDUCATION
KIE:	KENYA INSTITUTE OF EDUCATION
NAEYC:	NATONAL ASSOCIATION OF EDUCATION FOR YOUNG CHILDREN
MOEST:	MINISTRY OF EDUCATION SCIENCE AND TECHONOLOGY
PBL:	PROBLEM BASED LEARNING
UNICEF:	UNITED NATIONATION CHILDREN'S EDUCATION FUND
ZPD:	ZONE OF PROXIMAL DEVELOPMENT

CHAPTER ONE

INTRODUCTION

1.1 Background to the Problem

According to Otto (1991), the world today is dependent on science and technology. There is therefore great need for each country to have a strong science and technology foundation in order to survive economically. He adds that tremendous achievements in health, communication, industry, agriculture and domestic life have been made possible through science and technology. He further says that, modern medicine, modes of travel, communication and satellites, the new breeds of animals and crops to produce better animals and better yields are just but a few examples of products of science. He concludes by the statement that; Science is highly useful in our daily lives for it makes our lives more comfortable and manageable.

The National Association for the Education of Young Children (NAEYC, 2004) holds that children should be provided with various opportunities and materials to learn key contents and principles of science. The US department of health and human service, (2008) stated that the Head Start Child Outcomes Framework includes science among its eight domains which are; Physical Development and Health, Social and Emotional Development, Approaches to Learning, Language Development, Literacy Knowledge and Skills, Mathematics Knowledge and Skills, Science Knowledge and Skills and Creative Arts Expression. According to National Research Council (NR, 2008) report on the assessment in early childhood, it was stated that the early childhood field does not currently possess the tools needed to answer questions that bear directly on the methods by which to support and improve science teaching and learning. To improve science -outcome,

education and policy makers need to know what kind of materials and classroom interactions are linked to better learning says (Jirout, 2009). He further adds that a structured observation tools describes the features of a high quality learning environment.

According to Barnett (2011), the effectiveness of early childhood program designed to offset the impacts of poverty and inadequate learning environments on child development and school success is well examined in his article on, "Influence of Effectiveness of Early Childhood Intervention Issue in Science." A research carried out in Botswana by Mwendu (1987) on influences of school learning resources on the performance of children recommended that availability of classrooms; laboratories, furniture and books have a direct link with academic performance. According to Otieno (2002) says that, science and technology have had marked influences on our national economy and have made it possible for the production of high quality agricultural products like tea, coffee and pyrethrum. These products earn Kenya a significant foreign exchange in world markets and provide jobs to the locals. He adds that science has led to the production of medicine which has lengthened the lives of many as well as healing others completely.

According to Mbiti (1974), due to the importance of science, educational commissions in Kenya since independence have laid more emphasis on science and technology as a means of individual and national development. For instance the Gachathi Report (1976) emphasized on teaching of science and practical oriented subjects. His report also laid emphasis on early childhood education which led to establishment of the National Centre for Early Childhood Education (NACECE) at the Kenya Institute of Education. Peter, (2011) states that, there is need to produce

science graduates in a country that aspires to develop. To achieve this, a strong science education foundation needs to be laid from early childhood experiences. According to the Kenya National ECDE Policy Framework (2006), the early years of development in life of a child are very important in learning. And therefore the teacher should always have in mind that science is doing not just being told, hence children should be actively involved when learning science especially in the early years of development. According to Nyoroh, Sayles & Munguti (2003), children need real experiences because they are unable to think through ideas. They need to see for themselves, touch and do as much as possible, since learning as a result of first hand experiences is remembered and that learning by being told is easily forgotten.

When learning science, children should be allowed to explore, investigate, discuss, play model and practice activities says (Karaka, Nyangasi & Githii, 2004). This can only be a reality where there is availability of adequate classroom based learning resources. Kathure (2011) argues that pre-school science serve as the foundation of science subject in primary schools and in higher levels of learning and application in later life. She adds that, this foundation is determined by the activities and learning resources the learner is exposed to.

The close link between classroom based learning resources and performance in Science provoked the need of the study to find out to what extend classroom based learning resources have influenced performance in Science of pre-school children in Mukuru Slum Makadara Sub-County Nairobi County ,Kenya.

1.2 Statement of the Problem

Kenya is moving towards fulfilling the intention of having international ranking for children's achievement in science and technology (Republic of Kenya, 2006). However, a number of factors seem to limit the realization of this intention. For instance report from the Kenya National Examination Council (2013), showed that science performance mean score of the Kenya Certificate of Primary Education in the city public schools between the period of 2006 to 2012 was; 34%, 40%, 34%, 35%, 33%, 35%, and 35% respectively. It is evident that performance in science was below 50% which is the ideal average score. Performance by recent indicators for year 2013 and 2014 follow similar trend (Kenya National Examination Council, 2014). According to a circular of examination analysis from the City Education Department (2014) it was recommended that performance was worse off in City public schools within Nairobi Slums.

Consequently, this study sought to investigate the influence of classroom based learning resources on performance in Science of pre-school children with reference to Mukuru Slum in Makadara Sub-county, Nairobi County, Kenya.

1.3 Purpose of the study

The purpose of this study was to investigate the influence of classroom based learning resources on performance in science for pre-school children in Mukuru Slum Makadara Sub-County, Nairobi County, Kenya.

1.4 Research Objectives

The specific objectives of this study included;

1. To examine the influence of textbooks on performance in science for pre-school children

2. To investigate the influence of play materials on performance in science for pre-school children.
3. To determine the influence of learning corners (centers) on performance for pre-school children in Science.
4. To assess the influence of writing materials on performance in science for pre-school children in Science.

1.5 Research Questions

The study will be guided by the following research questions:

1. What was the influence of textbooks on performance in science for pre-school children?
2. What was the influence of play materials on performance in science for pre-school children?
3. What was the influence of learning corners (centers) on performance in science for pre-school children?
4. What was the influence of writing materials on performance in science for pre-school children?

1.6 Significance of the Study

This study was pointer to how performance in Science from all levels of learning could be related to classroom based learning resources they have been subjected to over a number of years. The findings of the study was therefore to unveil tangible information that may enlighten all relevant Early Childhood educationists on the hidden role played by the classroom based learning resources.

The final findings would lead to improved practice facilitation of decision making, formulation of policy framework hence reforms and development not only in pre-schools but also in the entire education sector. This study came at a time of need due to the fact that vision 2030 had identified science,

technology and innovation as vital in raising productivity and efficiency in economic, social and political pillar Republic of Kenya (2006). This could be used as a tool for achieving one of the millennium goals which was to achieve a significant improvement in the lives of at least one hundred million Slum dwellers (United Nations, 2000).

1.7 Limitations of the Study

According to Best and Kahn (1998), limitations are conditions beyond the control of the researcher that may place restriction on the conclusions of the study and their applications to other situations. Being a study that targeted some of the most sensitive areas in the country that is in slum areas, the study was expected to face a couple of challenges. One of the major limitation that was faced is insecurity since slums are areas that are congested and have insecurity issues which could affect the study. However, the researcher employed security officers for escort during data collection. Schools in slum areas are mainly NGO and community based schools hence it was difficult in measuring the source of resources. Due to this, the respondents needed to be encouraged to hastily provide valid response due to nature of the area. High poverty levels since parents pay levies which are not enough to purchase or develop necessary classroom based learning resources. Another limitation was a wide gap between teacher training and utilization of resources where teachers had no pre-requisite training which might affect the results of the study. Finally, there was challenge of lack of cooperation from the respondents. The respondents in the schools tended to resist with information with the fear of not wanting to be known by their competitors on the challenges they face. To avoid this limitation, the researcher informed the respondents that the

collected data was only meant for academic purpose and their names or those of schools remained anonymous all through the project

1.8 Delimitations of the Study

The study covered all the Early Childhood Development Education centers in Mukuru Slums in Makadara Sub-county Nairobi County. Mukuru is large area that covers area like Kenya Wine, Mariguini, Kayamba, Fuata Nyayo, Masai Village, Kisii Village, Kambi Moto and Kwa Chief .Enterprise road passes at the middle of the slum, while River Bank Estate, Railway Training Institute and Hazina Estate are the immediate neighbours. The study targeted pre-school children aged between 3 to 8 years, preschool teachers and head teachers. Questionnaires, interview guide and pre-school children science work sheet was used as main instruments of data collection.

