IMPACT OF PARENTAL INVOLVEMENT ON PRE-SCHOOL CHILDREN'S PARTICIPATION IN SCIENCE ACTIVITIES IN KAYOLE DIVISION, EMBAKASI, (NAIROBI COUNTY)

BY

DANDE JOAB OPALA

A RESEARCH PROJECT SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF EDUCATION IN EARLY CHILDHOOD EDUCATION IN THE DEPARTMENT OF EDUCATIONAL COMMUNICATIONS AND TECHNOLOGY OF THE UNIVERSITY OF NAIROBI

2014

DECLARATION

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

……....

Dande, Joab Opala

E57/71707/2011

This project has been presented for examination with my approval as a University Supervisor.

……

Dr. Paul Amollo Odundo

Senior Lecturer

Department of Educational Communications and Technology

University of Nairobi

DEDICATION

This project is dedicated to my nuclear family and entire Dande Family. Special appreciation goes to my wife Celine Achieng and all my children for their love, encouragement as well as understanding throughout the entire period of my further studies when they needed my presence but I had to be unavailable at their times of need.

ACKNOWLEDGEMENT

The monitoring of this research project throughout the entire session was the Researcher's own initiative. However, I cannot fail to mention the various persons whose efforts made this work a success.

I wish to humbly thank my supervisor, Dr. Paul A. Odundo also current chairman of Department of Educational Communications and Technology, for his timely will power, academic prowess, as well scholarly advice on tackling critical technical issues regarding this academic masterpiece. He was always available to listen to my academic needs in spite his busy administrative duties. His moral support, patience and understanding were the great pillars of my resilience to pursue this course.

I also want to thank my colleagues for their encouragements. Special thanks also goes to the typist, Nancy for assistance in putting this work together by proof reading and typesetting. I can't forget to thank the entire team of Faculty staff at the Early Childhood Department for touching my academic life throughout the entire session both in classroom and outside.

To all who contributed in one way or another and who I have not mentioned their names, I say thank you all and may God bless you.

TABLE OF CONTENTS

CHAPTER THREE

RESEARCH METHODOLOGY

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

CHAPTER FIVE

SUMMARY, CONCLUSION AND REC OMMEND ATIONS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATION AND ACRONYMS

ECDE	-	Early Childhood Development Education
ECE	-	Early Childhood Education
GOK	-	Government of Kenya
KICD	-	Kenya Institute of Curriculum Development
MOE	-	Ministry of Education
ROK	-	Republic of Kenya
MOEST	-	Ministry of Education, Science and Technology
UNICEF	-	United Nations Children Fund
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
PE	-	Physical Education
PTA	-	Parents Teachers Associations
PTO	-	Parents Teachers Organization
NELS	-	National Educational Longitudinal Study (A USA Child Development Study)
NCDS	-	National Child Development Study
NNPS	-	National Network of Partnerships Schools
TIPS	-	Teachers Involve Parents in Homework (A teachers' / parents interactive homework programme in USA)

CHAPTER ONE

INTRODUCTION

1.1 Background to the Problem

This chapter presents background of the study, statement of the problem, purpose of the study, research objectives and research questions. This is followed by the significance of the study, basic assumptions, limitations and delimitations of the study. Finally the study is concluded by defining operational terms as well as organization of the study.

1.2 Background of the Study

Parental involvement on their children's participation in Science activities has been a major debate and a serious concern among educationists and curriculum developers all over the world for many years. However, it was not given the empirical value and due attention until recently. This is because parents for a very long time did not see the need for their involvement in their children's school activities. It is for this reason even today that many parents continue delegate all responsibilities of schooling children to teachers. Since it has not been found out that home environment and school environments are complementary as well as extent of complementarities, the overall responsibility still lie on teachers. However in recent studies which will be discussed in this project, it has been proved that home and school environments needs to be improved and enriched to improve school learning in general. Participation in academic as well as extra curricula activities needs strong parental involvements.

In studies by (Karaka, Nyangasi and Githui, 2004), foundation of children's later success in academic fields is laid by parents. Besides the importance of parental involvement, as well as science learning, is seen as one way of changing the focus and

dimensions of learning in a society where practical skills is the driving force of the society. Science experiences in learning among children is important because children think through ideas related to science (Nyoro, Sayles and Munguti, 2003).Besides practical experiences, children taught science learn through sights and touch (Keraka, Nyangasi and Githi, 2004).

The importance of participation in science activities by children can be summarized by the famous Chinese proverb which says, ‘what I hear I forget, what I see I remember and what I do I know”. Children are also known to use their senses to explore the environment, manipulate objects and discover the nature of things the way they react and relate (Njenga and Kabiru, 2005) participation in Science by children imparts the power of critical thinking in children (KIE, 1997).

All over the world, the results of learning and academic achievements by children at pre-school level has been left to teachers. Activities in science by pre-school children enriches children’s academic domains as well as practical skills. Science activities includes, data collection, recognition of patterns and relationships as well as interpretations of existing results obtained by children. When children participate in these Science activities, they become more involved and interested in these science subjects in their later years of learning. The role of parents in children’s participation in Science based activities is to provide science learning and teaching materials to improve pre-school learning.

My domains of investigation included independent variable as well as independent variables as well as dependent variables which includes parental homework checks and science participation among pre-school children.

Parental provision of instructional materials and how these leads to participation in science activities among pre-school children.

Parental – teachers and how these communications leads to participation of pre-school children in science activities.

Parental – partnerships and how these leads to pre-school children's participation in science activities.

Parental PTA/PTO memberships and how these leads to children's participation in science activities.

1.3 Statement of the Problem

Most parents in Kayole Division are low income earners and their livelihood depends on small scale informal businesses like retail shops, vending and selling fruits and vegetables in the open air markets in the neighbourhood.

The area is also characterized by a large portion of single parents due to the fact that many of them have children outside the wedlock. They are the sole bread winners of their families and they perform double roles as fathers and mothers. Many of them have to double roles between families and work. As a result of this, their involvement has not been effective in their pre-school children.

There is a high rate of poverty due to low income levels of many parents. This situation ahs made many parents not to be able to buy necessary requirements for their pre-school

children including books. As a result of this, their participation in science activities has been low. This has led to poor science skills acquisition and culture among many children.

There is no study that has been conducted to determine the impact of parental involvement on the children's participation in science activities in Kayole Division. It is against this background that there was need to conduct a research on how parental involvement has influence on pre-schools childrens' science activities in selected pre-schools in Kayole Division.

1.4 Purpose of the Study

The purpose of this study is to investigate the impact of parental involvements on pre-schools children's science activities participation in Kayole (Nairobi county).

1.5 Objectives of the Study

The objectives of the study were to:

1. examine teachers' perceptions of the role of parents on children's participation in science class activities in pre-schools in Kayole.
2. establish how partnerships between parents and teachers can enhance a similar partnership and their children's participation in science in pre-schools in Kayole.
3. determine factors that influence parental children participation in science based activities.

4. inquire the effectiveness of parental involvement in pre-schools and children's participation in science related class activities in pre-schools in Kayole.
5. investigate different levels of parental participation and how these participation levels impact children's participation in science activities in pre-schools in Kayole.

1.6 Research Questions

The research questions were as follows:

1. What is the role of parents in making their children involved in science based science activities?
2. To what extent are parents –teachers partnerships enhance their childrens' participation in Kayole?
3. What are the factors that influence parental participation in science activities of their children?
4. To what extent are the effectiveness of parental involvement in relationship to their childrens' science participation.
5. What are the relationship between different parental participation and childrens' participation of their children in science activities?

1.7 Significance of the Study

The findings of this study shall reveal the relationship that needs to be fostered between parents and pre-school children and how this relationship will lead to more interests, motivation and better skills in science in future. The information shall be useful to the

government through the Ministry of Education, Science and Technology (MOEST) on the allocation of funds for science learning resources in pre-schools all over Kenya.

The Educational Planners shall utilize the findings from this research to plan and implement science curriculum in pre-schools. The quality assurance department in the MOEST will use these findings to develop a comprehensive framework for improvement of quality of education in pre-schools in terms of essential resources needed for pre-schools.

The findings shall also be beneficial to parents and children because it will improve performance in science subjects in pre-school schools and broaden science learning as well as sharpen skills in science.

1.8 Basic Assumptions of the Study

Besides parental involvement, children's science participation in some activities can be due to natural surroundings and their everyday exposure to science related activities. For example, if they visit many science facilities like hospitals, their curiosity to participate in science related activities will be enhanced. Parents are therefore not the only variables that can enhance science activity participation among their children.

All pre-school instructions was mainly based in science. All pre-schools syllabus was based on Ministry of Education, Science and Technology syllabus in terms of content taught within a stipulated length of time.

1.9 Limitation of the Study

The study will be more expo-facto design as the researcher will not likely have control of all independent variables. This is because some parents are likely to be incorporative unless they are paid. It is also hard to know if responses are a true reflection of reality. Further, teachers' responses were suspicious of the true aim of the researcher. Children also had problems remembering certain facts and the researcher had to confirm with their teachers. The teachers were reassured of academic nature of the research and efforts made to make items in the questionnaires rather cheap. The study was taken only in Kayole Zone and therefore others should replicate the same in other areas.

1.10 Delimitations of the Study

The study focuses on pre-schools in Kayole (Nairobi county) although there are many factors that are likely to influence children's science participation, the study only focused on parental involvement. The findings of the study shall be focused on participation of science activities of pre-schools and cannot be generalized to primary, secondary and tertiary levels.

1.11 Definition of Significant Terms

Parents: Someone who is in charge of a child. Can either be biological or foster in nature?

Involvement : Parents taking their time and energy for their pre-school children. This can be in form of helping their children in homework, being part of PTA committees and providing science learning resources for their children.

Pre-schools : Early schooling catering for children between one year and six years before transition to primary schools.

Participation: Activities of learning (curriculum or extra-curriculum) which children are involved in their school routines.

Science : A basic term widely used to refer to practical, analytical and application skills including engineering, among others.

Learning resources: Refers to items that are designed, modified and prepared to assist in teaching – learning operations. These include books, chalk, and science equipment among others.

1.12 Organization of the Study

This study is organized into five chapters. The first chapter highlights the background and the statement of the problem under the study, research questions, significance of the study, delimitations of the study, limitations of the study, basic assumptions of the study and lastly definitions of significant terms.

Chapter two dwells mainly on literature review. The literature is reviewed under the following sub-topics.

- Historical roles of parents
- Parental levels of involvement in their children's education.
- Theoretical framework
- Theories on child development and their relevance to parental involvement

The third chapter covers mainly the research methodology employed. This is the Research design area of study, target population, sample and sample procedure, research instruments, validity and reliability of the instruments, data collection and data analysis techniques.

Chapter four represents discussions on the research findings. Lastly chapter five focuses on the summary of research findings, conclusions and recommendations which can assist other researches to expand on similar or related studies in future.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section explores the empirical and available literature on the domains of parental involvement and impacts on their children's participation in science. The main purpose of this section is to explore various authorities and their experiences on the role of parents in the participation of their children in science activities with particular focus on Kayole Division. Embakasi sub-county (Nairobi County). This literature review will form the basis on which my primary data will be contextualized and interpreted. The basis of my questionnaire will be hinged on the similar conceptual framework of my study.

2.2 Objectives of Science

According to Education Commission (1964) teachers are encouraged to take advantage of practical models to illustrate the concepts they are taught. Michael, 1987, indicated that new teaching methods should be child centred and practical in nature. For a child to develop interest and participate in science, Mutunga and Braekel, 1992 believes that practical instructional methods enable learners to participate in learning of any intended subject.

In practical teaching of mathematics which is part of science Fordam, (2002), believes that any science learning opportunity depends on quizzes and tests which create learning experiences. This is actually true of participation of children in science and interests in science among pre-school children. They can only acquire concepts and participate in science subjects if they learn by doing. According to Masterplan Education and Training

(1997 – 2010) the goal of education involves improving the improvement in quality of life of pre-school children. Science is important in developing skills for related careers (Rai and Richardson, 2003) science enables children to manipulate objects and relate them with practical experiences (Njenga and Kabiru, 2005).

Science also enables children to carry out the investigations, develop curiosity as well as powers of observations (Karaka, Nyangasi, and Githi, 2005) participation n science activities by children also enriches problem solving skills (Keraka, Nyangasi and Gitthi, 2005).

According to Wikelund (2001), involvement of parents in Science for their pre-school children can be in the following dimensions namely, parents becoming partners in their children's activities, communicating regularly with their children and teachers to learn more about their children's science class activities. Mia Kellmer (1985), states that substantial minority of children had better performance in Mathematics when their parents were involved in their studies Van Ejik and Degraaf (2009) also found out children's attainment depends on the inputs and the money their parents provided to them during school days. Degraff (2009) further points out that limited incomes among lower class families restricted them to buy school text books, development funds and other necessary materials to ensure their effective participation in science related activities (Kinyanjui, 1977 and Nderitu, 1999) . Poor families who can't afford to buy school items for their children were further proved to have low aspirations about their children compared to upper class due to opportunity cost of the child, (Torado, 1977).

