

**EFFECT OF NUTRITION ON PERFORMANCE OF CHILDREN IN NUMBER
WORK ACTIVITIES IN PRE-SCHOOLS IN MOIBEN CONSTITUENCY, UASIN
GISHU COUNTY, KENYA**

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**A Research Project Submitted in Partial Fulfilment for the Requirements for the
Award of the Degree of Master of Education in Early Childhood Education in the
Department of Educational Communication and Technology, University of Nairobi**

DECEMBER 2017

DECLARATION

I declare that this project is my original work and has not been presented to any other institution or University for consideration.

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DEDICATION

I dedicate this work to my mother Florence Sara who has made me come this far through her support and encouragement to further my studies.

ACKNOWLEDGEMENTS

First, I take this opportunity to thank the Almighty God for the far that he has enabled me to accomplish this project. Secondly, my utmost and sincere appreciation goes to my supervisor, Professor Patrick Obonyo Digolo for his tireless effort, time, concern, encouragement and constant guidance without which this project would not have been complete. I will also not forget my sincere appreciation to my husband Richard Oruko who throughout this period gave me both financial, technical and moral support thank you very much. My children Melissa Alexia Oruko and Ernest Owen Oruko who constantly supported me and endured my absence. Special thanks go to the head teachers, teachers and parents in Moiben constituency for their support and positive response in answering the questionnaires, God bless you. Lastly, to my classmates with whom we encouraged each other through out this entire period.

ABSTRACT

The school nutritional programme is popular in Kenya, an instrument for improving the nutritional needs of the pre-school children as one way of achieving one of the Millennium Development Goals and Education for all. The programme needs crucial interventions for improving the nutrition of the pre-school children mainly from the low-income groups. The programme aims to provide balanced diet to ECDE children to enhance their school attendance and concentration in class activities all geared towards better academic achievement. Therefore, the purpose of the study was to determine the effect of nutrition on performance of children in number work activities in pre-schools in Moiben Constituency Uasin Gishu County. Specifically, this study determined: the effect of nutrition on children's performance in number work activity in Moiben Constituency; the effect of feeding frequency on children's performance in number work activity in Moiben Constituency and the effect of parental nutritional knowledge on children's performance in number work activity in Moiben Constituency. This study used a mixed research design quasi experimental and both quantitative and qualitative research design. The sample size was 6 head teachers, 18 teachers, 60 pre-school parents and 180 children of public pre-schools in Moiben Constituency. The primary data was collected using questionnaires and interviews schedule, the questionnaires being both open and close ended administered to the head teachers and ECDE teachers. A specially designed number work test was designed for the pupils. The researcher also used interview to parents in data collection to establish the background and knowledge towards school nutritional programme. In this study, a pilot study was conducted to ensure reliability with selected respondents from two of the primary schools that were not included in the study. The quantitative data was analysed using descriptive statistics where the responses from the questionnaires were tallied, tabulated and analysed using percentages, frequencies, mean and standard deviation using Statistical Package for Social Sciences (SPSS). The study established that the main types of food offered were mainly porridge, maize, beans and vegetables and the provision of nutrition programme improved the overall performance of the children in number work. In addition, the study determined that providing school feeding programme twice improved the performance of the children in number work compared to providing food once. Finally, majority of the parents understood what was in the school menu, of which 60% indicated that the menu is balanced and good for the children. Parents also attested that school nutrition programme effectively improved performance of the children in number work, of which 100% of the parents agreed that indeed school nutrition programme improved number work. The study concluded that the school feeding programme has helped in improving the performance of the pupils in number work probably as a result of daily attendance of school by children. The study recommended that the school feeding programme should be introduced in all schools in Uasin Gishu and not just Moiben Constituency.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
ACKNOWLEDGEMENTS	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF APPENDICES	xi
ABBREVIATIONS AND ACRONYMS	xii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Overview	1
1.2 Background to the Study	1
1.3 Statement of the Problem	5
1.4 Purpose of the Study	7
1.5 Research Objectives	7
1.6 Research Questions	7
1.8 Limitations of the Study	8
1.9 Delimitations of the Study	9
1.10 Assumptions of the Study	9
1.11 Definition of Operational Terms	9
CHAPTER TWO	11
LITERATURE REVIEW	11
2.1 Introduction	11
2.2 Policies on Nutrition of Preschool Children	11
2.3 Pre-school Child Education	13
2.6 Effects of Nutrition on Children’s Performance in Number Work	24
2.7 Effect of Feeding Frequency on Children’s Performance	31
2.8 Parental Knowledge on Nutrition	33