1.9 Assumptions of the Study

The study was based on the assumptions that; all the pre-schools in the area of study had classroom based learning resources which had a positive impact on performance in Science. Poor performance in Science of pre-schools in Mukuru Slum Makadara district is closely related to classroom based learning resources. Improved classroom based learning resources led to improved performance in pre-school Science and that all the respondents were to co-operated hence the findings were worthy to be relied on. The Teachers were assumed to have knowledge and skills on how to apply learning resources when teaching science hence the results of the study can be used in future policy recommendation with regards to performance of preschool children in science

1.10 Operational Definition of Key Terms

Child: An individual of eight years and below

Classroom based learning resource: This refers to all the materials within the classroom setup that is textbooks, play materials, learning corners/centers which are the writing materials and other materials that teachers use to assist children to achieve the expected goals and objectives for learning. In other words these are the materials that support or enhance the learning process.

Early childhood education: Education given to children aged below eight years.

Learning corners /centers: Areas in a pre-school classroom where items of specific subjects are displayed to maximize children's learning and occupy their free time.

Performance: How well one does in school. It is the outcome of education; it is the educational goal that is achieved by a student, a teacher or institution.

Play materials: These are classroom based learning resources for exercise or activity for amusement recreation.

Pre-school: This is a preparatory class for formal school

Pre-school education: This is an educational program that serves children below 8 years and is designed to improve later performance.

Science: Organized knowledge obtained by observing and testing of facts about the physical world, natural law and society/experiences that the learner is exposed to in order to learn science in pre-school.

Teaching aids: These are tools that pre-school teachers use to help the children learn quickly and thoroughly hence meeting the subject objectives e.g. chalkboard, charts and models

Teacher: Pre-school teacher/instructor

Text books: These are prints/books used as a standard work for the study of pre-school science.

Writing materials: These are classroom based learning resources which, children write on or use for writing exercise.

1.11 Organization of the Study

The study comprised of five (5) chapters: The first chapter focused on the introduction. This highlights the background to the problem, statement to the problem, the purpose of the study, research objectives, the purpose of the study, research objectives, research questions, significance of the study, limitation of the study, delimitation of the study, limitation of the study, basic assumptions, and operational definition of key terms and organization of the study. The second chapter was concerned with reviewing the related literature within the area of concern (problem). This focused on what both secondary and primary researchers have said about performance in Science of pre-school children. The theoretical framework was outlined here. This chapter ends with the conceptual framework. Chapter three outlined the research methodology to be used in the study. The research design, research population, sample size and sample techniques, research instruments, validity and reliability, data collection procedures and data analysis procedures. The fourth chapter presented the analysis and interpretation of the

study findings. Chapter five gave the summary, conclusion and the recommendations of what emerged from the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This study presented a review of related literature on the influence of classroom based learning resources on performance in Science for pre-school children. The study covered the empirical review based on research objectives namely, textbooks, play materials, furniture, teaching aids and writing materials. The theoretical review and summary was also be provided in chapter.

2.1.1 Textbooks and Performance in Science for Pre-School Children

Textbooks are written work that has been published as a standard for formal activities for pre-school children and they provide information to both children and teachers (Uboga, 2014). (Collins, 2005) has recommended quite a number of pre-school textbooks for learning Science. They includes; science for ECED (Pre-primary 2) (Gatua et al, 2003), Kenya pre-school teachers guide by KIE, Picture books, story books to mention a few.(Nsubuga,2000) states that, textbooks are backbone of classroom for many years. He adds that, these textbooks comprises of the largest portion of the learning resources, and recommends that, textbooks should be recognized as a tool to be used to help accomplish sciences learning session. This helps learners to get variety of experiences from story books and also from other printed materials like science books, letters, new papers, magazine and recipes. The more the number of text books in a pre-school classroom the more the learning experiences in science, hence the better the performance (Duke, 2007)

The National Association for Education of Young Children (NAEYC, 2014) recommends that a science pre-school classroom should have plenty of pictures,

books and material, like puzzles and matching games so that children are not all trying to do the same thing at the same time when leaning science .In addition, paints and other learning materials should be availed in a pre-school classroom in plenty. Adequate utilization of textbooks is vital for influence and meaningful teaching and learning in any educational program (Schram, 1977).He farther states that, it is a known fact that no curriculum can achieve the desired goal/result unless there is influence utilization of textbooks. (Bogun, 1982) concludes the above statement by saying that ,the importance of textbooks in learning science cannot be over-emphasized since it is a reality to be embraced

A research which was done by Onuka in Nigeria in 2013 on learning materials and classroom performance, it recommended that; there are some important factors related to influence of utilization of textbooks in learning. The visual impression received from features like color, size of print and spacing on the page can have a greater impact Onuka adds. National Association for Education of Young Children (NAEYC, 2014) recommended that the teacher should read books to the children in order for them to grasp scientific facts. This should happen one-on-one as well as to smaller and larger groups. According to (Uboga ,2004) textbook reading should take place in different times a day, not just as a Designed group story but as one way of teaching/ learning the related area. In addition he says that textbooks are key in learning since they enable the pupils to follow the teachers' sequence of presentation and aids in understanding of lessons. To emphasize on text books the government policy on children textbook ration stipulates that the ratio at most to be 3:1(Ministry of Education, 2006).Thus no science text books no learning science.

Omayio (2013) carried out a study on the influence of instructional resources on children's number work performance with special reference to the types of

instructional resources used, teachers' academic qualification and use of instructional resources, organization of instructional resources in classroom and adequacy of instructional resources. The study used descriptive survey design. The target population comprised ECDE children and preschool teachers in Isebania Zone, Migori County.

There were 35 pre-school, 11 pre-schools were selected for the study through stratified random sampling. Through use of simple random sampling 5 pre-school were selected from public and 6 from private pre-school. 225 children were selected from possible population of 750 pre-schools using simple random sampling. Questionnaires were used to collect data from ECDE teachers while observation checklist was used to assess the presence of instructional resources used during number work lesson. Observation schedule was also used to investigate the organization of instructional resources in classroom and their influence use in learning number work. Own made number work test was administered to children to determine performance. The data collected was analyzed using descriptive statistics.

The study found that use of visual and audio visual resources was minimal when teaching number work. Also use of instructional resources in public schools was minimal compared to private pre-schools. The study recommended that the government should train and employ preschool teachers. The finding of this study highly contribute to the current study since it tried to examine various influences of instructional resources on pre-school children performance. However, its finds cannot be generalized into the current study due to methodological and geographical differences. It was carried out in Isibania Zone, Migori County. Thus, there is need for the current study to examine the underlying issues on the

influence of classroom based learning resources on the performance in Science of pre-school children in Mukuru Slum in Makadara sub-county Nairobi County.

Emine (2010) carried out a study on the challenges preschool teachers face in the curriculum implementation and whether these challenges differ in relation to teachers' level of education, department they graduated from, the type of the school they are working in, teaching experience and level of in-service training. Both quantitative and qualitative data were collected. The quantitative data were gathered through a questionnaire from 223 preschool teachers teaching in public and private kindergartens in Ankara.

The qualitative data were gathered through interviews with a group of participants selected from the 223 teachers. One-way repeated measure of ANOVA and multivariate analysis of variance (MANOVA) were employed to analyze the quantitative data. For the qualitative data content analysis was conducted. The results indicated that the most frequently reported issues by the participants were the problems related to evaluation and physical facilities followed by the ones related to planning science and math activities, organizing field trips, providing parent involvement and inclusion.

The study found that the problems related to physical facilities experienced by preschool teachers working in public kindergartens were significantly differed compared to teachers working in private preschools. Although the finding of this study contribute to the current study, it focused in finding out the underlying reasons of most frequently stated issues of curriculum implementation from the teachers' perspectives. Little is known on how classroom based learning resources influence pre-school children performance in science.

The above study focused on the relationship between instructional resources and performance of pre-school children in number work. While this study focuses on the relationship between classroom based learning resources and performance of pre-school children in science. In addition the area of the study was Isebawa zone in Migori County while the area of the current study is Mukuru slum Makadara sub-county Nairobi County. Thus, there is need for the current study to examine the underlying issues on the influence of classroom based learning resources on the performance in Science of pre-school children with reference to Mukuru Slum in Makadara Sub-county Nairobi County.

2.1.2 Play Materials and Performance in Science for Pre-School Children

According to (Bondrova and Leong, 1996) Play materials refers to tools or apparatus for performance of activity engaged in for learning by pre-school children. Some of pre-school play materials for Science are rainbow sensory rice bags, soap for soapy slime fun, balloons, bottle tops, straws, sand, buttons, alphabet hurt and numbers. Others include toys, puzzles, blocks, soil, mats, cut outs as well as good spacing to give room for play activities in the classroom. Vygotsky (1978) states that children are active in their learning and can extend their own thinking and move into next stage of development through free play. Vygotsky (1978) says that children should be given opportunity to think by being provided with stimulating play materials.