Okumu (1995), basing on her study with standard seven pupils in the slums of Nairobi reported a positive association between classroom participation and performance of children's homework. According to Eccles and Harolds (1993), Illinois state Board of Education (1993) and Handerson and Berla (1994), children whose parents were involved in their work were found to achieve better grades and complete their homework. A study of Hoover- Dempsey (2001) proves that strategies employed by parents in children's homework, contributes immensely to children's' learning.

A similar study by Harvard University entitled "Parental homework involvement" further found out that if parents are involved in their children's homework ; children tend to perform well in all their homework spheres. Epstein and Voorhees (2001); Hoover- Damsey, Bassler and Burrow (1995), also proves that increased positive attitudes and interests by parents tend to increase positive participation of children. This is also true where parents can offer sincere homework complements as it reinforces children's' self confidence.

When parents value children's homework and makes children to be motivated in what they are learning, it enables parents to know the best teaching strategies are most appropriate for their children at all stages (Cancio, West and Young , 2004), and Cosden (2001).

For indirect strategies like Science projects, these teaching strategies helps in improving activities which are most appropriate for different learning tasks. In terms of parental provision of teaching and learning resources the studies found that parents who provided teaching and learning resources to their children made their children perform better.

(Indogole, 1987) these sentiments were supported by various authorities including cotton and Wikelund (2001).

Third domain of parental involvements includes parents teachers' communications which provides an opportunity for parents to ask questions regarding their children. The cardinal aim of this goal is to improve science grades. According to Michigan Department of Education (2001), communication between parents and teacher is not only effective but enables children to be actively involved in science related careers and curricula. A discussion between teachers and parents enables children to be enthusiastic and interested listener to science activities including science fairs.

According to Bridge house (1991), partnerships between parents and teachers in early childhood centers can make significant difference in a Childs' learning progress because it promotes positive moral development of children. Macrieft (1993) further emphasizes the importance of discussion between parents and teachers can greatly improve school based programmes in ECDE centers. This parental and teachers corporations is further supported by Njenga (1997) and Wolfendale (1983). Njenga and Wolfendale) contends that parents are the first teachers who can mould the activities of learning in schools. Wolfendale (1983), also asserts that education begins at home and continues throughout life and any meaningful childrens' academic progress and activities whether in science or any other field can only be achieved through parents- school partnerships.

According to World bank report (1993), in Rwanda, there are about 250 ECDE programmes managed by Parents- Teachers Associations. In Elsalvador, community groups comprising of teachers and parents are selected by the Ministry of Education to

help manage pre-schools. Persons (1959), contends that strong parental – teachers bonds is one way of transferring power over the child from home to schools. They have been found to help in making children to participate in science and other learning activities of their children, by reducing barriers to children's learning as well as promoting plan of action for children.

According to a paper entitled "parental consultations with teachers on the teaching of science of science" by the relational council of educational research and training (2006), there is an empirical evidence that support parents- teachers consultations which eventually leads to greater performance and participation in science activities. Although this study by the National Council of Educational Research and Training (2006) is based on high school setting, its implications can be replicated to pre-schools' settings because of similar needs and learning experiences of children are found to be the same at all levels.

In 2003, it was also found out that 90% of pupils in American Kindergartens had their parents attending meetings with teachers (Child Trends Data Bank, 2003). In Lebanon, 1995, similar study revealed that parental attendance to school meetings contributed to academic participation of children in sciences.

In the domains of parental support to school events like science field trips and science congress, parental involvement was found to have positive correlation with their pre-school children's participation in science activities. A study by Love, (1989), earlier stated, proved how parents who involved themselves in mathematics activities made their children to have greater participatory levels in schools in California (USA). School

trips organized in schools and supported by parents can improve the participatory levels in science by the children (Rai and Richardson, 2003). This is because children derives a lot of pleasure from visiting places of great interests. Parents should therefore be involved in field trips and other science activities of their children. KIE (1987) also supports the sentiments of field trips sponsored by parents as they promote the learning interests and participatory levels of children's' learning.

Teaching and learning resources in schools are important in learning .These includes computers and TVs. According to Broom (1973), the use of variety of media by children, increases the probability of learners learning more, retaining more and improving performance and participation of children in what they have learnt. Children are able to understand abstract ideas if they are provided with materials and concrete experiences with the phenomenon (Ausubel, 1973).

Further to this, materials of learning supplements what is in the textbooks and enhances children's' learning activities. Aziz (2001), also contends that lack of science equipments lead to inadequate participation of children learning in schools. This is because children will only develop curiosity of touch, feel and observing objects if they are exposed to the materials in their schools. These include exposure, games, additions, and computer games. Children besides, learn to remember what they learn, see and enjoy. According to KIE (2003), teaching of science is important because it enhances the development of new values.

Teaching and learning materials like computers are important because they provide the children with real life experiences by using full senses (touch, hear and smell) to

enhance participation and learning of pre-school children, Rai and Richardson (2003). Besides the learning / teaching materials assists in making children to retain concepts and ideas which will make them love science activities in pre-schools.

These studies are a testimony that various levels of parental involvement enables children to participate in science activities. It is also noteworthy to mention that science learning. The studies are discussed in various themes and correspond results namely parental homework checks, parental provision of instructional materials, parental communication with teachers, parental partnerships with teachers and lastly parental PTA, PTO memberships.

In terms of homework checks, Hemmer (2002), Henderson and Berta (1994) all agree that when parents check their children's homework, it leads to improvement of their children in science participation. This is true of parents who spend more time with their children after school to guide them with their children after school to guide them on how to complete homework. They tended to do well in Test-scores and numberwork. This is a further testimony that homework checks by parents leads to science participation among children because it enhances homework completion.

Homework improves the acquisition of science skills as well as participation of children in science. It is true that when children learn by doing e.g. numberwork, they master concepts and participate in science because they will inculcate interest in science.

2.3 Theoretical Framework

According to cognitive learning theory, the mind of the child is the key factor whether or not learning results in permanent change of behavior manifested in a child's performance levels. Cognitive development deal with thinking, problem solving, intelligence and language acquisition. If is a combined result of maturation and experiences that enables an individual in this case, a child to adopt to the environment in which he /she lives in. Differences in rates of development are attributed to genetic timetables, cultural and environmental influences (Orodho, 2004) individual children needs different experiences to complete their development. In ECE, children should be seen and be treated as unique individuals and be allowed to develop science processes and skills at their own rates (Orodho et al , 2004).

Abraham Maslow (1808-1970) believed that human beings (including children) were born with weak instincts which become specific needs. If these needs are not satisfied, then they will still control individuals, personality, and their motivation for example, if a person is hungry and needs food, he will be motivated to look for food when the need is satisfied, he will not view hunger as a need at that time.

Maslow believed that some needs are stronger than others i.e. there are some needs that must be fulfilled before others. He also believed that a person does not feel a second need until the first need has been fulfilled or the third need until a second need is satisfied or fulfilled. He further stated that physiological needs like need for water, air, clothing, shelter and sex are the strongest followed by safety needs (love, affection self –esteem if physiological needs are not catered for safety needs will be affected.

Maslow Hierarchy of Needs and Relevance of ECE

Safety needs includes need for love and beloved. The absence of parental care and involvement in children's work both in school and at home causes children to lack self esteem and self actualization which are essential in moving to higher levels of academic ladder. Children need parental love and affection to promote their intellectual development, as well as character formation. If parents love their children and are involved in their work, children grow to have high self esteem, security and self actualization. A child, who is nervous, worried and insecure , eventually looses confidence and lacks participatory skills in participating in extra –curricula activities as well as assignments in maths and science.

When children's needs are not met, it becomes very difficult for them to participate in school events, assignments, homework. Parents therefore need to meet developmental needs of children at pre-school levels to enable them inculcate skills like participation in science activities and performance. Parents need to know that children are fully functional individuals and therefore require unconditioned positive regard and love to develop into fully functional adults.

Carl Rogers on the other hand agree with Maslow but state further that children's personality is influenced by interactions with significant personalities (including parents, brothers and sisters). This enables a child to develop need for positive regard when people around them think positively about them. Values a person has are influenced by what other people demand from us. These values become permanent values we / we by and becomes our reason for worth and acceptance.

In relevance to parental involvement, it is true that from aforementioned studies, where parents were not available to help their children in homework, provision of instructional materials, attendance to PTA meetings, Teachers- Parental Communication and Partnerships, children's test scores in science regresses greatly.

This is because a child needs parental levels of involvement to participate in ECE programmes like doing maths and science assignments. The overall involvement of parents helps their children to acquire skills in science and interact with their fellow children so that he /she can be able to promote positive attitudes in science activities.

Rogers Application in ECE

Parents being closer to children should offer positive regards so that children become fully functional individuals. They should guide children to do right and appropriate things. This is important in making them do well in school and participate in activities which require them to learn, including science and maths.

Albert Bandura, asserts that parents should talk to their children who in turn will be inspired to be positive role models. Bandura concludes that what people expects will influence the way they behave if parents involve in their children's work, children will participate fully in activities like science because they don't want to disappoint their parents who attach a lot of values to what they do.

These learning theories have been supported by the works of other developmental psychologists including Jean Piaget, Lve Vygotsky and Sigmund Freud. They believe that cases of maladjustments of children and later adults is due to unfavorable parent –

child relationships which can affect child's personality and make a child to lack active life. Cotton and Wikelund (2001) ,specifically found out that knowledge and skills about science and technology are essential resources that must be impacted on children so as to benefit from schools. According to Cotton and Wikelund et al (2001) effective participation in science by children needs parental involvement.

In its relevance to science participation, science activities for pre-school children have been ingredients upon which children's science acquisition is based. When there is lack of parental involvement, children find it difficult to acquire skills, knowledge and attitudes in science which is important for their future developments. The participation in science depends on a wide relationship which exist between children and their parents. This is because children feel a sense of belongingness and will find science activities interesting because their parents have interest in what they are doing.

2.4 Conceptual Framework

Conceptual framework above clearly depicts how independent and dependent variables are interrelating. Independent variables are parental involvement and dependent variables are children's participation in science activities. As the independent variable influence the dependent variable, teachers, children and school administrator will be modulating the whole process.

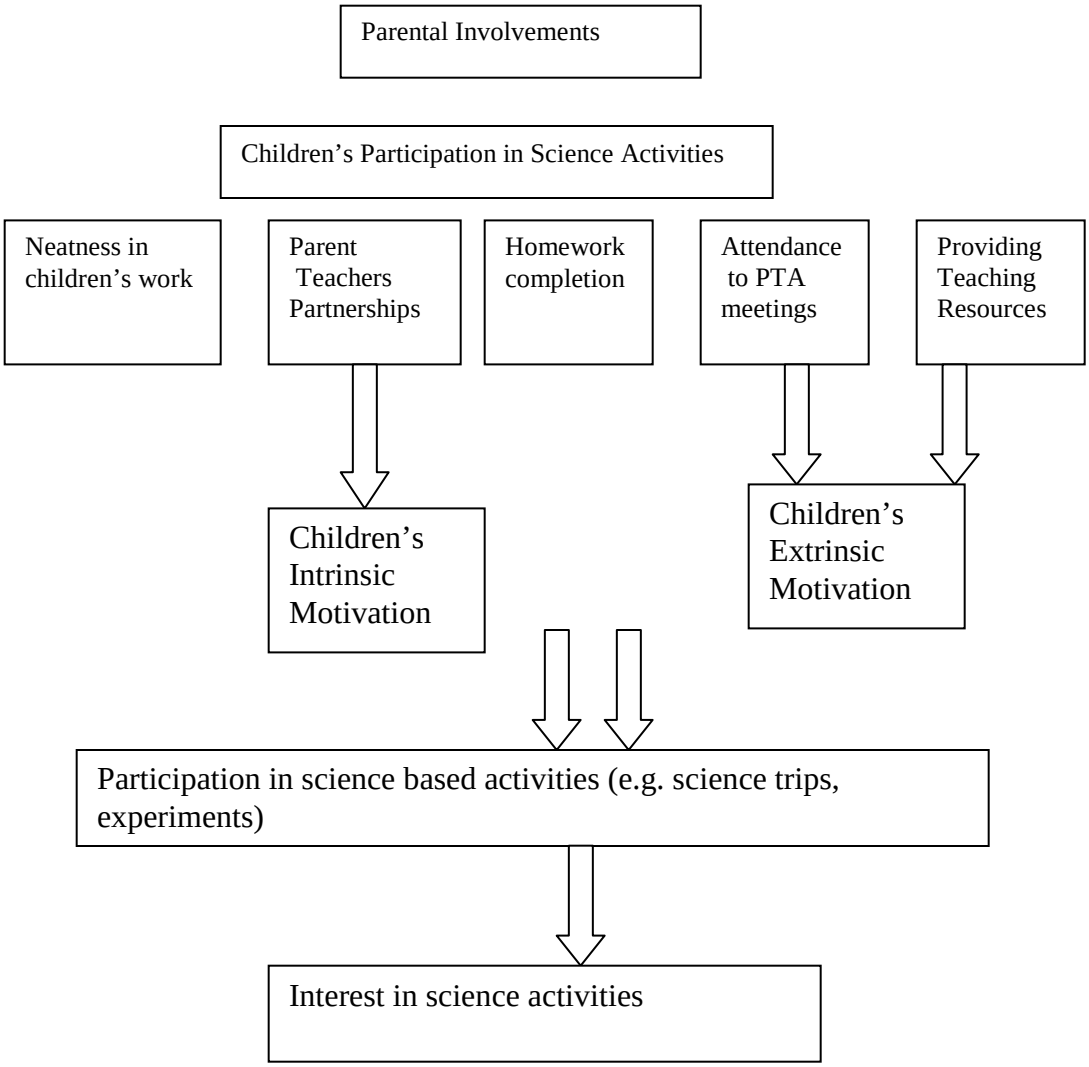
Quoting Raichel and Ramey (1987) in Kombo and Tromp (2006), conceptual framework is a set of broad ideas and principles taken from relevant field of inquiry and used to structure subsequent presentations. Conceptual framework involves forming

ideas about relationships between variables in a study and strong relationships graphically or diagrammatically (Mugenda and Mugenda, 2003).