2.9 Theoretical Framework	34
Figure 2.1: Conceptual framework for the study linking nutrition and performance	36
CHAPTER THREE	37
RESEARCH METHODOLOGY	37
3.1 Introduction	37
3.2 Research Design	37
3.3 Target Population	37
3.4 Sampling Size and Sampling Procedures	38
3.5 Research Instruments	38
3.5.1 Questionnaires	38
3.5.2 Interview Schedules.....	39
3.5.3 Test	39
3.6 Validity of the Research Instruments	39
3.7 Reliability of the Research Instruments	40
3.8 Data Collection Procedures	40
3.9 Data Analysis	40
3.10 Ethical Considerations.....	41
CHAPTER FOUR.....	42
FINDINGS AND DISCUSSION.....	42
4.1 Introduction	42
4.2 Questionnaire Response Rate.....	42
Table 4.1: Response Rate from the Various Categories of Respondents.....	43
4.3 Respondents Socio-Demographic Characteristics	43
4.3.1 Head Teachers	43
4.3.2 Teachers.....	43
4.3.3 Parents	44
4.4 Effect of Nutrition on Children’s Performance in Number Work Activity in Moiben Constituency.....	44
Table 4.2: Information concerning the Financers of the School Nutrition Programme.....	46
Table 4.3: Places where the Children took their Meals.....	46
Figure 4.1: Type of food served in schools during the school nutrition programme.....	47
Figure 4.2: Performance of the children in number work between the two categories of schools that provide nutrition programmes and those that do not provide	48

4.5 Effect of Feeding Frequency on Children’s Performance in Number Work Activity in Moiben Constituency	48
Figure 4.3: Performance of the children in number work between the two categories of schools that provide nutrition programmes and those that do not provide	49
4.6 Effect of Parental Nutritional Knowledge on Children’s Performance in Number Work Activity in Moiben Constituency	49
Figure 4.4: Type of food that children are provided with in schools during the school nutrition programme as attested by the parents.....	50
CHAPTER FIVE	51
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	51
5.1 Introduction	51
5.2 Summary of the Study.....	51
5.3 Conclusions	54
5.4 Recommendations	55
5.5 Suggestions for Further Research	55
REFERENCES	57
APPENDICES	61
Appendix i: Questionnaire for preschool teachers	61
Appendix ii: Interview schedules for parents.....	64
Appendix iii: Interview schedule for head teachers	65

LIST OF TABLES

Table 4.1: Response Rate from the Various Categories of Respondents	43
Table 4.2: Information concerning the Financers of the School Nutrition Programme	46
Table 4.3: Places where the Children took their Meals	46

LIST OF FIGURES

Figure 2.1: Conceptual framework for the study linking nutrition and performance	36
Figure 4.1: Type of food served in schools during the school nutrition programme.....	47
Figure 4.2: Performance of the children in number work between the two categories of schools that provide nutrition programmes and those that do not provide	48
Figure 4.3: Performance of the children in number work between the two categories of schools that provide nutrition programmes and those that do not provide	49
Figure 4.4: Type of food that children are provided with in schools during the school nutrition programme as attested by the parents	50

LIST OF APPENDICES

Appendix i: Questionnaire for preschool teachers	61
Appendix ii: Interview schedules for parents	64
Appendix iii: Interview schedule for head teachers.....	65

ABBREVIATIONS AND ACRONYMS

ECD:	Early Childhood Development
ECDE:	Early Childhood Development Education
FAO:	Food and Agriculture Organization
GOK:	Government of Kenya
NACECE:	National Centre for Early Childhood Education
WHO:	World Health Organization
UNICEF	United Nations Children's Emergency Fund
UNESCO:	United Nations Educational, Scientific and Cultural Organization
SFP:	School-feeding Programme
WFP:	World Food Program

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter presents the background to the study, statement of the problem, purpose of the study, objectives, research questions, significance of the study, assumptions of the study, limitation and delimitation of the study, definition of operational terms based on the effect of nutrition on performance in number work activity.