Mora (2006) contents that children who have siblings to play with, have a greater opportunity to learn to speak and learn language, since during early years of development children learn by playing .She adds that playing in a developmentally appropriate environment inspires a child to relate oneself to the environment, while making sense of the infinite elements uniting internal processes with internal

influences. According to Bondrova and Leong (1996) as children play they learn about the size shape small, taste and tactile availability of their world. They further add that, imaginary play is constant as children relate their hopes and experience to their new sensation. As their minds translate external experiences with personal meaning, children end up becoming masters of their own environment (Bondrova & Leong, 1996).

According to National Association for Education of Young Children (NAEYC, 2014) a good pre-school learning environment for pre-school children is, where children spent most of their time playing or working with materials or with other children and are not expected to sit doing nothing or quiet for a long time. (Nsubuga, 2000) highlights that, play materials for pre-school children includes square cards, bundle of sticks, dice, strings, floor mats as well as toys and cutouts. Awajobi (2000) supports him by saying that, variety of instructional play materials facilitates quick and easy understanding of the subject content.

Rotumoi (2010) conducted a study on the influence of resource availability on the choice of teaching methodologies by pre-school teachers in Baringo District. The specific objectives of the study were to determine preschool teachers' characteristics, influence of teachers' professional training on methods, influence of class factors on choice of teaching methods and influence of play activities on choice of teaching methods. The study was based on Piaget's theory of learning which asserts that children mental constructs are developed through their experiences in the environment and that experiences are necessary for intellectual development.

The data analysis revealed that availability and adequacy of space and number of ECDE children had a great influence on the teaching methods teachers adopted. Inadequate finance, poor storage facilities and lack of commitment were sighted as reason for failure of the use of child centered methods of teaching. In addition most rural pre-school centers were managed by primary school teachers who showed less concern. The study recommended that that the government should urgently initiate systems to employ trained ECDE teachers who will be deployed to public centers to ensure quality and relevant education is provided to the young generation. Further in-service training courses to be reintroduces to refine and update teacher's skills.

This study was carried out in Baringo County, it majored on the relationship between availability of resources and teaching methodology. The study said nothing related to performance in pre-school science. In addition no similar study has been carried out in Nairobi County. Thus there was methodological and geographical differences above study. Therefore there was need for the current study to examine the underlying issues on the influence of classroom based learning resources on the performance in Science of pre-school children with reference to Mukuru Slum in Makadara Sub-county Nairobi County.

2.1.3 Learning Centres (corners) on Performance in Science for Pre-school Children.

According to (Lepold, 2009) learning resource corners (centers) are areas for specific subject's activities that a teacher establishes to maximize children's learning and occupy their free time. They are areas in a room that present a particular component of the curriculum. Lepold (2009) says that to keep the children's desire for learning these centers and corners should be changed and

even rotated periodically. He states that, the learning resource centers in pre-school includes; science corner, mathematics corner, house-keeping corner, art center, manipulative center, reading corner, drawing corner, shop corner, drawing coloring and writing corner as well as construction corner .Other learning areas include curiosity chart corners which have picture collections accompanied by questions to arouse children's thinking. Such charts are displayed at the walls at one corner (Evans, 1995)

In addition display of other subjects' charts which have just been used in the class to enhance children's memory and further understanding is a key feature in a pre-school classroom (Evans, 1995). According to Ellington (1985) establishing learning areas in a classroom is important in that it arouses children's curiosity and stimulates learning, train children to work by themselves and pre-occupy children's usefully in their free time. (Ngaroga, 2009) states that, in order to integrate learning in many subjects, reinforcement of what children have learnt by ensuring daily availability of learning resources, make learning alive and help slow learners to use several of their senses to enhance learning.

Lepold (2009) Learning corners/ centers give opportunity to children to explore, experiment, manipulate and discover. Children are also enabled to learn according to their interest and development level using the materials available in the corner .These special learning corners are important for many developmental reasons. For instance during free play time the children can feel independent and do some fun. They gravitate to an area of interest for them. Learning corners/ centers provide free play time and it allows children to have freedom of choice and independence.

According to (Ngaroga,2009) children in learning corners can interact with peers , verbalize and express themselves – say, what they are thinking and feeling. They learn to compromise and negotiate and gain respect for the ideas of others. (Ngaroga,2009) farther argues that ,using these interest areas at pre-school level is simply integrating literally into other areas of the curriculum .Prek (2009) states that there should be provision for relevant learning resources that children may find outside the classroom and bring in side their classroom. For instance things like rocks, leaves, pinecones, seeds, flower and plants, some stuffed animals, ladybugs and insects (real or rubber toys). In addition inclusion of tools like magnifying glasses, binoculars, eye-droppers, microscopes and Kaleidoscopes, mirrors and magnets, as well as paper and pencil should never be missing in pre-school learning corners/centers.

Lepold (2009) indicates that Writing center; being one of the most important areas in pre-school is an area where children will develop their pre-writing skills. He adds that as children uses writing materials such as markers, crayons, pencils, stencils and much more, with the guidance of the teachers, the children begins to form and recognize letters. (Ngaroga, 2009) talking about science corners states that, this is an area which is ever changing with the seasons. It can be filled with an ending variety of things related to science and nature. Books related to weather, insects, season animals, rocks, age-appropriate experiment are common contents in this area. He farther adds that the science and discovery center provides space for exploration. This center should be stayed with plastic boxes, filled with items from nature that pre-school children can touch like pine cones and rocks, or items, children can dig into such as, sand, microscopes, slides and magnifying glasses for kids to explore up close.

Salvin (1986) puts it clearly that, water box with water toys, Science corner with collections made during a nature walk. Such as birds, feathers, types of weeds, grass, fresh fruits, old bids, nests, and non-living things; all meant to arouse children interest and enrich their experiences are parts and passel of pre-school classroom environment.(Ngaroga, 2009) adds that these materials should be accurately labeled for children to see since in pre-school learning is best by seeing ,saying and doing.

Salvin (1986) indicates that learning corners / centers that are attractive and are easy to be reached by the pre-school children highly influence children overall feelings towards classroom and their own capacity for learning thus children respond positively to attractive learning materials.(Gallas ,1995)adds that young children must be allowed to co-construct their knowledge about science by imagining possible world and then inventing, criticizing and modifying those worlds as they participate in hand- on exploration . Children must be encouraged to develop possible theories about their own questions and then proceed to investigate these theories within the classroom learning communities as stated by American Association for the Advancement of science (1993).

Kasirye (2009) carried out a study on the impact of individual and school characteristics on grade 6 pupil achievement in Uganda. The study dealt with an important selection issue in Uganda the non-random allocation of children into schools due to a high school dropout rate by employing a combination of fixed influence s and including variables capturing sample selection. The study found that teacher training was important for improving school performance. Indeed, having the mandatory two years of teacher training was more important than a teacher's own cognitive ability. On the other hand, access to classroom resources

raise children's cognitive outcomes a child having either an own place to sit significantly impacts on learning outcome. Consequently, efforts to improve children's cognitive outcomes should concentrate on providing in service teacher training as well as ensuring that classrooms are properly furnished.

Although the study tried to expound on how teacher training and classroom resources influence pupils' achievement making it closely related to the current study, it was wide in scope as it was carried out in Uganda and not in Kenya as the case of the present study. Thus, there was need for the current study to examine the underlying issues on the influence of classroom based learning resources on the performance in Science of pre-school children in Mukuru Slum in Makadara sub-county Nairobi County.

2.1.4 Writing Materials and Performance in Science for Pre-School Children

According to Martin and Henry (1988) writing materials refers to the items that provide the surface on which human use writing instruments to inscribe writing. They are often paired with different types of writing implements like, marker pen, pencils, sketcher, crayons and wax crayons as well as rubbers, charcoal and chalk. He adds that, examples of writing materials includes exercise books, chalk, plain paper, floor and many others .In addition Martin and Henry farther says that, other important attributes of writing materials are its reusability, its performance, and its resistance to fraudulent misuse. In his view on writing materials and pre-school children Nsubuga (2000) says, the written work is in most cases done in the pupil's notebooks, and looking at written work at a general point of view is valuable because it is done individually and gives a teacher a good idea of how the child is getting on with writing. When this is well utilized it gives the teacher an

opportunity to evaluate or applaud the pupils individual abilities and difficulties from the work she/he hands in (Nsubuga, 2000) adds.

Kecker and Sean(2003) says that ,children often study for spelling by verbally spelling each word however ,when they take the test, they usually have to write it down. He therefore suggests that, when studying, children should be encouraged to write out each word on paper as numerous times as possible. He farther adds that during tactile learning, learners should be encouraged to use various writing instruments like colored pencils, marker and chalk. Kecker and Sean (2003) continue to say that, by letting young children practice or play around with letters early, they will develop an interest in letters.