The conceptual framework of this study is based on the premises that an effective parental involvement leads to children's participation in science activities. These activities in science are in the domains of parental homework checks, parental teachers' partnerships, parental PTA attendance , Parental – Teachers' Communication and Parental Provision of Instructional Resources.

As a result of the above themes, where parents are involved there is intrinsic and extrinsic motivation of children in this intrinsic and extrinsic motivation leads to pre-school children's participation in science based activities which includes good test scores in number work, good achievement in environmental science and other science related fields. These aspects of parental involvement lastly promotes interest of pre-school children in science activities.

Figure 2.1: Conceptual Framework



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section explores how the requisite data was obtained, processed, analyzed and interpreted to fulfill the objectives of methodology. The major domains discussed here includes research design, target population, sample, sample procedures, type of data, data collection instruments, validity and reliability of research instruments as well as data collection, processing and data analysis techniques.

3.2 Research Design

My study is base on descriptive design. According to Kerlinger (1993), a survey design is important in answering research questions and informing social scientists about the correct population data. It also gives important information to policy makers.

According to Bryman and Kramer, 1997 in Ouko, 2007, survey designs are also called correlation or explanatory studies. This is because they reveal connections and relationships between variables. It also enables the researcher to manipulate available data variables, both independent and dependent variables. The inferences about relationships among variables are concomitant variables of independent as well as dependent variables (Kerlinger, 2002).

Independent variables in this study are parental involvements, while dependent variables in the study are the participation in science activities by pre-school children in Kayole Division.

3.3 Target Population

Kayole Division, Embakasi sub-county in NairobiCounty was chosen as a target population. Pre-schools sampled were mainly from Kayole Division (both private and public). These were made to be representative sample to form a basis for general study on parental involvements on pre-school children's' participation in Science based activities.

Pre-school sample in Kayole Division was made on the basis of the following administrative zones:

Table 3.1: Sample of Pre-schools

Location	**Category**		**Total**
	Public	**Private**	
Kayole East	10	10	20
Kayole Central	10	10	20
Kayole South	10	10	20
Kayole North	10	10	20
Total	**40**	**40**	**80**

A total of 80 pre-school children, pre-school heads and pre-school teachers were interviewed by use of questionnaire based on random sampling. These 80-pre-schools were located far away from each other in different administrative locations within the division. This formed a representative of total sample under study. According to (gay, 1981, 20% of population forms a representative sample for any descriptive survey.

However, this sample survey will be decided based on the number of selected pre-schools both private and public.

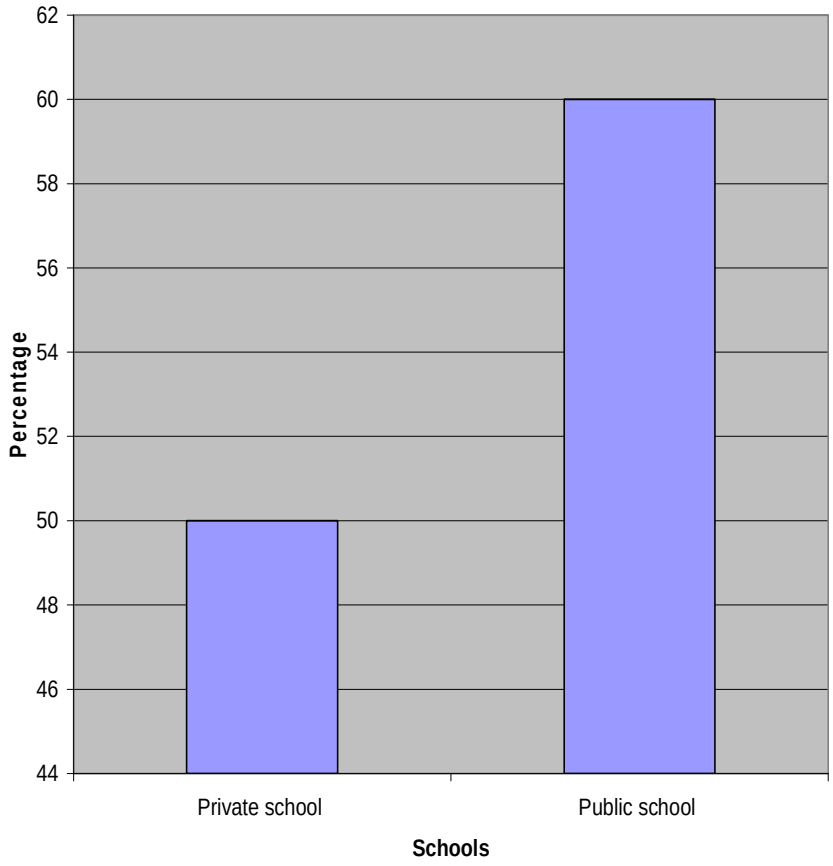
3.4 Sample Design and Procedures

According to Koul (1984) in Mugenda and Mugenda (1999), sampling is a process involving a small number of individuals, objects or events which are selected and analyzed in order to find out something from the entire population from which they are selected. A sample is a small population proportion selected using some pre-determined procedures. To identify certain pre-schools which met specific criteria, a purposive sample was used. The criteria for selecting sample were identifying registered ECD centers both private and public. From the selected population, utilized stratified sampling technique. This is a type of sampling where groups are selected at intervals based on gender, location and age. On the basis of my research, it was found suitable because it was found easy to choose samples based on category of locations within Kayole so as to find out the best representative sample as possible.

Random sampling technique was chosen to ensure that all population stood equal chances of being selected. Questionnaire and personal observation were the tools of any data collection since primary data lacked certain relevant information; the researcher borrowed some data from secondary sources (mainly books, and available literature) in the libraries, including internet and documents from MOE.

It is important to note that from selected population, stratified sampling was applied which involved identifying / choosing category of locations within Kayole. His ensured that all population stood equal chances of being selective.

Figure 3.1: Stratified samples from public private pre-schools



Data shows that all pre-schools stood equal chances of selection to be representative samples. 50% to 60% chances of selection of samples from both private school (A) and public school (B).

3.5 Data Collection Instruments

Data collection instruments assists in securing information concerning the phenomenon under the study for selected number of respondents (Mulusa, 1988). Data used in a descriptive survey research study are based on the information and techniques which are unbiased, according to Mugenda and Mugenda (1999).

My main research data collection instrument was the use of questionnaire. A questionnaire is defined as a carefully designed tool for data collection in accordance with specifications of research questions. It is suitable data collection method because it minimizes the bias on the side of the researcher and respondents. (Kombo and Trump, 2005). According to Mugenda and Mugenda (2009), questionnaires are suitable because they allow measurements for or against a particular view point while at the same time, collects a large amounts of information in a reasonable quick space of time. It is also time saving and can be used to collect a large data matrix (Ary, 1979, Gay, 1981).

The questionnaires I selected were based on Epstein and Damber (1988), with five dimensions

Type 1

Basic parental obligation

Basic teachers' obligations

Parental involvements in schools

Parental involvements in home based learning activities

Questionnaires for school heads, pre-school children and parents were also divided on the basis of pre-school characteristics (public or private), parental socio-economic status, parental educational levels as well as parental marital status. These formed aspects of questionnaire.

In part two of questionnaire, it was open-ended questions with items of attitude scale with positively worded statements from agree to strongly agree. The statements and

questionnaire were analyzed by researcher to examine the extent of views and this became part of chapter four.

To enrich my questionnaire, I used observation schedule. This is by observing daily attendance by parents and use it to prepare relevant questions in the questionnaire. Observation schedule included examining records of parental attendance to PTA science meetings, records of parental checks on science home work of their pre-school children, checks on parental attendance records to pre-school. Science functions as well as records of parental provision of pre-school science resources.

Pre-testing of research instruments helps in assessing and clarifying whether the instruments are valid or reliable. Pre-testing of each item in the questionnaire also assists in knowing the effectiveness of suitable language used in the instruments (Mulusa, 1988).

Pretesting was done one week before actual study to test whether or not parental levels have implications on childrens participation in science. Drafted questionnaires were piloted in order to avoid threats of reliability, revealing vague questions and unclear instructions. 15 respondents (pre-school teachers/ pre-school children and pre-school parents) were identified from each location of Kayole for pilot study on the basis of ability to generalize data. After pilot study was done, inaccurate responses, inconsistencies and other weaknesses were in the items were reviewed after piloting detected.

Pilot study also enables the researcher to clarify all questions before testing them to the actual respondents. During pre-testing, far schools were used to test the validity and reliability of my research instruments. Data collected from these pilot studies were analysed and results used for appropriate amendments of the instruments to be applied in the field. (Mulusa, 1988).

3.6 Data Sources

In order to achieve the desired objectives of any study I obtained some information from secondary and primary sources. However, the study heavily borrowed from primary data because such information is original, unaltered and is a direct description of occurrence of an individual researcher (Mugenda and Mugenda, 1999) primary sources of data included use of questionnaires as well as personal observation by investigator from sampled population. To supplement and enrich the research, the investigator also borrowed from secondary sources by reviewing relevant books, documents and journals from MOEs and internet.

3.7 Data Collection Instruments

To obtain the information under study, data collection instruments are used. This is important to get data required from respondents.

3.8 Instrument Reliability

Data collection technique must yield relevant and correct information to the research. Ary (1979), points out. Reliability measures the degree of consistency with which it measures whatever it is measuring. A measuring instrument is reliable, if it provides consistent results over a period of time. A pretest procedure (techniques), earlier

discussed, was used to measure reliability of the research instrument. After a lapse of two weeks the same questionnaire was administered to the same respondents. After administering a questionnaire to sampled schools (both private and public) items were divided into halves. Another five samples of parental questionnaire was administered in each sampled school to test the view of parents and socio-economic backgrounds.

According to Gall and Borg (2004), an instrument is only reliable if it can be used again and stand test of time (yield similar result). A measuring instrument is reliable if it provides instrument is reliable if it provides consistent results over a period of time. Data from pilot study as well as consulting my research supervisor Dr. Paul Odundo served to refine and improve any ambiguities in my questionnaire.

3.9 Instrument Validity

Is the extent to which an instrument measures it as the degree to which the results obtained from data analysis actually represents the phenomena under study.

These are content validity, criterion, related validity and construct validity. The study aims at only content validity. This refers to extent to which the instruments represents the content of interest, intended areas of study formed my content validity. This included parental levels of involvement and corresponding participation of pre-schools in science activities.

Validity was further established by piloting the instruments. Five random selected schools were selected to take part in pilot study before actual research. This was

intended to refine research and avoid any mistakes that can likely to occur doing actual research.

To prove and assess extent or level of validity, experts in ECD will be interviewed. My research supervisor, Dr. Paul Odundo will also be interviewed to confirm validity extent.

3.10 Data Analysis Procedures

Data will be analyzed using descriptive statistics. This is the use of frequencies, percentages as well as Pearson's Correlation Coefficient tables. Pearson's Coefficient rule indicates Correlation between independent and dependent variables.

Charts and tables will also supplement the analysis of the data. These are suitable in processing a large amounts of data given its wide spectrum. According to Onyango, 2001, in Mugenda and Mugenda (1999), this is the most suitable procedure for processing a large amounts of data using statistical procedures for specific purpose like my case.