1.2 Background to the Study

The food and Agriculture organization's (FAO) states that almost 1025 million people globally are chronically hungry (FAO, 2006) most of them being from developing countries and about 60% are children. According to the Millennium Development goals in relation to hunger and malnutrition, the goals had not been met by 2015. The Jomtien declaration in 1990 and the Dakar Framework for Action in 2000 clearly spells out that it is a fundamental right for every person this includes children to access educational opportunities to satisfy their basic learning needs. The Jomtien World Declaration on Education for All (EFA), in Article V, states indicate that Early childhood care, initial education and learning begins at birth. Meanwhile, emphasis was placed in the Dakar Framework for Action, on expanding and improving comprehensive early childhood care and education especially for the vulnerable and disadvantaged in the first of six EFA goals. Since the declaration of EFA and in line with Millennium Development Goals (MDGs), many programmes aimed at increasing enrolment of children for early childhood education has increased (Mukudi, 2004; UNICEF, 2012) leading to the expansion of the Early Childhood Development and Education (ECDE).

In many countries across the world, millions of children have responded to this call and are currently attending pre-school or ECDE but the programme appears not sustainable because

no child can take that step on an empty stomach (Du Plessis and Conley, 2007). Sadly, among the socio economic disadvantaged families, mostly there is not enough food at home, leave alone enough to carry to school. Currently, 26 million pre-primary school-age children attending ECDEs classes have no access to food across the developing world, with 11 million in Africa alone (WFP, 2013a). For this reason, many children in less developed countries suffer hunger since they are from low socio-economic status. Lack of food among children has a negative impact on their educational attainment and programmes (Makundi, Johnson & Malel, 2017). Academic evidence has shown that children who are chronically malnourished when attending preschool have challenges in both physical and mental development that are irreversible, leading to poorer health status, lower educational achievement, and lower productivity throughout their lives (Kinsey, 2016). As such, a number of interventions to target various groups can be implemented by policy makers to address the issue of hunger and malnutrition through social safety nets.

The government and non-governmental organizations (NGO) have employed some strategies that were used in targeted areas where a large population faced poverty and chronic hunger this strategy is the food for education (FFE). The main aim for the (FFE) is in exchange for enrolment and attendance in school it would provide food to the school children or their family. This directly links to the first three MDGs which are to eradicate extreme poverty and hunger, achieve universal primary education, and promote gender equality and empower women by 2015 (WFP, 2013b). As a social safety net, FFE programs have also gained popularity among political leaders and policy makers in developing countries in Asia, Africa, and Latin America (World Bank, 2012; McGregor & Kolinsky, 2017).

School nutrition programs give expectations to stakeholders in that when food is served at school the daily attendance and enrolment of the pupils will increase. Indeed, poor and

neglected children were the intended beneficiaries of the FFE, making these interventions more compelling policy tools for fighting poverty and reducing inequality (Keling, Davidson, McGnight, 2014). Therefore, the provision of meals in school has encouraged parents – who would otherwise not do so – to enrol their children (Adelman, Gilligan & Lehrer, 2008). This changing trend among parents and learners is evidenced by increased enrolment, punctuality, stay in school, less absenteeism and higher retention (Nkatha, Hornet & Muthoka, 2013).

The fact that every day spent in school enables a child get at least one nutritious meal a day, it boosts enrolment and promotes regular attendance at schools. This motivates parents and care givers to take their children to school instead of giving them household chores and caring for their siblings. It has been established that poor childhood nutrition or childhood under nutrition has an impact on economic costs on individuals and the nation. When a child's diet and nutrition is improved there are positive effects both on their behaviours at school, academic performance and their long-term productivity as adults (Jomaa, Kolinsky & Murdoch, 2011a). Jomaa, Randell and Mustapha (2011b) also posit relatively consistent positive effects of school feeding on energy intake, micronutrient status, school enrolment, and attendance of the children participating in school feeding programs compared to non-participants. However, the impact of school feeding on cognition, and academic achievement was less conclusive based on the review by Jomaa *et al.* (2011).