(Aram 2004) says scribbling and mock writing is one useful early practice that lay a foundation for learning to form and recognize letters. His idea is that there is need for having a place in our homes where children are encouraged to use writing materials as much as possible. He suggests having a painting easel available at home provides an opportunity for both drawing and writing hence encouraging the curiosity for writing in both home and pre-school which is a very important aspect in young children. According to (Shanaham, 1988) traditionally research viewed young children literacy learning as a skills-based approach. But today, research shows us that young children can develop how to read and write through playful explorations and learn rules from it (Fields et al, 2004).

According to McGee and Richgels (1996) on their book entitled, Discussion on Appropriate Writing Materials for Pre-school Children ,they asserted that “teachers should select variety of writing tools and materials to support their

literacy program” This writing tools includes colored medium and soft lead pencils, pens with a variety of ink colors , markers, crayon, and chalk in variety of colors. In addition, line and online papers in assorted color textures, sizes and shapes are key tools for learning which should never be missing in a pre- school classroom. McGee and Richgels (1996) adds that other writing materials includes index cards, printed forms, postcards, magic states, erasable marker boards, chalk boards, and clipboards not forgetting the modern typewriter, one or more computers with word processing programs and a printer

Rutere (2011) carried out a study on the impact of Children’s own investigations on performance in pre-school science Activities in East Division, Isiolo District. A quasi-experimental research design was used to conduct the study. Ten pre-schools in East Division, Isiolo District, were sampled of which five of them were in the experimental group and five in the control group. All the children, aged 5-6 years, in the experimental and control pre-schools were sampled. Data was collected both in classroom and outdoor learning environments. Pre-school science activities tests were administered to the children.

Questionnaires for teachers and head teachers in pre-schools, and observation schedule for class activities were administered. The findings established that the difference in performance between children in the control and those in the experimental groups of pre- schools was statistically significant ($t(8) = -4.463$, $p=.002$, two tailed).This suggested that children who were taught science activities using traditional methods and children’ own investigations perform better than children taught science activities using traditional methods only. The difference in performance was due to treatment or interventions done to the experimental group. Children’s own investigations should therefore be used to compliment traditional

methods in teaching science activities in pre-schools. The study recommended that pre-school children should be involved in their own investigations in science activities.

The Ministry of Education and other stake holders should consider providing adequate resources to pre-schools so that children can be involved in their own investigations in science activities. Pre-school teachers should be trained and provided with pre-school science activity guides so as involve children in conducting their own investigations in science activities. The findings of this study contributed to the current study since it tried to examine various influence s of instructional resources on pre-school children performance in science activities.

The findings of the above study could not be generalized into the current study due to methodological and geographical differences. It was carried out in, Isiolo District. Thus, there is need for the current study to examine the underlying issues on the influence of classroom based learning resources on the performance in Science of pre-school children in Mukuru Slum in Makadara Sub-county Nairobi County

2.2. Theoretical Framework

This section presented 2a discussion on the theoretical review of various theories that in one way or another relate to the study on the influence of classroom based learning resources on performance of pre-school children in science. The study was based on the Constructivist Theory by Bruner (1973). Constructivism is the philosophical and scientific position that knowledge arises through a process of active construction. This theory states that learning is an active process in which learners construct new ideas or concepts based upon their current/past knowledge.

The learner selects and transforms information, constructs hypotheses and makes decisions, relying on cognitive structure to do so. Cognitive structure provides meaning and organization to experiences and allows the individual to go beyond information given. The task of the instructor is to translate information to be learned into a format appropriate to the learner's current state of understanding. Bruner argues that instruction should address four major aspects namely; predisposition towards learning (experiences which move the learner to learn are affected by motivational, cultural and personal factors), structure of knowledge, model of pre-presentation, visual, word symbol and influence sequencing and finally pacing of reward or punishment.

The instructor according to constructivism should focus on encouraging, aiding and allowing the learner to uncover the main principle on their own. The main activity in a constructivist classroom is solving problems, children use inquiry methods to ask questions, investigate a topic and use a variety of resources to find solutions and answers. A child explore topic they draw conclusions, and as exploration continues, they revisit those questions. Exploration of questions leads to more questions. Hence more answers more knowledge and better performance. Constructivist Theory by Bruner support improved classroom based resources as being essential to improved performance in Science not only in pre-school but in all levels of learning. This is because constructivism states that learning is an active, contextualized process of constructing knowledge. However the level of realization of improved performance in Science of pre-school children will depend on the degree to which the classroom based resources will influence the children's learning. The study finds the application of this theory more relevant as it informs on how children learn as well as how children acquire knowledge through the

process of active construction and through play as well as the importance constructivist classroom.

2.3 Conceptual Framework

The conceptual framework of this study showed the relationship between the independent variables (textbooks, play materials, learning corners/centers and writing materials) and the dependent variable which was performance in Science.

Figure 2.1 below shows the influence of classroom based learning resources on performance in Science of pre-school children.

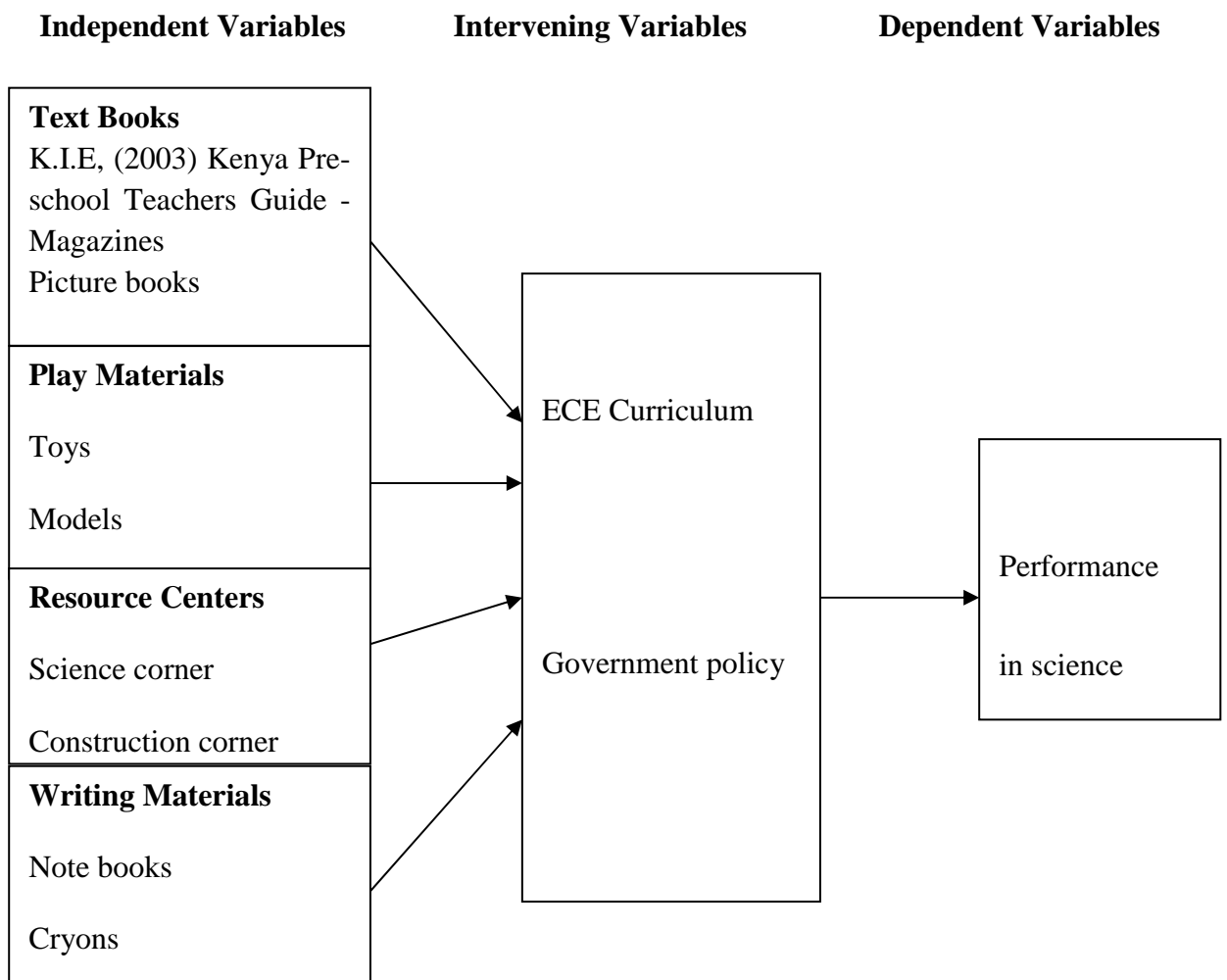


Figure 2.1: The Influence of Classroom Based Learning Resources on Performance in Science for Pre-school Children

Source: (Researcher, 2014)

The conceptual framework was be used to suggest that classroom based learning resources is key to performance in Science of pre-school. The conceptual framework was based on the varieties of classroom based learning resources and how they interacted with the learner to influence the learner's performance in science.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presented a research design and methodology that was used on the influence of classroom based learning resources on performance in Science for pre-school children with reference to Mukuru Slum in Makadara Sub-county Nairobi County Kenya. It covered the following sections: The research design, target population of the study, sampling procedures and sample size, pilot study, research instruments, validity and reliability of the instruments, data collection, data analysis and ethical consideration.