Data is analysed to see the correlation between parental involvement and pre-school childrens participation is science activities. Qualitative analysis involves reducing the amount of information obtained by summarizing data into general themes and presenting them in a narrative form where it was most suitable, tabular form so to indicate averages, frequencies and percentages.

CHAPTER FOUR

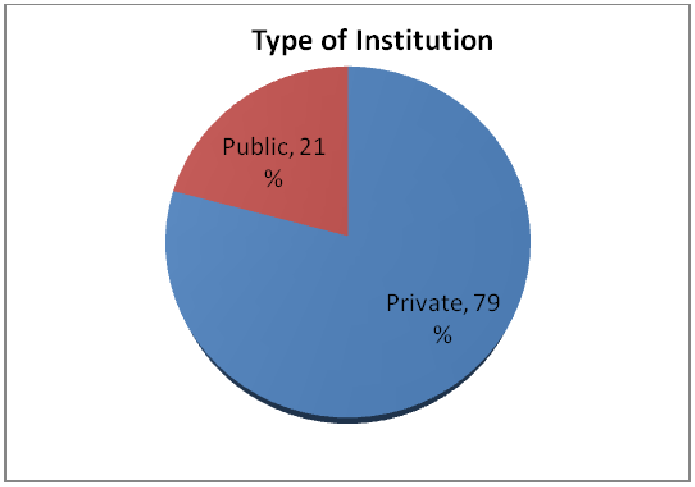
DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presented the research findings as per the study objectives. The major topics of discussion included demographic characteristics of the pre-school children and parental involvement and support in various science related activities such as PTA, homework and field trips.

4.2 Return Rate

Figure 4.1: Demographic Characteristics of pre-school children



The survey was conducted in both private and public institutions. Most of the positive respondents were from private institutions (79%), while those from the public institutions were 21%. The pre-school children who participated in the survey were mostly in pre-unit (33%), standard one (29%), standard two (21%), nursery (13%) and baby class (4%).

The return rate indicates that out of 100%, 79 from private pre-schools and 21% from public pre-schools indicated their participation in the study. The pre-schools interviewed

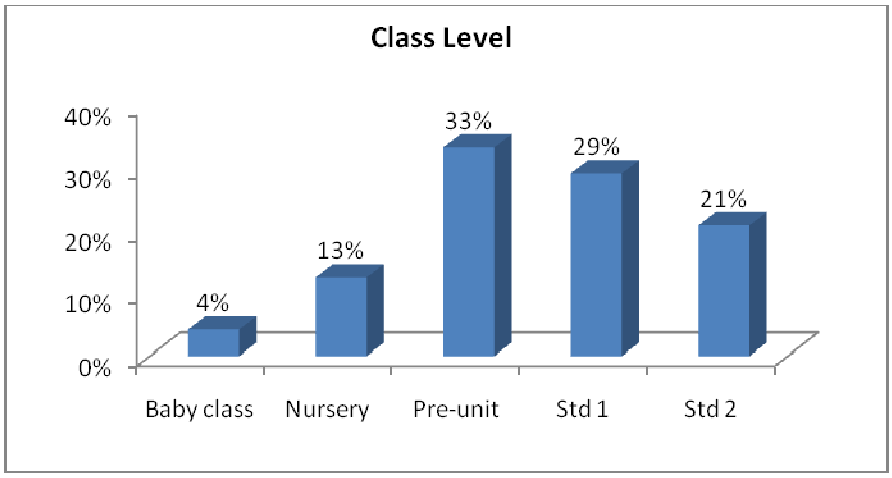
were of the following cohorts, pre units (33%), standard, (29%), standard 2 (21%), nursery 13% and baby class 4%.

In this study, values of parental involvement in their children' academic life was measured. Different class levels were interviewed to know their parental homework assistance in terms of percentages pre-unit registered 33%, standard one 29%, standard 2 21%, nursery 13% and lastly baby class 4%.

Out of 100%, 33% respondents indicated parental assistance in homework, 29% out of 100% of standard 1 indicated that parents assisted them with homework, 21% indicted assistance in homework out of total of 100%, while 13% nursery and 4% baby class indicated similar assistance in homework assistance. Thus confirmed that homework assisted.

This sampling of Cohorts was done to ensure that all respondents participated in the study. However it should also be noted that samples were verified to ensure that all children of respective ages were involved in the study and none of them was left out. Random sampling ensured that all classes were captured by the study to ensure uniformity.

Figure 4.2 : Class Level

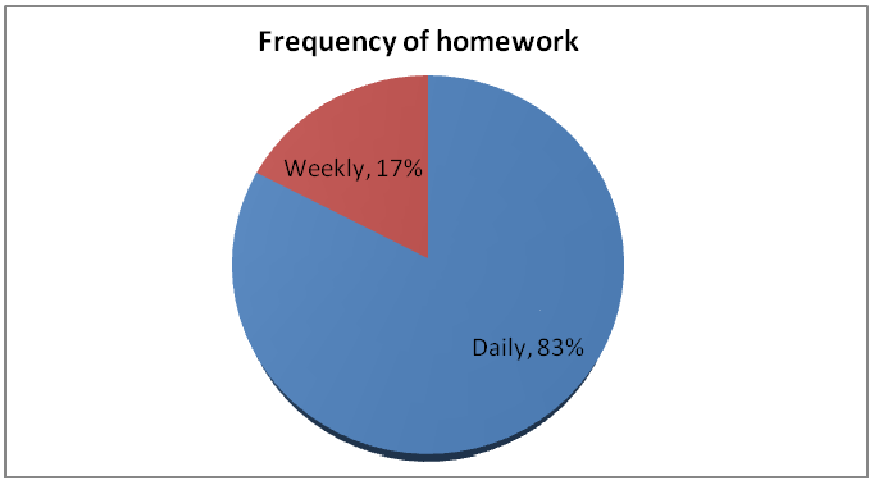


4.3 Parental Checks on Homework for Pre-School children

The pre-school children were asked how often their teachers give them homework on science related subjects. The study was meant to measure the value of parental involvement in their children's academic life. Parental involvement in the child's academic welfare has an impact on the overall performances on science based subjects.

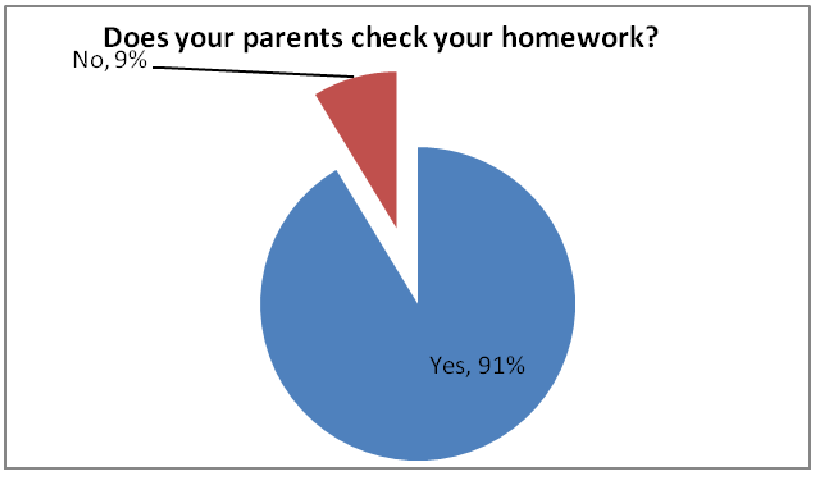
A huge proportion of the pre-school children (83%) noted that on daily basis they are given homework in number work and science related subjects and only 17% said they were given homework in science and number work on a weekly basis. This also demonstrated the teacher's commitment to improving children's knowledge on science by giving them homework on a daily basis.

Figure 4.3: Frequency of Homework



The children also were asked of their parent's commitment to checking their homework any time had one and a 91% said yes while only 9% said no. This again is a proof that many parents in deed are committed to the success of their children's academic activities.

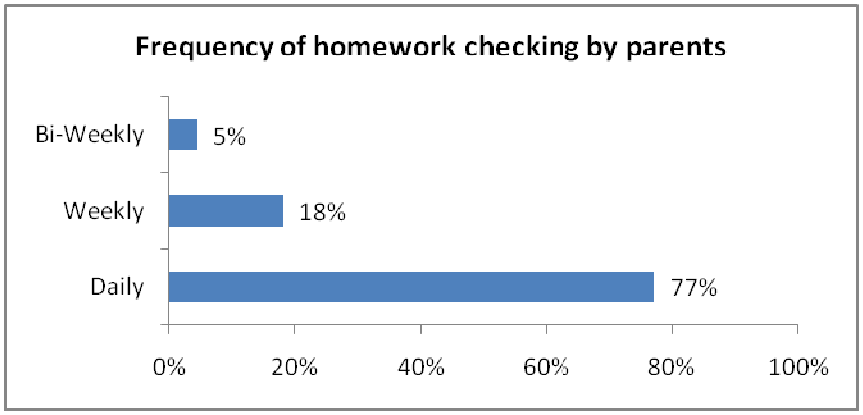
Figure 4.4: Homework Checks



In terms of homework checks, based on oral questions and verbatim, the respondents told me that homework checks by parents greatly led them to achieve higher test scores. 91% out of 100% of children confirmed homework assistance by parents at home while only 9% of 100% said that they were not assisted in homework at home.

The reasons given by the children whose parents did not check their homework regularly was because their parents lacked time and they were always absent from home. 91% of the pre-school children had their parents checking their homework, not all of the parents did this on a daily basis despite a number of the children being given homework on a daily basis. About 77% of the parents were checking the homework on a daily basis, 18% on a weekly basis and only 5% on a bi-weekly basis.

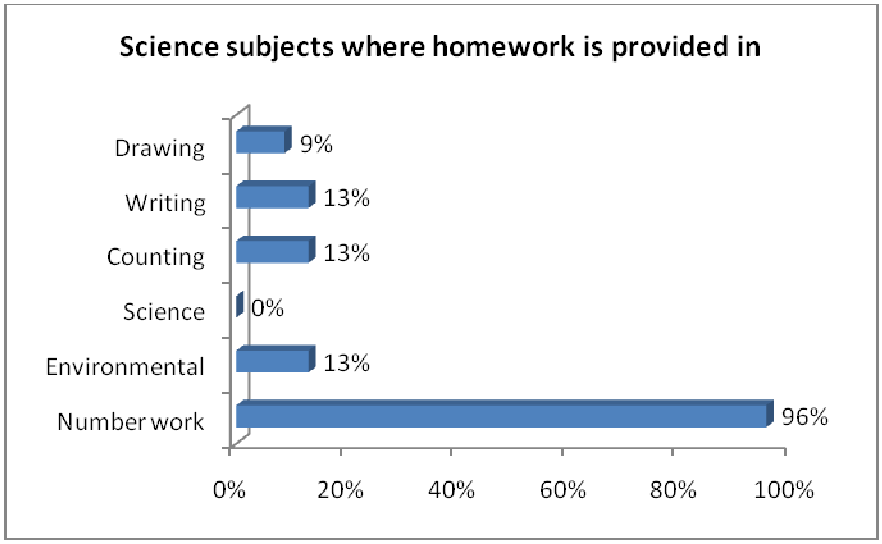
Figure 4.5: Frequency of Parental Homework Checks



In terms of frequency of homework checks, out of 100%, 77% indicated that their parents checked their homework Daily, 18% out of 100% of respondents indicated that their parents checked their homework weekly and only 5% out of 100% indicated biweekly checks of their homework by parents.

In science subject where homework is usually given to the pre-school children was number work (96%), followed by environmental (13%), counting (13%), writing (13%) and then drawing (9%). When there is adequate parental frequency in homework checks, children tend to acquire skills and participate in activities in science. This is proven by 77% Daily frequency homework checks compared to 18% (weekly) 5% bi-weekly checks. This is a further proof that the more frequent homeworks are checked the higher the test scores. It is an indication that homework needs to be properly checked for interest and participation of children in science activities.

Figure 4.6: Science Subjects where Homework is provided in



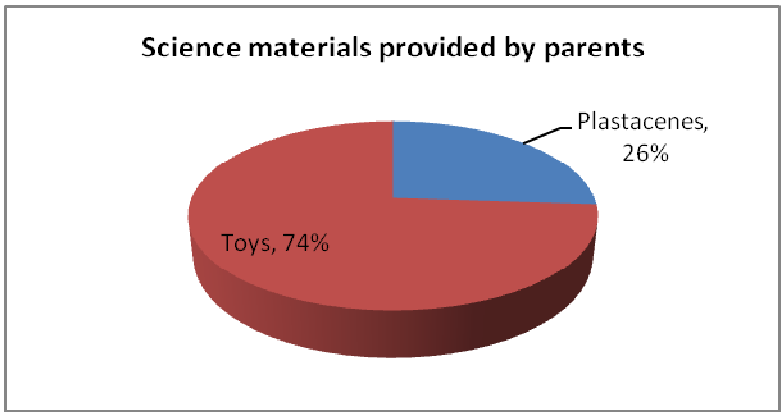
Based on the science subjects listed numberwork seems to be given most emphasis. 96% out of 100% of respondents indicated that their parents checked their parents checked their numberwork homework, 13% out of 100% of respondents indicated that their parents checked their homework in environmental science, 0% out of 100% indicated parental checks in counting, and similar 13% out of 100% indicated writing skills checks, and only 9% out of 100% indicated drawing homework checks.