3.1 Research Design

Trochim and William (2006) define research design as the overall strategy that the researcher chooses to integrate the different components of the study in a coherent and logical way thereby ensuring that the researcher or research influence address the research problem. The design for this study was quasi-experimental design. This was because the participants were not assigned their groups randomly and the study required controlling situation of human nature since the independent variable could be manipulated. In administering this design two groups of pre-schools were selected; those with adequate learning resources and those without. Group 'A' was the experimental pre-schools while group 'B' was the control pre-schools. Group 'A' was pre-schools with adequate classroom based learning resources, while group 'B' was Pre-schools with inadequate classroom based learning resources. Same scheme of work and lesson plan was developed by both the researcher and the pre-school teacher to be used by the two groups (Appendix vi: Pre-school Science Scheme of Work). Both groups were taught for the same

length of time. After which same science work sheet derived from a topic selected from the common scheme of work in alignment with research objectives was administered to both groups after the lesson. A comparison of performance of the two groups of pre-schools was done. Only the pre-school children from the sampled pre-schools participated.

3.2 Target Population of the Study

A research population is well defined collection of individuals, events or objects known to have a similar characteristic from which the researcher wishes to generate the findings (Mizner, 2014). The target population of the study consist of ten (n=10) pre-schools, four hundred (n=400) pre-school children, twenty (n=20) pre-school teachers and ten (n=10) head teachers of Mukuru Slum pre-schools of Makadara Sub-county Nairobi County.

3.3 Sample Size and Sampling Techniques

Sample size refers to the number of observations the researcher uses for calculating estimates of a given population. According to Kothari (2004), a sample size of 20% is adequately representative of the entire population. Therefore the study used 10 pre-schools which involve 10 pre-school head teachers, 20 pre-school teachers and 400 pre-school children of the sampled preschools. The study intended to employ stratified random technique to group the selected samples according to factors of importance i.e. those with adequate learning resources and those without inadequate. The study used purposive sampling technique this based on the purpose of the research and the prior knowledge of the study about the research population. The selected pre-schools were grouped in to two. Group A those with adequate learning resources (experimental pre-schools) while group B those with inadequate learning resources (control pre-schools). Each category had

five (5) pre-schools. Only children, teachers and head teachers of the sampled pre-schools participated.

3.4 Research Instruments

The study used various instruments to collect data. All were guided by research objectives and questions. The main instruments of data collection included an Interview Guide for the Head teacher, Questionnaire for Pre-school Teachers and a Science Performance Work sheet for Pre-school children. Others were observation Schedule on Availability of Classroom Based Learning Resources and Observation Checklist on Children Ability on Different Scientific Skills. **The children's performance work sheet:** This was the main instrument of the study. It was developed in line with the schemes of work developed by the pre-school teacher and the researcher in alignment with research objectives. It was administered to both experimental and control groups of pre-schools at the end of the teaching session, after which scores was recorded and tabulated. The researcher was examined children's performance scores for every sampled pre-school. The values of performance of children in Science obtained from the two groups were compared.

Interview Schedule

Interview represents one on one discussion between an interviewer and interviewee, Cohen and Marion (2004). The study used an interview guide for the head teachers to collect information on availability, importance, choosing criteria, use, sponsorship, organization and arrangement of classroom based learning resources.

Questionnaire

Kombo and Trump (2006) indicates that a questionnaire is a research instrument that gathers data over a large sample. The study therefore used closed ended questionnaire to gather information from the pre-school teachers on quantity and variety of classroom based learning resources in the sampled pre-schools.

Observation Schedule: This involves human or mechanical observation of what people do or what events take place during a particular time or situation (Kombo and Trump, 2006). The study used observation schedule to determine the quantity and adequacy of the available classroom based learning resources.

Observation Checklist of Pre-school Children Ability on Scientific Skill

This was used to collect data on children's performance in various scientific skills in relation to their level of ability as they interact with various classroom based learning resources. All of the instruments are prepared with guidance from research objectives, and was used on the sampled research population.

3.5 Pilot Study

In order to test the validity and reliability of the research instrument, pre-test was conducted (pilot study). This was done by submitting the research instrument to a research expert. The feedback from the expert determined the validity and reliability of the research instrument. After this the researcher visited two sampled pre-schools and administered the instruments to the relevant group (people). The instruments was collected and evaluated. This exercise was done twice within a period of two weeks. If the results showed no variation then the instrument was

termed as valid and reliable. If the results did not tally the necessary corrections was made.

3.6 Validity and Reliability of research instruments.

3.6.1 Validity of Research Instrument

According to Borg and Gall (1989), when testing validity the researcher were either discard or modify the instrument depending on the level of invalidity. The instruments were given, to an expert in research institution to help in validating the instrument. The study used Orodho (2010) to confirm the validity of the instrument in the piloting stage. Also to fight against invalidity the researcher worked very closely with research experts.

3.6.2 Reliability of Research Instrument

Reliability is a measure of the degree to which a research instrument yields constant result or data in repeated trials, Mugenda and Mugenda (1999). To ensure reliability two similar institutions were used as a sample of the reliability of the instrument. The study needed to administer the questionnaires to be in a position to correct ambiguities in case they arose with the instrument (Orodho, 2010) this was done twice in a period of two weeks with the help of the research expert.

3.7 Procedures for Data Collection

The researcher first got an introduction letter from the college of study. Using the introductory letter the researcher approached the Ministry of Education, Research Department for data collection permit. The researcher gave each relevant office a copy of both introductory letter and research permit before collecting data. Using the introductory letter from the college of study and the research permit from the Ministry of Education, the researcher booked an appointment with the head of the

schools/institutions in which he/she is to collect data so as to be officially authorized to collect data in those institutions .With the help of trained research assistants in data collection the researcher visited the sampled schools, introduce herself to the respondents with the introduction letter and these research permit .After ensuring that both categories of pre-schools (experimental and control groups) are well catered for ,piloting in two pre- schools was done .

After two weeks the researcher and the assistant visited all the sampled pre-schools administering the questionnaires, conducting interviews, observations and pre-school science performance work sheet at the end of the lesson. This was done for period of one month (four weeks).All the research instruments was then collected for marking, recording, computing of performance index and determining of the mean scores .The data was grouped according to its category (experimental and control school).After which the mean score, standard deviation for each category, t-scores and p-values was computed.

3.8 Data Analysis

Data analysis was done after all questionnaires, interview schedules, pre-school children work sheet, observation schedule and checklist were collected from various respondents. The mass of raw data collected was systematically organized and arranged according to the responses of the respondents in line with the research objectives. The researcher conducted a processing of data to correct any errors in the raw data not needed for analysis. Data then was organized systematically as per the research questions and subsequently adopted coding scheme. The researcher edited the data, put the data together, and calculate frequencies and percentages. Drawing of tables, pie charts and bar graphs was used where the data required description of scores and measurement.

3.9 Ethical Consideration

The researcher carried the research being guided by the ethical principles. The research protected the respondents who were pre-school teacher's heads of institutions and other stake holders from any form of harm. This was done by keeping confidentiality of any information given by the respondents. The study used consent from the administration and pre-school teachers to interview children and not forces the children. In brief the researcher was guided by personal integrity and research ethics to carry out the study. The study also made sure that the questionnaire addresses an ethically sound issues as well as meeting the requirements of the institution (Mutai, 2000). The study had to obtain permission from relevant educational officers to carry out the research. Also the methods appropriate and suitable for intended age range, ability of the participants were highly put into consideration (Kathuri, 1993). The study ensured that data was collected fairly without biasness and that any emotional issues that needed to be addressed or disclosed which may affect the collection of data or influence it are ethically dealt with (Kathuri, 1993). In addition the study tried to be as fair as possible in judgment. That is the findings of the study were valid and recommendations were drawn from the data not own beliefs and values (Borg & Gall, 1989).

CHAPTER FOUR

DATA ANALYSIS

4.1 Introduction

The main objective of the study was to investigate the influence of classroom based learning resources on performance in science for pre-school children in Mukuru slum in Makadara sub-county, Nairobi County, Kenya. Qualitative data was analyzed through quantitative analysis. Graphs, pie charts and tables were used to present the data.

4.2 Demographic Information

Table 4.1: Gender of the Respondents

Gender	Students		Preschool Teachers and head teachers	
	F	%	F	%
Male	19	39.4	14	71.4
Female	61	60.6	6	28.6
Total	80	100	20	100

Source: Author (2012)

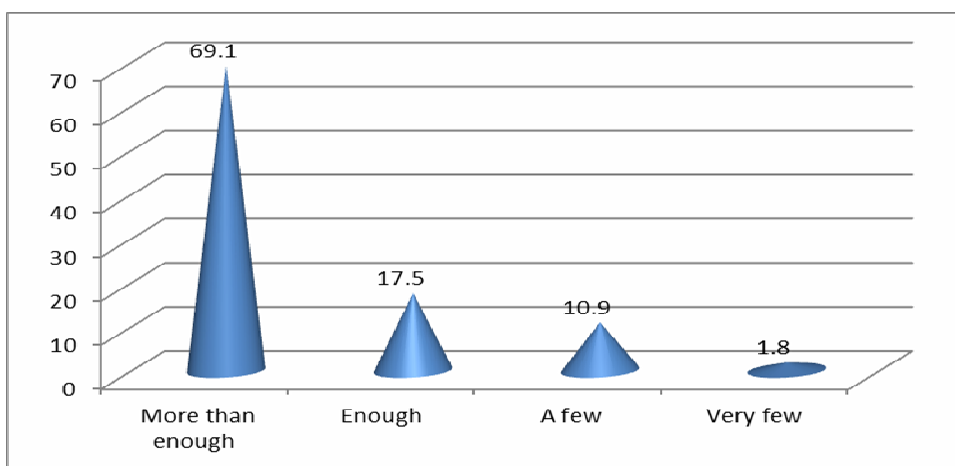
The study sought to find the gender of the respondents, the table 4.1 above shows the distribution of the respondents by gender, as shown the female students respondents rate was the highest at 60.6%, male students followed at 39.4%. For teachers respondents rate, the male teacher respondents rate was the higher at 71.4% while that of females followed at 28.6%.

4.3 Textbooks and the Performance in Science for Pre-School Children

The study established The Influence of Textbooks on the Performance in Science of Pre-School Children. The results were recorded in figure 4.1 below for interpretation purposes.

The figure below describes the number of textbooks in class.

Figure 4 1:Textbooks



The study in figure 4.1 above shows that 69.1% of the respondents said that the books were more than enough, 17.5% were for enough, 10.9% were for a few while 1.8% were for very few.

It's therefore apparent that books were more than enough as indicated by the majority of the respondents of 69.1%. The influence of textbooks on the performance in Science of Pre-School Children was recorded in table 4.3 below for interpretation purposes.

Table 4.2: Textbooks and the Performance in Science

Language	F	%
To a very great extent	6	35.7
To a great extent	8	47.6
To some extent	4	19.0
Not Sure	2	16.7
Not at all	0	0.0%
Total	20	100.0

Source: Author (2012)

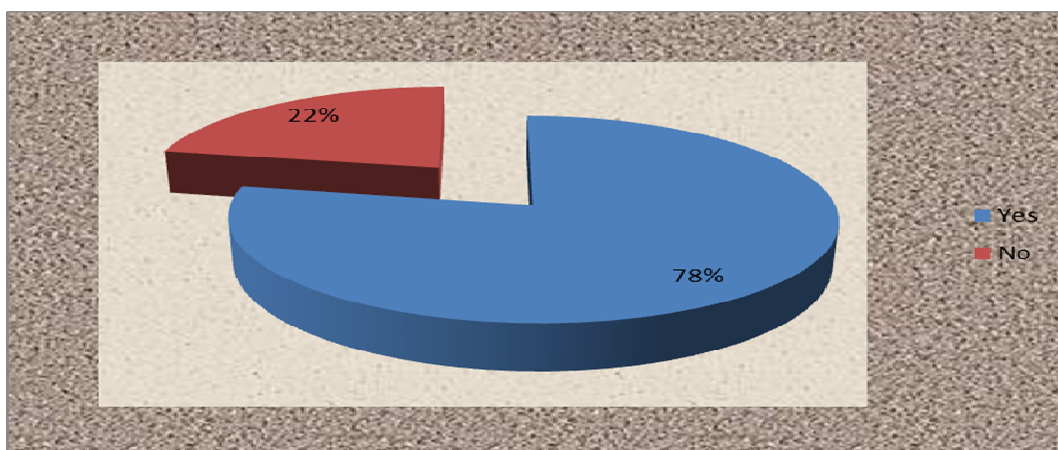
The study had to establish the extent to which textbooks influence the performance in Science of Pre-School Children. The results showed that 35.7% of the respondents agreed to a very great extent, 47.6% agreed to a great extent, 19.0% agreed to some extent while 16.% were not sure.

It is clear from the study above that majority of the respondents agreed to the idea that textbooks influence the performance in Science of Pre-School Children as supported by 47.6% of the respondents.

4.4 Play Materials and the Performance in Science for Pre-School Children

The study assessed the Influence of Play Materials on the Performance in Science of Pre-School Children. The results were recorded in figure 4.2 below for easier interpretation.

Figure 4.2: Importance of Play Materials



The study in figure 4.2 above reveals that 22% disagreed while 78% agreed that Play materials had great influence on the Performance in Science of Pre-School Children. The results on the various play materials used for play by children were recorded in table 4.4 below.

Table 4.3: Play Materials Used for Play by Children

Item		Yes	No	Total
Toys	Frequency	14	6	20
	Percentage	81%	19%	100%
Balls	Frequency	12	8	20
	Percentage	72%	28%	100%
Sticks	Frequency	9	11	20
	Percentage	41%	59%	100%
Soil	Frequency	10	10	20
	Percentage	50%	50%	100%

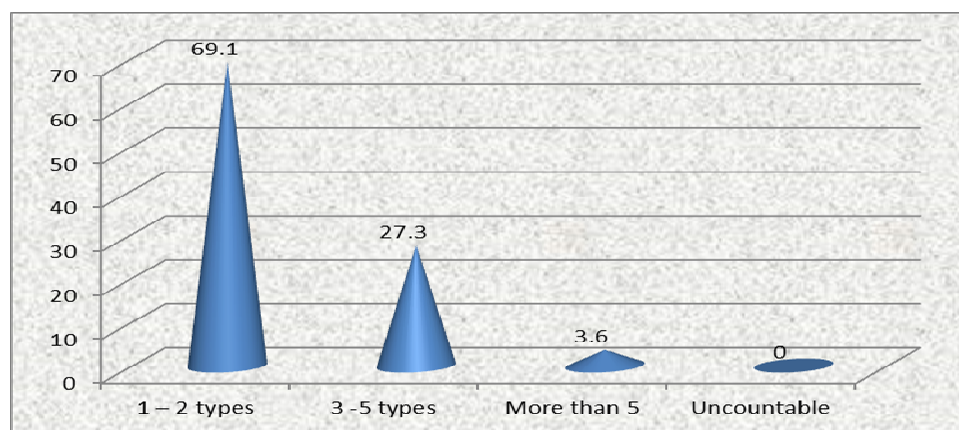
The study from table 4.4 above indicates that 81% agreed while 19% disagreed those children in preschools toys for play, on the other hand, 72% agreed while 28% disagreed that balls were used. On sticks was 41% while soil had 50% of the respondents that agreed.

It can be noted from the study above that toys were the most preferred as indicated by 81% of the majority of the respondents.

4.4.1 Types of Classroom Based Play Materials

The study established the number of types of classroom based play materials that the respondents had for the use of their pre-school children. The results were recorded in figure 4.3 below for interpretation purposes.

Figure 4.3: Types of Classroom Based Play materials



The study above shows that 69.1% of the respondents had between 1 to 2, 27.3% had between 3 to 5 while 3.6% had more than 5.

The study indicates that majority of the respondents had between 1 to 2 toys.

4.4.2 Importance of Play among Children

The study established the importance of play as recorded in table 4.4 below.

Table 4.4: Importance of Play Among Children

Statement	Yes	No	UD	Mean	Std deviation
Play helps children in enhancing learning and teaching processes.	17	40	16	2.11	1.01

Play helps in development of social skills.	5	47	36	2.13	0.634
Play helps children realize their potential and in physical development.	0	7	0	4.26	0.494

The study above indicates that Play helps children in enhancing learning and teaching processes with a mean of 2.11 and Standard deviation of 1.01. On Play helps in development of social skills with a mean of 2.13 and Standard deviation of 0.634. finally, play helps children realize their potential and in physical development with a mean of 4.26 and Std deviation of 0.494.

From the study above it can be concluded that play is very important when it comes to learning of pre school children as shown by a mean of 4.26 and Std deviation of 0.494.