This indicates a strong relationship between homework checks by parents and corresponding science performance. Numberwork being given more emphasis shows that children value numberwork as an important science activity and this is why its checks by parents led to more participation. The higher the checks by parents, the greater is the ability to participate in the science related activity in this case, it is number work.

4.4 Parental provision of Instructional Materials for Pre-school Children

Another aspect of parental involvement studied was the provision of instructional materials such as plastacenes, toys among others. From the survey, 74% had been given toys while 26% had plastacenes as the main instructional materials. These findings indicated that many parents are increasingly buying toys such as video games etc as opposed to plastacenes.

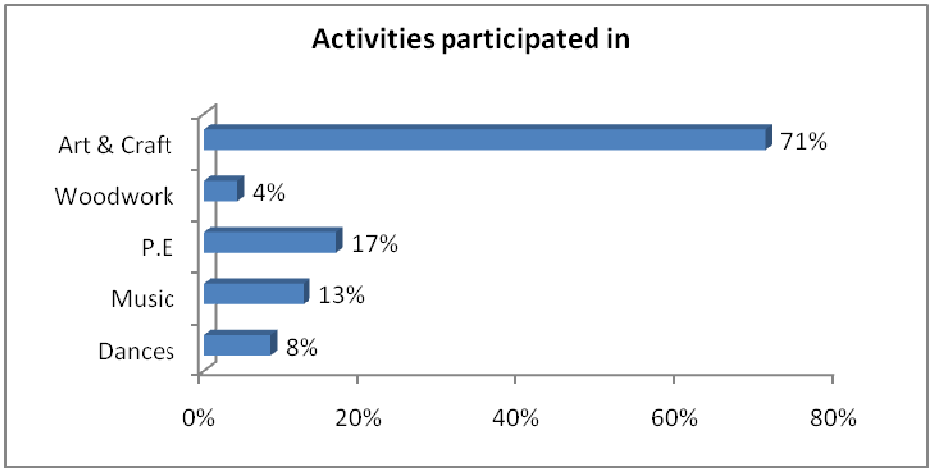
Figure 4.7: Science Materials Provided by Parents



The pre-school children majorly participated in Art & Craft contests (71%), P.E (17%), music festivals (13%), dances (8%) and woodwork (4%). These activities mainly improve the children's interest on science.

Using instructional materials is important because it enhances performance of child (Brophy, 2004, Hennsey and Amabile 1998, Wigfield and Eccles 2002) they enable children to explore their world in a confident manner (1997, Cadwell 2002 and Firtile (1996). The science materials provided were plastacenes 26% out of 100% while toys were 74 out of 100%. This proves that plastacenes were the most available materials which parents could provide.

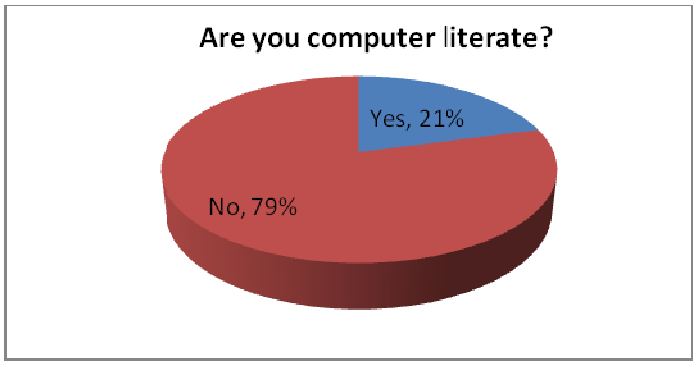
Figure 4.8: Activities Participated in



Out of 100% 71% participated in art and craft, 17% out of 100% participated in PE, 13% out of 100% participate in music while 4% out of 100% participated in woodwork and only 8% participated in dance. This is a further proof that science activities enhances children's science skills. Art and craft is a skill that children learn by discovering themselves. They learn by doing instead of theory.

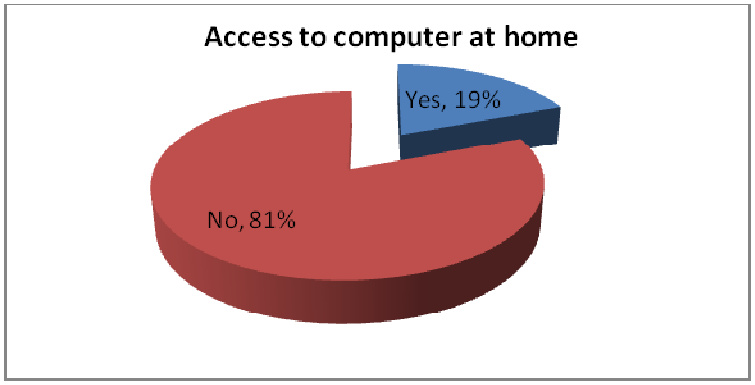
Computer skills ideally improve the pre-school children's passion for science. Among the surveyed children, only 21% were computer literate while the rest were not. This was because many sampled schools had no computer laboratories for the pre-school children.

Figure 4.9: Computer Literacy Levels



Only 19% of the pre-school children surveyed had access to computer at home. The rest (81%) could not access computers either at school not home. From figure 4.9, it is evident that only 21% out of 100% were computer literate as compared to 79% out of 100% of respondents who said they were computer illiterate. This is because many samples schools reported that they do not have computer laboratories. The use of computers increases acquisition of science learning skills and science interests among learners. This is a further testimony that 79% shows lack of science learning acquisition skills compared to only 21% who registered literacy in computers. Computer usage improves science skills and participation of children in science. Children need to be computer literate to enable them have good skills in science activities.

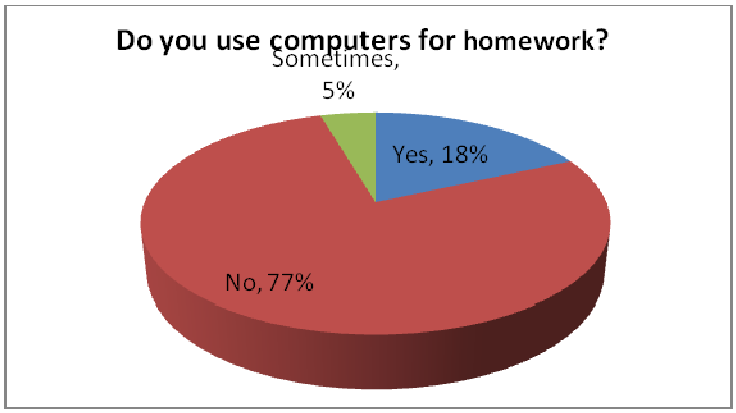
Figure 4.10: Access to Home Computers



The researcher asked the pre-school children if they used computers to solve some of the homework they are given. About 18% admitted to using computers for problem solving with regard to homework, 5% said sometimes and 77% said no. This was due to the fact that they were neither computer literate nor had computer access in school or home. this illustrates that computers access is a major contribution to the pre-school children's development of computer skills.

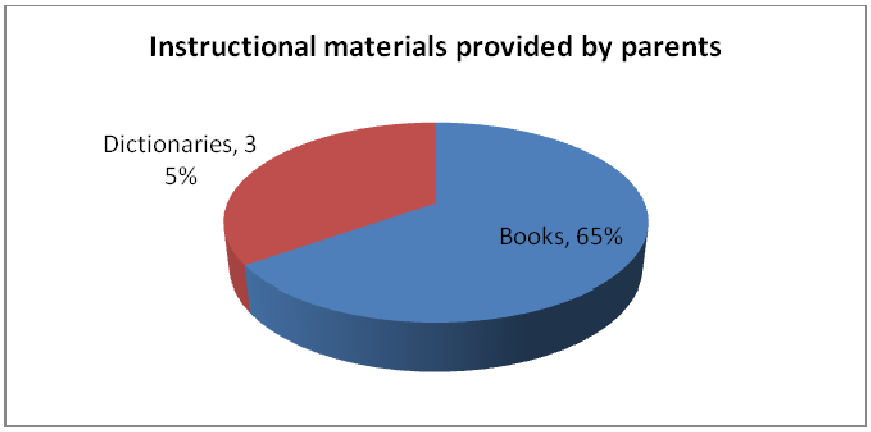
Out of 100% only 19% respondents said they have computers at home while 81% out of 100% said they do not have computers at home. This is a further testimony that computers enhances children's acquisition of science and if children can have them at home they can enhance their science skills. Computers are suitable for science problem solving example out of 100%, 18% admitted using computers for problem solving and homework. 5% said they sometimes use computers and not always while 77% out of 100% do not use computers for homework. This also proves that the more children are exposed to computers for doing homework, the more they contribute to better acquisition of science learning skills. Computer access, whether at home or school is an important ingredient in improvement and participation of children in homework and science activities. Children needs more access to computers at all levels to build their science skills and participation in science. Computers enhance homework and also improve science skills among children.

Figure 4.11: Using Computers for Homework



Other main instructional materials offered by parents apart from computers were books and dictionaries. 65% of the respondents had been given books while 35% had dictionaries. These instructional materials provided by parents makes science learning meaningful. They make science activities practical as they use experimentation and observation. They arouse children's science activities. Example 60% of respondents out of 100% said their parents provided them with books while 5% out of 100% said their parents provided them with dictionaries. This is a further testimony that instructional materials leads to better and independent learning as it enables them to grasp facts, ideas and concepts. Books enable children to enhance acquisition and development of new values.

Figure 4.12: Instructional Materials Provided by Parents



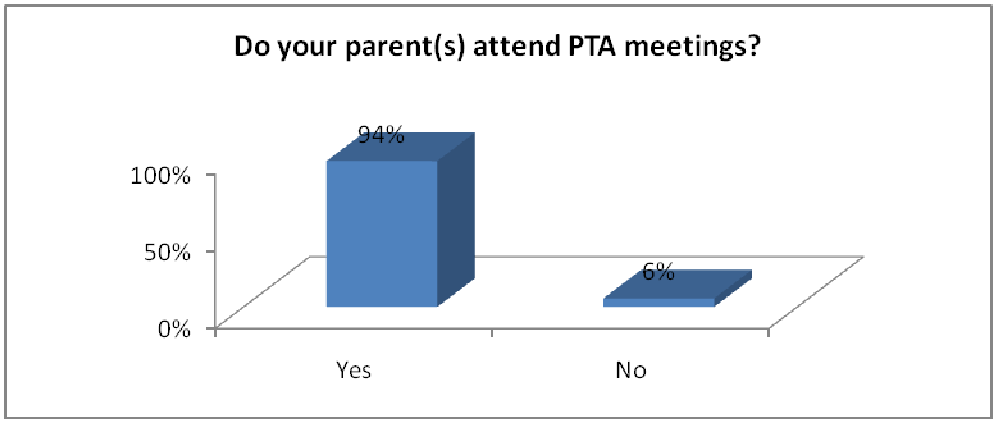
4.5 Parental Involvement in PTA/PTO meetings for Pre-School Children

Another important aspect of parental involvement in the pre-school children's science development was in the PTA meetings. The researcher asked the pre-school children if their parents attended the PTA/PTO meetings when called and 94% said yes while 6% said no.

Out of 100%, 94% said that their parents attended PTA/PTO meetings while only 6% said that their parents did not attend PTA meetings. From the study, PTA attendance seems to be an important ingredient in childens' science participation. This is because it enables children's parents to form a strong bonding and also give parents an opportunity to know progress of their children in science activities. It enables children to know that someone is concerned and they will not want to disappoint their parents as they know that their parents will know regular feedback from school as they are members of PTA. Out of 100% 82% of parents said they are members of PTA while 6% said their parents were not and 12% respondents said they are not sure if their parents are members of PTA.