4.4.3 Play Materials and the Performance in Science

The study assessed the extent do play materials affect the performance in science of pre-school children. The results were recorded in table 4.6 below for interpretation.

Table 4.5: Play Materials and Performance in Science

Statement	Not at all	Not Sure	To some extent	To a great extent	extent	Mean	Std deviation
Play materials affect the performance in science of pre-school children	0	57	16	18	0	2.12	0.601

The study above shows that play materials affect the performance in science of pre-school children with a mean of 2.12 and Std deviation of 0.601.

It is clear that play materials affect the performance in science of pre-school children as supported by a mean of 2.12 and Std deviation of 0.601.

4.5 Learning Centers (Corners) and Performance in Science

The study established the Influence of learning corners (centers) on the Performance in Science of Pre-School Children. The results were recorded in table.

Table 4 6: Learning Corners (Centers) on the Performance

Statement	Excellent	Very good	Good	Fair	Poor	Mean	Std deviation
The Influence of learning corners/ centers on the	0	57	16	18	0	2.12	0.601

The study above shows that learning corners/ centers influence the Performance in Science of Pre-School Children with a mean of 2.12 and Std deviation of 0.601.

4.5.1 Resource Centers

The study sought to establish the frequency of going to resource centers centers (centers) . The result was recorded in table 4.8 below.

Table 4 7: Resource Centers

Statement	Very frequent	Frequent	Rarely	Not at all	Mean	Std deviation

Frequency of going to resource centers(centers)	0	12	5	3	2.02	0.501
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The study above shows that preschool children frequently go to resource centers(centers) with a mean of 2.02 and a Std deviation 0.50.

4.5.2 Benefits of Resource Centers

The study sought to establish the extent to which Resource centers affect the performance in science of pre-school children. The result was recorded in table 4.9 below.

Table 4.8: Benefits of Resource Centers

Statement	To a very great extent	To a great extent	To some extent	Not Sure	Mean	Std deviation
Resource centers affect the performance in science of pre-school children.	0	12	5	3	2.02	0.501

The study above shows that preschool children frequently go to resource centers (centers) with a mean of 2.02 and a Std deviation 0.50.

The research above shows that Resource centers affect the performance in science of pre-school children with a mean of 2.02 and Std deviation of 0.501.

4.5.3 Movement of Pre-school Teachers and Children when Reaching Resource Centers

The study sought to find out the movement and that of the pre-school children when reaching resource centers. The results were recorded in table 4.10 below.

Table 4.9: Movement of Pre-school Teachers and Children when Reaching Resource Centers

Statement	Very easy	Easy	Have to move with some	remove	Mean	Std deviation
Movement when reaching resource centers	15	10	6	3	2.02	0.501

The study above shows that the movement and that of the pre-school children when reaching resource centers is very easy with a mean of 2.02 and STD deviation of 0.501. the results were recorded in the table 4.10 below.

Table 4.10: Who Engages the Resource Centers

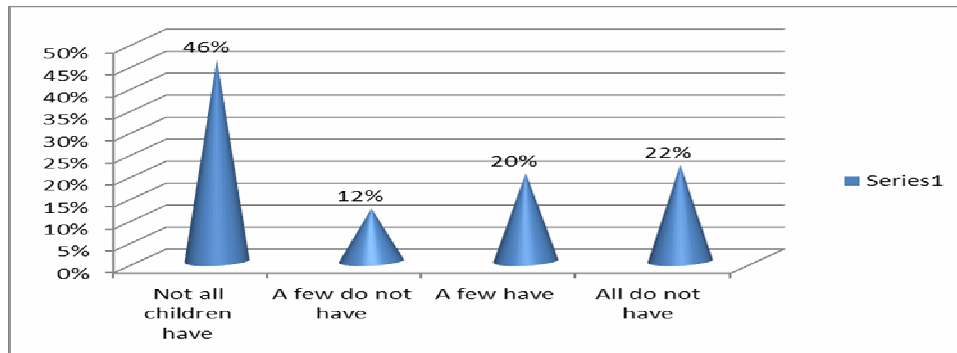
Statement	SA	A	D	SD	UD	MEAN	SD
The school does it	6	7	8	29	37	3.97	1.215
The children equips	4	4	14	24	41	4.08	1.112
The parents equips	0	6	28	24	29	3.87	0.962
The pre-school school does it	1	8	2	35	41	4.23	0.961
It is a common responsibility	0	1	15	29	32	3.94	1.027

The study above shows that the school does equip the learning centers with a mean of 3.97 and Std deviation 1.215. On whether children equips the resources centers with a mean of 4.08 and Std deviation of 1.112. The parents equips with a mean of 3.87 and STD deviation 0.962. On whether the school does it with a mean of 4.23 and Std deviation of 0.961. Finally, whether it was a common responsibility with a mean of 3.94 and Std deviation of 1.027.

4.6 Writing Materials and the Performance in Science

The study had to find out the influence of writing materials on the performance in Science of Pre-School Children. The results were recorded in figure 4.4 below.

Figure 4 4: Writing Materials and the Performance in Science



From the study above, shows that 46% of the respondents were for the idea that not all children writing materials on the performance in Science of Pre-School Children, 12% indicated that just a few, 20% showed that a few had while 22% shows that all do not have an impact on performance.

4.6.1 Writing Materials and the Performance in Science

The study established the extent to which writing materials affect the performance in science of pre-school children.

Table 4.11: Writing Materials and the Performance in Science

Statement	Very easy	To a great extent	To some extent	Have to Not Sure	Mean	Std deviation
Writing materials and the performance in science	15	10	6	3	2.02	0.501

Study on whether writing materials affect the performance in science of pre-school children with a mean of 2.02 and Std deviation of 0.50.

4.7 Interview Schedule for Headteachers

The study had inquired from the head teachers on issues influence of classroom based learning resources on performance in science of pre-school.

On whether the head teachers ensured that, there are enough science textbooks for use of pre-unit children. They agreed to that. Head teachers are mandated to ensure that both teaching and learning facilities are equipped to enhance smooth running of both teaching and learning activities.

The study indicates that play materials are instrumental in learning/teaching science in a pre-school. This can be attributed to the idea that play materials prove to be a formidable supplement for teachers when the reinforcement of a skill or concept is necessary. Not only do they allow students more time to practice, but they also present the information in a way which offers students a different way to engage with the material. Of course, this is important in order to reach the various learning types in the class.

On whether there was criterion followed when choosing the classroom to be occupied by children in pre-school, the study indicated that there was a specific protocol adhered to when choosing a class as to enhance efficiency and effectiveness.

The study established that the head teachers ensured that preschool teachers used teaching by ensuring sufficient supply of these materials. This can be attributed to the idea that Teaching aids are becoming the norm in the classroom. As traditional classrooms with blackboard and chalk become a thing of the past, and smart classrooms become the norm, teaching aids are growing in popularity and advancement.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings as discussed in the previous chapter. From the findings, conclusions and recommendations are discussed based on the objectives.

5.2 Summary of the Findings

The study established the gender of the respondents, the distribution of the respondents by gender, as shown the female student's respondents rate was the highest, male pupils followed. For teacher's respondent's rate, the male teacher respondents' rate was high while that of females followed at 28.6%.

It can be noted from the study above that toys were the most preferred as indicated by 81% of the majority of the respondents. From the study above it can be concluded that play is very important when it comes to learning of pre school children as shown by a mean of 4.26 and Std deviation of 0.494. It is clear that play materials affect the performance in science of pre-school children as supported by a mean of 2.12 and Std deviation of 0.601. The research above shows that Resource centers affect the performance in science of pre-school children with a mean of 2.02 and Std deviation of 0.501.

On whether the head teachers ensured that, there are enough science textbooks for use of pre-unit children. They agreed to that. Head teachers are mandated to ensure that both teaching and learning facilities are equipped to enhance smooth running of both teaching and learning activities.

The study indicates that play materials are instrumental in learning/teaching science in a pre-school. This can be attributed to the idea that play materials prove to be a formidable supplement for teachers when the reinforcement of a skill or concept is necessary. Not only do they allow students more time to practice, but they also present the information in a way which offers students a different way to engage with the material. Of course, this is important in order to reach the various learning types in the class.

On whether there was criterion followed when choosing the classroom to be occupied by children in pre-school, the study indicated that there was a specific protocol adhered to when choosing a class as to enhance efficiency and effectiveness.

The study established that the head teachers ensured that preschool teachers used teaching by ensuring sufficient supply of these materials. This can be attributed to the idea that Teaching aids are becoming the norm in the classroom. As traditional classrooms with blackboard and chalk become a thing of the past, and smart classrooms become the norm, teaching aids are growing in popularity and advancement.