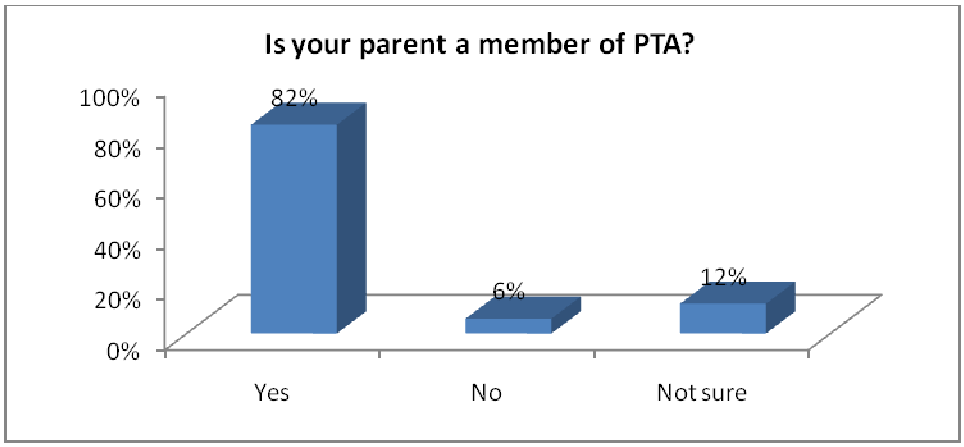
From the study and its findings, it is therefore evident that majority of parents 82% were members of PTA as opposed to 6% who were not members of PTA. It is also a further proof that parental participation in PTA enhances their childrens performance / acquisition of science skills.

Figure 4.13: Parental Attendance to PTA Meetings



The results above indicated that many parents have taken their children's education seriously and are willing to participate in meetings when called upon. Again, among the interviewed pre-school children, 82% said their parents were members of the PTA, 6% said their parents were not while 12% were not sure whether their parents were members or not. This was another demonstration of how parents take seriously their Pre-school children's education.

Figure 4.14: Parental Membership to PTA

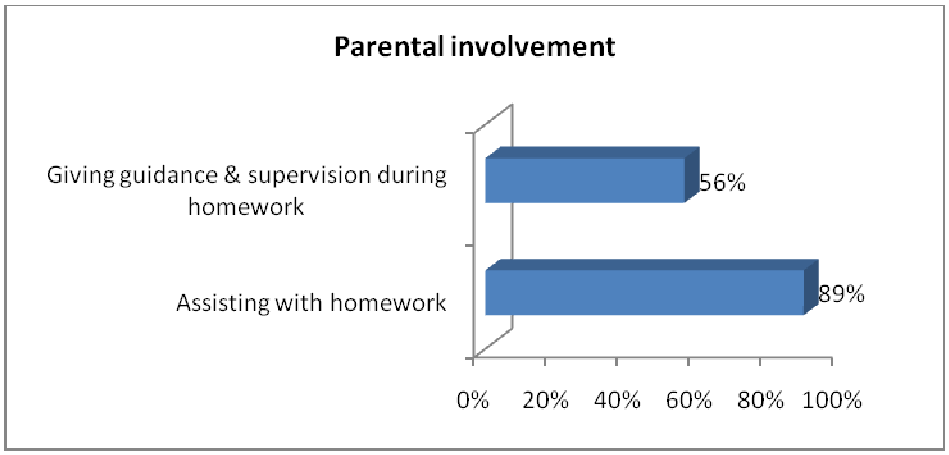


The survey also found out that all the pre-school children wanted their parents to be members of the PTA. This really motivated them to learn more and to concentrate more on their studies. The figure shows clearly that where parents were members of PTA, the science participation increased by 70% and where parents were not members of PTA, science participation decreased by 3%.

4.6 Parental Involvement in Parent – Teacher Communication

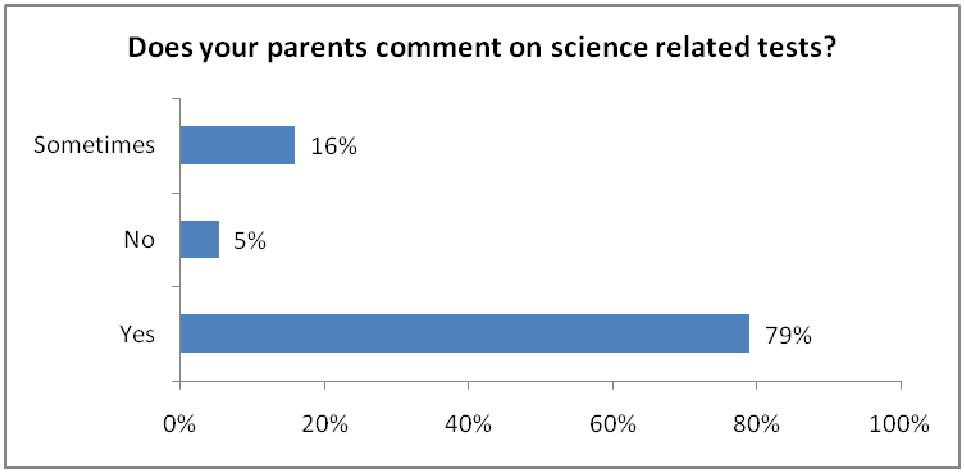
Most of the parents are regularly involved in assisting the pre-school children with their homework. About 89% out of 100% of the surveyed pre-school children had their parents assisting them with homework and 56% out of 100% had their parents giving guidance and supervision with the homework. This is a further testimony that parental homework checks has direct and strong positive impacts on acquisition and participation of science skills by children.

Figure 4.15: Parental Involvement



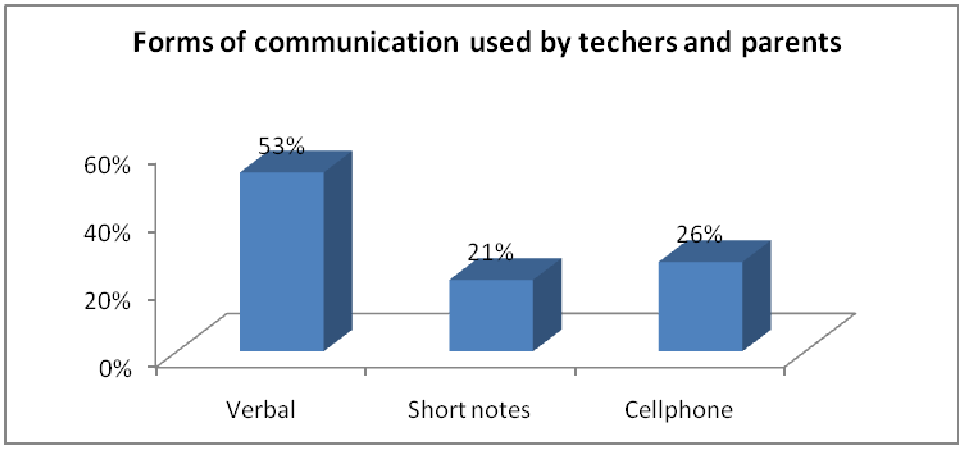
The pre-school children were also asked if their parents gave comments on the school diaries on science related matters and 79% said yes, 5% responded no and 16% said sometimes. When parents comment on school diaries, it makes their children know that their parents care about what they do. It also makes the pre-school children to work hard in science activities as they know that their parents will know what they are doing. It is therefore evident that where parents commented on their children's diaries, children tended to perform better in science and participated more in science activities.

Figure 4.16: Parental Communication



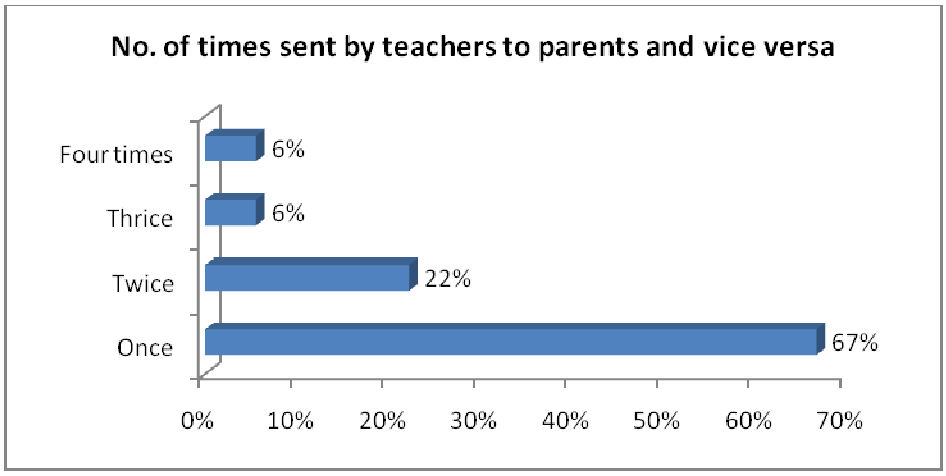
Besides diaries and letters, the pre-school children were also asked of other forms of communication that the parents and teachers used. 53% of them admitted to verbal communication, 26% said cellphone use and 21% said the parents and teachers used short notes.

Figure 4.17: Forms of Parental/Teachers Communication



Different forms of teachers- parents communication are evidence of how these forms of communication can improve children's participation in science activities. This can be telephone calls over lunch hour to know how their children are doing. However, the study found out that 53% of communication, between parents and teachers was verbal. This is because verbal communication can be face to face and be strong link between parents and teachers. It can enhance more discussion on science skills of their children for better science acquisition. It is also a further testimony that 67% out of 100% of respondents said that they had been sent home.

Figure 4.18: Frequency of Parental Communication

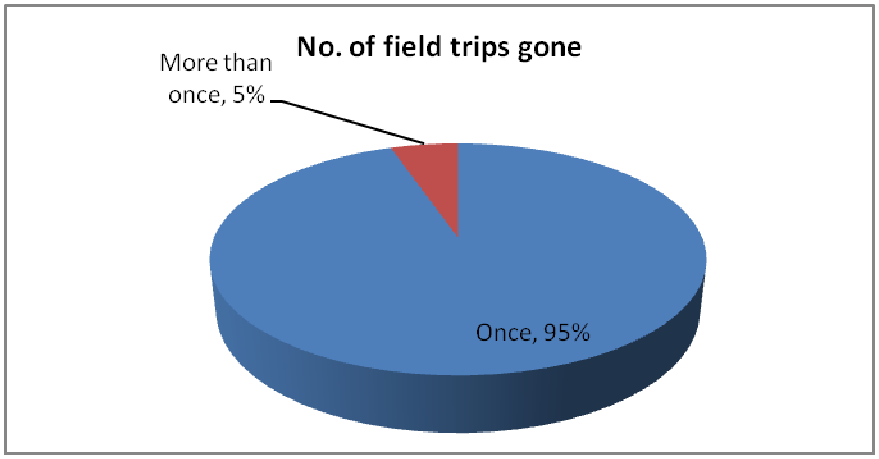


The pre-school children had also been asked how many times they had been sent either by the teachers to parents or vice versa and 67% said they had been sent once, 22% said twice, 6% said thrice and 6% four times.

4.7 Parental Support to Pre-School Events such as Field Trips / Science Congresses

Among the surveyed pre-school children, 95% had gone for a field trip once while 5% had gone more than once. This was another clear demonstration of positive parental involvement in enhancing the science uptake among the pre-school children.

Figure 4.19: No. of Field Trips Gone



The main place of interest was the museum and animal orphanages. The teachers and parents believed that these places would enhance the pre-school children's passion for biological studies in future.

These trips were mainly organized both by the parents and the teachers, especially during the PTA meetings. The parents willingly paid for all the expenses because they believed these would enhance their children's passion for science. it is also worth noting that the pre-school children admitted to really liking the field trips as these provided good foundation for development in science and they would always inform their parents of the outcome of the field trips.

Out of 100%, 95% of respondents reported that they have participated in field trips once or more than once. Field trips are great sources of information in science because they complement what the children have learnt in class. Because they are outside classroom and activity based, they enable learners to acquire skills in science and at the same time promote science activities. It is therefore proven that parental assistance in these field trips enhances learners science acquisition.

CHAPTER FIVE

SUMMARY, CONCLUSION AND REC OMMEND ATIONS

5.1 Introductions

This chapter consists of summary, conclusions and recommendations of the findings

5.2 Summary

The research was carried out to investigate the impacts of parental involvement on pre-school children's participation in science activities in Kayole Division, Embakasi sub-county (Nairobi county)

The research tools included observation checklists, questionnaires and interview schedules. The rationale for these tools was because of their sustainability in the type of research which I carried out. The sampling, methods used were random sampling as it was necessary to give equal chances to all the respondents. Since I wanted to know the different characteristics of schools I took samples both from private and public schools in the division. This gave me opportunity to know difference between variables. It was also the best way to know the variations between my independent and dependent variables as each school characteristics were affected differently.

The levels of involvement analysed included the following:

1. Parental checks on homework which was found to have direct positive correlation with science acquisition and participation.
2. Parental provision of instructional activities like books and toys. This was also found to have direct positive correlation with pre-school science acquisition as books add knowledge / skills needed in science.

3. Parental attendance to PTA / PTO meetings – the meetings enhances communication between parents / teachers and forum for discussions which enables parents to discuss science activities of their children. These have positive correlation in science activities.
4. Parental teachers communication, the two way communication is crucial because they enable parents to know progress of their children in science. This increases their science skills and participation levels in science.
5. Lastly partnership between parents and teachers enable parents to have a good rapport with teachers for the benefit of science acquisition and progress.

5.3 Conclusion

According to my conclusion, my research has been hinged on reports of various authorities in parental involvement all over the world. Clark (1993) on his longitudinal study on Afro-American- families proved the fact that children who achieve higher in schools had strong parental checks in homework. I found out that 80% of better test scores, and better science achievements were due to parental homework checks, parental provision of instructional materials, parental attendance to PTA meetings, parental – teachers communications based on the questionnaires of teachers and pre-school children, the research points a strong relationship between performance in science and parental involvement in various themes and domains which I have discussed earlier in my research . Family practices and parental roles have been found to have great impact in the improvement of outcomes of pre-school children . In Kayole Division of Embakasi sub-county (Nairobi) , for instances where there was lack of parental involvement, test scores and science improvement tended to decrease. This is a

further testimony that parental involvement is a panacea in improvement of science activities among pre-school children.

Educational expectations depends on parental involvement in children's work. This has been proved by researchers and leading authorities. According to Joyce Epstein (1992),learners' aspirations attitudes and achievements are heavily based on parental involvement.

Parental involvement according to my research findings were found to be important irrespective of socio economic backgrounds of parents., Although I did not investigate various socio-economic backgrounds of pre-school children's parents, one fact that stands out is that parental involvement in their children's work is an important ingredients in children's performance in science.

Since science is an important areas in vision 2030 it is important that parents put strong emphasis on provision of instructional materials and helping in homework for their children. This is because for Kenya to realize their vision 2030 of becoming self-reliant, science skills need to be imparted to children to promote the future society.

In today, world the development of manpower depends on acquisition of knowledge in science skills. For children to realize great career futures like engineering and Medicine It is therefore imperative that science knowledge, activities and skills are well imparted to them.

5.4 Recommendations

The government of Kenya should strive to equip all learning centers from pre-schools with science learning to inculcate skills in science among children. According to Ministry of Education and Technology master plan (1997 - 2010), this is the only way to improve overall quality of life in children aged 0-8 The government should also ensure that environmental science is taught and practiced in all schools at all levels . This will improve the knowledge and skills of children to manipulate objects and relate them to what they see outside.

The government should also promote more science related skills in ECDE centers by supervising the science equipments in all ECDE centers. Children should also be given more opportunities to explore more in science by going out frequently in field trips as this was found by my finding to improve their science skills.

Directorate of quality assurance and standards in the MOEST should also be more science related in their approach to supervision in pre-schools to improve the quality of science teaching in ECDE centers. The more research should be carried out to improve quality of science teaching in ECDE as a way of improving interest of science among pre-school children. Lastly, curriculum should be research based to improve the science among children as opposed to theoretical approach.

5.5 Contributions to Body of Knowledge

This study has been done in different settings in American case, it was found out that children whose parents participated in elementary school activities such as PTA, had higher science scores compared to children whose parents never participated in school

activities. The same study in America was conducted on eighth grade students performance. It was also observed that students who received help in homework atleast once a week had significantly lower science scores compared to those who received help less than once a week. This is a further testimony that lack of homework help was associated with children's low science performance and testscores. Although this study was taken in high school setting, and among eighth grade students, its implications can be replicated in pre-schools because the results have proven that the settings are the same.

Lygotsky, L. (1962) further contends that homework help is important in acquisition of science skills. This is because if a child is helped at home, it makes him /her is helped at home, it makes him /her acquire / understand concepts she / he may not have understood. On instructional materials, it is further testimony that they lead to manipulations of learning resources. Wachiye (1996) believes that use of learning resources enhances acquisition of concepts and leads to teaching for better performance. The science teaching involves many concepts, senses and manipulation of learning resources. This is important in enhancing a child's retention (Wachige et al 1996). This was indicated in my study where 65% of materials (mainly books proved that parental provision of materials is important in acquisition of preschool science activities.

Learning science helps children to break from classroom routines of prescriptive lessons or progressed instructional materials (Movine and Movine, 1973) discovery lessons leads to independence on part of the thinking child (Wellington and Wellington, 1960). Teaching through senses (hearing and seeing) enables a child to grasp fact, idea and

concepts (Wellington and Wellington, et al 1960). The importance of science has been justified by Woolnough and Allsop (1985).

Alatoye and Agbatogun (2009) Mestry and Grobler (2007), Bronfenbrenner (1986) all a test to positive relationship between parents and teachers relationships in helping the child. Both parents and teachers have to figure out how to work together and overcome obstacles that can get on their way. Bronfenbrenner (1986) contends that parents needs information about their child and the teacher needs feedback from the parents about the child's academic and social development.

Alatoye and Agbatogun (2009) in their study of parental involvement and pupils achievement in mathematics in Ogun state (Nigeria) noted that parents and teachers ought to work together in order to achieve common objective for a particular child for better grades of the child. A further study by Mestry and Gobbler (2007) on S. African case further proves that parental – teachers collaboration in terms of communication is an effective strategy for success of children.

Hemmer (2002) Anderson and Berta (1994) also proves that the point that parental teachers / corporation is essential in homework completion and school attendance of children.

Kenyan case

The Kenya government MOEs has realized that pre-school education cannot be complete without parental teachers' partnerships. This partnerships can be extended to voluntary organizations, churches and civil societies, (GoK, 2006). Kamunge Report

(1979) also argues that every school in Kenya should form a Parent – Teacher Association (PTA) as a way of forging school activities. This is a further testimony of the importance of parental involvement and science activities among pre-school children.

5.6 Areas for Further Research

Although my research was confined to parental involvement and pre-school children's participation in science activities in Kayole zone, there is still research areas that needs focus. This is because not all areas were exhausted in my research as it only confined to a small domain of investigations. The following areas needs to be given attention to enrich the body of knowledge in my areas of investigation.

- Parental attitudes towards children's performance in number work.
- Parental socio-economic status and its impacts on provision of instructional materials.
- Parental skills as a factor in improving poor science acquisition in pre-schools.
- Gender as a factor in science participation in pre-schools.
- Physical facilities as a factor in improving of various science activities in Kayole zone.
- Trained personnel as a factor in participation and acquisition of science skills in Kayole zone.
- Teacher characteristics as a factor in science learning in Kayole zone.
- High staff turnover as a factor in the acquisition of science skills in Kayole pre-schools.
- ICT levels as a factor in the improvement of science skills in Kayole zone.

These are areas that need further research to improve and broaden the body of knowledge that I have investigated. This will improve service delivery and quality of pre-schools curriculum not only in Kayole but the entire country's ECDE programmes.

REFERENCES

Early Childhood Matters, February 1999 (Bulletin of Bernard Vanlee Foundation). *Education For All (EFA)* in Kenya A National Handbook on EFA 2000 and beyond. Unpublished Manuscript, Nairobi.

Gagne, R. M. 91975) Essentials of Learning Instructions, New York, Chicago San Diego, Holt, Rinehart.

KESI and NACECE (1991). Administrative and Management Seminar for DICECE Program officers, KIE Nairobi.

Korir, L. L. and Njenga, A. W. (19993). *A Case Study of ECE and Care in Kenya"* A Paper Prepared for EFA Forum 1993, New Delhi, 9^{th} – 10^{th} September 1993.

Kothari C. R. (1990) *Research Methodology: Methods and Techniques*, Wiley, Eastern Ltd Wishwa Prakashan, New Delhi.

Kothari C. R. (1990): *Research Methodology: Methods and Techniques*, Willey Eastern Ltd Wishwa Prakasham, New Delhi.

Kothari, C.R.. (1990) *Research Methodology: Methods and Techniques* Willey Eastern Ltd Wishwa Prakashan, New Delhi.

Mancrieff, C. (1993):*International Handbook of Childcare Policies and Programmes,* GreenwoodPress, USA.

Matirm, B. and Mwangi A. And Seglette R. (1995) Teach your Best A Handbook for University lecturers University of Kassel, Institute of Socio-Cultural Studies.

Ministry of Education Science and Technology (2000) Primary Schools Read Teachers' Guide on Transition from Pre-primary school to primary schools. Unpublished Manuscript.

Ministry of Education, Science and Technology (2000) *Primary Schools Head teachers' Guide on Transition from Pre-Schools to Primary.* Unpublished Manuscript, Nairobi.

Ministry of Education, Science and Technology (2003). *Education Sector Strategic Plan* (ESSP) 2003 – 2007, zero draft Nairobi.

Mugenda O. and Mugenda A. (1999) *Research Methods, Qualitative and Quantitative Approaches* African Centre for Technology Studies, (ACTS); Nairobi.

Njenga, A. (1995): *Client Consultation Study: Changing Child Rearing Practices and Community Mobilization for Young Children and Families in Kenya,* KIE, Nairobi.

Pollard A. and Triggs P. (1997) Reflective Teaching in Secondary Education, London, Newyork, Continuum.

Smith, T. (1980) *Parents and Pre-School Grant,* McIntyre Ltd, USA.

Smith, T. (1980): Parents and Pre-school Grant Mclntrye Ltd USA.

Smith, T. (1980): Parents and Pre-school Grant Mclyntre Ltd (USA).

Swadener B., Kabirum and Njenga A. (1995) Client Consultation Study: *Changing child Rearing Practices and Community Mobilization for Young Children and Families in Kenya*, Nairobi, KIE.

Swadener B., Kabrium and Njenga A. (1995): *Client Consultation Study Changing Child Rearing Practices and Community Mobilization for Young Children and Families in Kenya*, Nairobi, KIE.

Swadener, B. (2000) *Does the Village Still Raise the Child*? Kent State University Press (USA).

Swadener, D. (2000): *Does The village Raise the Child?* KentState University Press, USA.

Teresa Smith, *Parents and Pre-schools*, Grant MC Intyre Ltd (1980) London (an Oxford Research Project).

Teresa Smith, *Parents and Preschools*. Grant Mclntyre Ltd, 1980, London (An Oxford Research Project.

UNESCO, OECD (2004) Early Childhood Policy Review Project Kenya Background Report (Unpublished Report, Nairobi).

UNESCO/OECD (2004) *Early childhood Policy Review Project Kenya Background Report* (Unpublished report. Nairobi.

UNICEF (2001) State of the World's Children (2001) UN Plaza, Newyork.

UNICEF (2001) State of the World's Children 2001, UN Plaza, New York.

Usana Olungakhaliyo, Masithethe You and the first Child's first Teacher project Initiative and Early Learning Resource Unit (Sponsored by USAID).

Weiser, M. G. (1982). *Group Care and Education of Infants and Toddlers.* The CV Musby Company Lowa, USA.

Weiser, M.G. (1982) *Group Care and Education of Infants and Toddlers*. The CV Morsby Company Lowa, USA.

Wolfendale, S. (1983): *Parental Participation in Children's out and Education, Gordon and Breach.*

Wolfendale, S. (1983): *Parental Participation in Childrens' Development and Education*, Gordon and Breach.

Wolfendale, S. (1983); Parental Participation in Children's .

Woodhead Martin (1996): *In Search of the Rainbow; Early Childhood Development Practice and Reflections*, Open University UK.

Woodhead Marton (1996) *In search of rainbow;* Early Childhood Development, Practice and Reflections, Open University, UK.

World Bank (1997) Staff Appraisal Report, Republic of Kenya: East and Southern African Region. ECD Project Report No. 15426 – Kenya).

World Bank (1997) Staff Appraisal Report, Republic of Kenya; East and Southern African Region. ECD project (Report No. 15426 – KE).

World Bank (1997) *Staff Appraisal Report. Republic of Kenya: East and Southern African Region. ECD Project* (Report NO. 15426 – KE).

Young , E. M. (1996). *Early Childhood Education Policy Review Project Kenya Background Report* (Unpublished report, Nairobi.

Young, E. M. (1996): ECD; *Investing in the Future,* World Bank, Washington: Upsilanti, Mich High / Scope Press.

APPENDICES

Appendix 1

Questionnaire for the Impact of Parental Involvement on Pre-school Children's Participation in Science Activities in Kayole Division, Nairobi County

Dear Respondent,

The study seeks to investigate the impact of parental involvement on pre-school children's participation in Science activities in Kayole Division – Embakasi Sub-county (Nairobi county).

This is based upon the realization that parental involvement is a key pillar in promoting science activities and careers in our Educational programme right from pre-schools to Universities. Given the significance of the topic, I consider you to be very important in helping all stakeholders in Education to achieve the desired objectives of the study.

In this regard, I would be so grateful if you spared your time in enriching this study by answering the questions. Please put a tick (√) or brief comments in the spaces provided.