5.3 Conclusion

From the study, the researcher concludes that, textbooks have formidable influence on the performance of pre-school children in Science. Furthermore, play material enhances the performance of pre-school children in Science. As students are reading less and less on their own, teachers are finding reading comprehension skills very low among today's students. Play materials are helping teachers to close the gap and hone the reading comprehension skills of their students. Using

magazine and newspaper articles, prints ads and even comic books are viable teaching aids that assist in helping students comprehend text.

Further conclusions are made that learning corners /centers affects performance of pre-school children in Science. While writing materials affects the performance of pre-school children in Science. Writing materials can support student learning and increase student success. Ideally, the teaching materials will be tailored to the content in which they're being used, to the students in whose class they are being used, and the teacher. Teaching materials come in many shapes and sizes, but they all have in common the ability to support student learning.

5.4 Recommendation

The study recommends introduction of motivational sessions, these will motivate and help eliminate the negative attitude that students have toward the science, it also recommends In addition to supporting learning more generally, schools should adopt learning materials since they can assist teachers in an important professional duty: the differentiation of instruction. Differentiation of instruction is the tailoring of lessons and instruction to the different learning styles and capacities within your classroom. Learning materials such as worksheets, group activity instructions, games, or homework assignments all allow you to modify assignments to best activate each individual student's learning style.

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APPENDICES

Appendix I: Questionnaire for Pre-School Teachers

I am a student at the University of Nairobi. I am carrying out a study the influence of classroom based learning resources on performance in Science of pre-school children. I am glad to inform you that you have been randomly selected to take part in this study. All the information is for the purpose of this study (research) only and will be treated with uttermost confidentiality.

Your co-operation will be highly appreciated.

Kindly use a tick (✓) inside the boxes to indicate the correct answer where the answers are given in choices.

Section A: Background Information

1. Gender

- a) Male []
- b) Female []

2. Age

- a) 20 – 25 []
- b) 26 – 35 []
- c) 36 -40 []
- d) 41-50 []
- e) 51 and above []

3. Education level

- a) Certificate []
- b) Diploma []
- c) Degree []
- d) PhD []

4. Working experience

- a) 2 years and below []
- b) 3-5 years []

- c) 6 -10 []
- d) 11-15 []
- e) 15 years and above []

Section B: The Influence of Textbooks on the Performance in Science of Pre-School Children

5. Which of the following best describes about textbooks in your class?

- a) More than enough []
- b) Enough []
- c) A few []
- d) Very few []

6. To what extent do textbooks affect the performance in science of pre-school children?

- a) To a very great extent []
- b) To a great extent []
- c) To some extent []
- d) Not Sure []
- e) Not at all []

Section C: The Influence of Play Materials on the Performance in Science of Pre-School Children

7. Are play materials important for performance in science of pre-school children?

- a) Yes []
- b) No []

8. The following are the various play materials used for play by children. Please indicate by ticking Yes or No whether the play materials are commonly used in your school.

No.	Item	Yes	No
a)	Toys		
b)	Balls		
c)	Sticks		

d)	Soil		
----	------	--	--

9. How many types of classroom based play materials do you have for the use of your pre-school children?

- a) 1 – 2 types []
- b) 3 -5 types []
- c) More than 5 []
- d) Uncountable []

10. Please indicate by ticking Yes; No or UD (undecided) on the following statements about the importance of play among children.

No.	Item	Yes	No	UD
a)	Play helps children in enhancing learning and teaching processes.			
b)	Play helps in development of social skills.			
c)	Play helps children realize their potential and in physical development.			

11. To what extent do play materials affect the performance in science of pre-school children?

- a) To a very great extent []
- b) To a great extent []
- c) To some extent []
- d) Not Sure []
- e) Not at all []

Section D: The Influence of learning corners/ centers on the Performance in Science of Pre-School Children

12 . How can you rate the size of pre-school classroom and space from one learning corner to another?

- a) Excellent []
- b) Very good []
- c) Good []
- d) Fair []

e) Poor []

13. How often do you and the pre-school children go to resource centers/centers /centers /centers ?

a) Very frequent []

b) Frequent []

c) Rarely []

d) Not at all []

14. To what extent do Resource centers affect the performance in science of pre-school children?

a) To a very great extent []

b) To a great extent []

c) To some extent []

d) Not Sure []

e) Not at all []

Section E: The Influence of Writing Materials on the Performance in Science of Pre-School Children

15. Do all the pre-school children in your class have enough writing materials?

a) Not all children have []

b) A few do not have []

c) A few have []

d) All do not have []

16. How do you find your movement and that of the pre-school children when reaching resource centers/centers /centers /centers?

a) Very easy []

b) Easy []

c) Have to move with care []

d) Have to remove some furniture []

17. Indicate whether you strongly agree (SA), agree (A), disagree,(D) strongly disagree (SD) or undecided (UD) on the following statements on you ensure the resource centers are equipped

	SA	A	D	SD	UD
The school does it					
The children equips					
The parents equips					
The school does it					
It is a common responsibility					

18. To what extent do writing materials affect the performance in science of pre-school children?

- a) To a very great extent []
- b) To a great extent []
- c) To some extent []
- d) Not Sure []
- e) Not at all []

Appendix II: Interview Guide for the Head teacher

I am a student at the University of Nairobi. I am carrying out a study on the influence of classroom based learning resources on the performance in Science of pre-school children. I am glad to inform you that you have been randomly selected to take part in this study. All the information is for the purpose of this study (research) only and will be treated with uttermost confidentiality.

Kindly answer the questions as truthfully as possible.

Your co-operation will be highly appreciated.

1. Sex

a) Male []

b) Female []

2. As the head teacher, do you ensure that, there are enough science textbooks for use of pre-unit children? Yes/ No

Explain.....
.....
.....
.....
.....

3. Do you think that play materials are instrumental in learning/teaching science in a pre-school? Yes/ No

Explain.....
.....
.....
.....
.....

4. Do you have a criterion for choosing the classroom to be occupied by children pre-school? Yes/ No

Explain.....
.....
.....
.....
.....

5. How do you ensure that your pre-school teachers use teaching aids in teaching? Yes/No

Explain.....
.....
.....
.....

6. Do you get adequate writing materials for the pre-school children ?Yes/No

Explain.....
.....

7. Do you ensure each pre-schoolchild has enough writing material? Yes/No

Explain.....
.....
.....

8. Do you get any form of sponsorship? Yes/
No.....

Explain.....

9. If yes(Q7)(a). from where
?.....

.....(b).

In which
form.....

10. How can you rate the sponsorship/support of parents?
Excellent/Satisfactory/fair/ undependable

Explain.....
.....
.....
.....

11. As the head teacher how often do you monitor proper organization and
arrangement

in the pre-school classroom? (very often, often, rarely ,I know my teachers have to
do it

Any other Explain

,.....
.....
.....
.....

Appendix III: Observation Schedule for Pre-School Children Performance on Scientific skills.

School
Category.....

Skills	Well able	Able	Needs help	Unable
Textbooks activities Identifying Naming Discussing				
Play material Scientific Skills Modeling Dramatizing Demonstrating				
Learning corners Scientific skills Construction Painting Experiment				
Writing material scientific Skills Drawing Recording Colouring				

Appendix IV: Research Observation Checklist School Category

Classroom Based Learning Resources	Plenty	Moderately Available	Few	Very few
Text books e.g. K.I.E, (2003) Kenya Pre-School Teachers Guide, Picture books Story books (Pre-primary 2) science for ECDE				
Play materials e.g. Toys - Puzzles Models - Blocks Beads - Cutouts Soil - Mats Sand - Shapes				
Learning corners / centers Science corner Mathematics corner Art center corner Reading corner Writing corner Construction Curiosity corner				
Writing materials e.g. Clipboards Crayons Pencils Exercise books Drawing books				

Appendix V: Pre-School Science Worksheet

Name:.....

School:.....

Underline the right answer

1. When our science text books fall in water it becomes-----

(Good, Bad)

2. We read pictures of water sources from -----

(Text books, Teacher)

3. After playing we need to drink-----

(Water, Oil)

4. If our play materials enter in water they become -----

(Wet, Dry)

5. Water, basin, soap and bottles are found in -----
corner

(Science, road)

6. Name two sources of water from any of the learning centers/
corners..... (River, Borehole, House, School).

7. Circle the materials used for putting water(Water basin,
Glass, Table)

8. Underline the uses of water

(Washing classroom, Drinking, Writing, and Sweeping).

Appendix VI: Kenya National Performance in science (2006-2012)

Average Grade of National Performance	43	43	44	41	43	44	42
Average Grade of Nairobi County Performance	34	40	34	35	33	35	35
Year	2006	2007	2008	2009	2010	2011	2012