Type of Respondent (1) Pre-school head ( )

(2) Pre-school teacher ( )

(3) Pre-school children ( )

Section A: Demographic Characteristics

No	Questions	Responses	Tick the most appropriate or give a brief explanation
1.	What is your District?	…….	
2.	Indicate the age bracket, if children. Gender Male [ ] Female [ ]	3- 5 years 6- 7 years 8 – 9 years 10–12 years	[ ] [ ] [ ]
3.	Your type of training.	Certificate in ECDE Diploma in ECDE Degree in ECDE Others	[ ] [ ] [ ] [ ]
4.	What kind of specialization does your teachers have?	ECDE Degree Others	[ ] [ ] [ ]
5.	Your highest educational qualification?	O level A level University	[ ] [ ] [ ]
6.	Type of institution	Private [ ] Public [ ] Others [ ]	

7.	Class level	Baby class Nursery [ ] Pre-unit [ ] Standard 1 [ ] Standard 2 [ ]	

Section B

Theme 1: Parental Checks in Homework for Pre-school Head teachers and Pre-school Teachers

1. Indicate the types of homework checked. Number work Environmental science Drawing	 Yes ( ) No ( ) Yes ( ) No ( ) Yes ( ) No ( )
2. Indicate the type of guidance given in homework Monitoring Giving assistance when in difficulty	 Yes ( ) No ( ) Yes ( ) No ( )
3. If they check, please indicate the number of times they check these homework in number work	Daily Yes ( ) No ( ) Weekly Yes ( ) No ( ) Others Yes ( ) No ( )
4. Specify the number of times parents check homework in science and number work.	Daily Yes ( ) No ( ) Weekly Yes ( ) No ( ) Bi- weekly Yes ( ) No ( ) Monthly Yes ( ) No ( )

	Not sure Yes ( ) No ( )
5. Indicate if the parental checks on homework has impact on children's participation in science	Yes it does ( ) No it doesn't ( ) Not sure ( )
6. Indicate if most children regularly complete homework in Number work and Environmental Science	Yes they complete ( ) No they don't complete ( )
7. Does homework parental checks have any influence on Test scores in Number work Participatory levels in number work	Ranges of scores 10 – 20 Yes ( ) No ( ) 20 – 30 Yes ( ) No ( ) 30- 40 Yes ( ) No ( ) 40 – 50 Yes ( ) No ( ) 50 and above Yes ( ) No ( )
8. Does parental involvement and checks in homework in number work and sciences have any impact on participatory levels in science subjects / number work	Yes ( ) No ( ) Not sure ( )
9. Does parental involvement increase the pre-scholars interests and love or number work and science	Yes ( ) No ( ) Not sure ( )
10. Does a parental involvement among pre-scholars improve science skills?	Yes ( ) No ( ) Not sure ( )
11. Indicate if the increase in attendance in	Yes ( ) No ( )

classrooms is influenced by parental checks in homework of their children.	Not sure ( )
12.Indicate the kinds of science skills that your pre-school children are involved in.	Experimentation ( ) Woodwork ( ) Others ( )
13. Indicate if parents sign diaries of pre-school children in environmental science and number work	Yes ( ) No ( )
14. Indicate if parents check home work regarding the number work test scores	Yes( ) No( )
15.Indicate if parents check homework regarding test scores in Environmental science	Yes ( ) No ( )
16. Indicate if the pre-school parents recommend remedial measures to pre-school teachers if the children are making progress or not	Yes they do ( ) no they don't( )
17. Does the school have computers lab	Yes ( ) No ( )
18. Indicate if the pre-school children with computers at home use them to do their homework.	Yes ( ) No ( ) Not sure ( )
19. Indicate if the children with access to computers at home do well in science subjects.	Yes ( ) No ( )
20. Does computer based skills acquired by pre-school children have any positive impact	Yes ( ) No ( )

on pre-school children's participation in science?	
21. Indicate if computer access to children can improve their test scores in number work.	Yes ( ) No ( )

Theme 2: Parental Provision of Instructional Materials

Materials		
1. Does the parents provide the instructional materials to their pre-school children?	Yes ( )	
2. Indicate the materials below if they are provided by parents		
Books	Yes ( )	No ( )
Toys	Yes ( )	No ( )
Plastacenes	Yes ( )	No ( )
Any others		
3. Do you think that these materials have any impact on participatory levels and interests of children in number work and sciences	Yes No Not sure	( ) ( ) ( )

Theme 3: Parental Involvement in PTO / PTA Meetings

1. Indicate if pre-school parents are involved in PTA/PTA meetings.	Yes No	( ) ( )
2. Regarding pre-school children's science participation, do you think	Yes No	( ) ( )

these involvements have any influence in their participation in science activities.	
3.If yes, indicate the type of participation in science activities. Better test scores More involvement in number work	 Yes ( ) No ( ) Yes ( ) No ( )
4. Indicate if you have sent invitations to pre-school parents regarding a) Science fairs in preschool b) Science congress in preschool c)Improvement of test scores of pre-scholars in number work / environmental science	 Yes ( ) No ( ) Yes ( ) No ( ) Yes ( ) No ( )
5. Indicate if you have access to PTA/ PTO meetings Minutes with regard to science congress Activities in number work Activities in environmental sciences	 Yes ( ) No ( ) Yes ( ) No ( ) Yes ( ) No ( )
6. Do you think parental teachers meetings have any effects on science participation among pre-school children	Yes ( ) No ( )
7. If yes, which science activities and participation do you think the PTA has	

Improvement in test scores in number work and science Interest and participation in science classes	Yes ( ) No ( ) Yes ( ) No ( )
8. Indicate if the test scores and interests among children are discussed in PTA meetings.	Yes ( ) No ( )
9. Indicate any meetings where the test scores and interests in science among pre=-school children were discussed.	They were discussed ( ) They were not discussed ( )
10. Indicate also any PTA meetings which discussed science participation among pre-school children.	They are available ( ) They are not available ( )
11. Indicate the number of science issues and activities discussed in PTA meetings.	Test scores Yes ( ) No ( ) Children's participation Yes ( ) No ( ) in science projects
12. Indicate if any of these invitations to parents discussed pre-school science activities	Yes ( ) No ( )
13. Indicate also if there was any PTA meetings related to Test scores and number work	Yes ( ) No ( )

Theme 4: PTA Meetings

1. Indicate if there is any parental / teachers communications with regards to test scores in numbers work among pre-school children.	Yes ( ) No ( )
2. Indicate if the communication was based specifically on test scores / science participation among pre-school children.	Yes ( ) No ( )
3. Based on Report cards and school diaries as records, indicate if there is any form of communication between teachers and parents	Yes ( ) No ( )
4. Are these communications between teachers and parents frequent?	Yes ( ) No ( )
5. Based on weekly schedules please indicate the frequency of these communications.	Weekly ( ) Biweekly ( ) Monthly ( ) Any other ( )
6. In your view, do you think that parental / teachers communications have any positive correlations on test score in number work and environmental science.	Yes ( ) No ( )
7. Are you satisfied with parental / teachers communications.	Yes ( ) No ( )
8. In a term, how many parents have these forms of communications with teaches?	About 5 ( ) About 10 ( )

	About 15 ( ) About 20 ( ) More than 20 ( ) Others ( )

Themes 5: Parental Support to Science Field Trips / Congresses

1. Does the school organize science trips to national museums or national parks	Yes ( ) No ( )
2. Indicate the impact of school science trips to places of interest Leads to better acquisition of science knowledge Leads to increased participation in science	 Yes ( ) No ( ) Yes ( ) No ( )
3. Does pre-school parents support such trips?	Yes ( ) No ( )
4. Do they give these forms of support? Financial assistance Providing school transport Providing snacks Providing lunches	Yes ( ) No ( )
5. Based on each term, how many parents support their children to feed trips (through finances Transport)	2 ( ) 5 ( ) 10 ( ) 15 ( ) More than 15 ( )

Appendix 11

Questionnaire for Pre-School Children

Dear Respondent,

The study seeks to investigate the impact of parental involvement on pre-school childrens' participation in Science activities in Kayole Division Embakasi – sub-county (Nairobi county).

These questions have been designed for you to assist you in promoting your science careers from pre-school to University. You have been chosen in this study because we want to promote your interests and careers in science.

If you answer these questionnaires accurately, your studies will be very enriching to educational sector.

If you answer these questionnaire accurately, your studies will be very enriching to educational sector.

Please kindly put a tick (√) on the spaces provided or a brief comment, with assistance from your pre-school teachers. Please do not write your name in any of the questionnaires.

Section A: Demographic characteristics of pre-school children

Questions	**Responses**	**Tick the most appropriate or give a brief explanation**
Type of institution	Private Public	[ ] [ ]
Class level	Babyclass [ ] Nursery [ ]	

	Pre-unit [ ] Standard 1 [ ] Standard 2 [ ]	

Theme 1: (Parental Checks on Homework) for Pre-school Children

No	Questions	Responses	Tick the most appropriate or give a brief explanation
1.	How often are you given homework in number work and science	Daily Weekly Bi-. weekly others (specify)	[ ] [ ] [ ] [ ]
2.	Every time you are given homework. Does your parents check your homework.	Yes No	[ ] [ ] [ ]
3.	If no, what is the reason for this? Lack of time They are always absent from home They are not interested	 Yes [ ] No [ ] Yes [ ] No [ ] Yes [ ] No [ ]	
4.	Based on schedules, how often are these homework checks by parents	Daily Weekly Bi- weekly Others	[ ] [ ] [ ] [ ]
5.	Indicate the type of science	Number work	[ ]

	subjects where you are provided homework in.	Environmental science Counting Writing Drawing	[ ] [ ] [ ] [ ] [ ]

Theme 2: Parental Provision of Instructional Materials for Pre-school Children

No	**Questions**	**Responses**	**Tick the most appropriate or give a brief explanation**
1.	List the materials in science that parents provide to you.	Plastacenes Toys Others specify	[ ] [ ] [ ]
2.	Provide the number of activities that you participate in at school	Dances Music P.E Woodwork Art & Craft	[ ] [ ] [ ] [ ] [ ]
3.	Are you computer literate	Yes No	[ ] [ ]
4.	What computer programmes in science do you like	Games / play Others, Specify	[ ] [ ]

5.	Indicate if you have access to computer at home	Yes No	[ ] [ ]
6.	Do you use computers for homework?	Yes No Sometimes	[ ] [ ] [ ]
7.	Besides computers, which other instructional materials do your parents provide to you?	Books Dictionaries Others (please specify)	[ ] [ ] [ ]

Theme 3: Parental Involvement IN PTA/PTO Meetings for Pre-school Children

No	**Questions**	**Responses**	**Tick the most appropriate or give a brief explanation**
1.	Do your parents attend PTA meetings when called?	Yes No	[ ] [ ]
2.	Is your parent a member of PTA?	Yes No Not sure	[ ] [ ] [ ]
3.	Ask your parents if they have been invited by school for PTA meetings. Say yes or no	Yes No	[ ] [ ]
4.	During school days, have you seen your parents coming for teachers/	Yes No	[ ] [ ]

	parents meetings		
5.	Would you like your parents to be members of PTA	Yes No Not sure	[ ] [ ] [ ]

Theme 4: Parental involvement in Parents / Teachers Communications

No	**Questions**	**Responses**	**Tick the most appropriate or give a brief explanation**
1.	Do teachers give you letters to take to your parents?	Yes No	[ ] [ ]
2.	List the involvement that your parents are involved in. (a) Assisting with homework (|b) Giving guidance and supervision during homework	 Yes No Yes No	 [ ] [ ] [ ] [ ]
3.	Does your parents always give comments on your school diaries on science related matters?	Yes No Sometimes Rarely	[ ] [ ] [ ] [ ]
4.	Besides, diaries + letters, please give any forms of communication	Verbal Short notes	[ ] [ ]

	that your parents and teachers use based on science related matters.	Cellphones	[ ]
5.	List the number of times you have been sent by your teachers to your parents or vice –versa.	Once Twice Thrice Four times Others	[ ] [ ] [ ] [ ] [ ]

Theme 5: Parental Support to Pre-school Events such as Science Field Trips / Science Congresses

No	**Questions**	**Responses**	**Tick the most appropriate or give a brief explanation**
1.	Based on termly schedule, please indicate the number of times that you go for field trips related to science activities and careers.	Once Twice Thrice Four times Others	[ ] [ ] [ ] [ ] [ ]
2.	Indicate places of interest that you have visited during the field trip (this term) e.g. museums	Places of interest	[ ]
3.	In the places of interest indicate if they are science related.	Yes No	[ ] [ ]
4.	Whenever you carry out school trips, does your parents pay for you	Yes No Sometimes	[ ] [ ] [ ]
5.	If no state reasons. (a) They don't have money	 Yes No	 [ ] [ ]

	(b) They are not interested (c) Others	Yes No Yes No	[ ] [ ] [ ] [ ]
6.	In your opinion, do you like going out for field trips (school outings) related to science?	Yes No sometimes	[ ] [ ] [ ]
7.	How often do you inform your parents whenever there is a field trip	Always Not all Sometimes	[ ] [ ] [ ]
8.	Please indicate if your teachers always inform parents whenever there is a field trip	Always Sometimes They do not inform them	[ ] [ ] [ ]