Nutrition of children at the ECDE in Kenya is not new. The nutrition programs have been implemented in Kenya since the 1980s with varying degrees of success (Laginger, 2011). Used primarily to incentives the enrolment and retention of rural children and girls, subsidized meal programs have played an integral part in realizing the country's goal of universal primary education. Historically, the involvement of large foreign players has

greatly limited the Kenyan government's role in the direction and stewardship of these programs. In 2009, the government of Kenya introduced the home-grown school feeding program (HGSFP) with an aim of transiting a sustainable and nationally integrated alternative. Together, these programmes are recognised as to have made major contributions in the education sector over the last decade that is in terms of attendance, achievement and increasing enrolment. In Kenya, school feeding programmes include the mid-morning snack, which mostly is porridge, and mid-day food, which can take the form of rice, beans or maize beans and vegetables. Foods provided by the WFP are usually fortified to ensure that children get the vitamins and minerals they need to grow and develop well. The organization (WFP) has developed ways to work with governments to allow them to continue the programs themselves and to create and run their own school feeding programs by working with the community to establish school gardens provides school children with direct access to nutritious foods among others (WFP, 2013e).

According to child psychologists, growth and development of a child depends on nutrition among other things. Consequently, several studies demonstrate that provision of food is a prerequisite for good cognitive development in children and is vital for good performance in schools (Benton, 2010a, Seth and Johnson, 1991; Ray, 2004 and Becker, 2000; Brandon 2015). This is reinforced by results of studies by Zimmermann (2011) and Benton (2010a), which showed that deficiencies in diet given to preschool children do affect normal functioning of their brains. Following this argument then, indicates that nutrition would significantly affect performance of preschool children in various subjects. It is clear that improved nutrition, aids in a child's well-being and improved learning ability, which in turn leads to better academic performance. It has been shown by the Food and Nutrition Policy for Schools Food Commission (2001) that there are positive links between well-nourished

children and improved attendance, learning, behaviour and consequently child-teacher relationships. Hence it is critical that nutrition component of ECED programme be enhanced for good academic foundation for pre-schoolers.

The foregoing realization has made education and nutrition central in early childhood education programmes in many countries. However, there are still gaps on how nutrition influences performance of number work at preschool level in Kenya. This partly explains why the Government is yet to develop or initiate policies on childhood nutrition at preschool level. Some studies done so far to investigate how nutrition affects performance have not been specific in terms of subject area and have addressed the problem only in selected parts of the country (Munyiri, 2010; Apondi, 2009; Oyugi, 2012; Ngong'a, 2014). This study intended to determine the effects of nutrition on performance in number work in selected schools in Moiben Constituency in Uasin Gishu County, Kenya.

1.3 Statement of the Problem

Nutrition is an important element in children's growth and development, which includes physical, emotional and cognitive development. Food is an essential component of life; it is the primary source of health, energy, growth and development from childhood to adulthood (Omago, 1990). In Kenya, pre-schools are yet to realize the vitality of good quality and quantity of food in the life of young learners (Ngong'a, 2014). Most of these schools receive children from disadvantaged households within. These children have no guarantee of daily meals due to their poor socio economic background. Balanced diet is necessary because it builds, protects and repairs the body. Human beings require sufficient food for sustainability and functionality. The problem of malnutrition and its effects on brain development, physical and intellectual functioning has tremendous implications.

This study was developed to address the problem of poor performance in number work among preschool children in selected schools in Uasin Gishu County. There could be many causes but this study will investigate the effect of nutrition on performance in number work activity. Nutrition is a major factor that affects a child's development. Children who are well fed become healthier and tend to achieve more in class than those who are underfed. Malnourished children suffer from diseases and have more problems fighting infections, which prevent them from attending school (UNESCO, 1999). Childhood underweight due to malnutrition is internationally recognized as an important public health problem and its devastating effects on human performance, health, and survival are well established. Therefore, schools should provide meals or parents ensure their children get necessary food to ensure good learning among children (UNESCO, 1999). However, not many preschools in Kenya have meals since information generated through research to back up such programs is scanty.

Pre-schools in Uasin Gishu are categorized as private and public. Some of the schools have centrally organized meals in schools while others do not at all. The preschool children are trained similarly and the graduates compete for the same schools in the region for class one admission. Due to the financial difficulties, some parents are unable to pay for school meals therefore withdrawing their children from such schools, while others opt to pack lunch for their children. Such children do not get proper nutrition or a diet that varies from one family to another. Children in the county come from families of different socioeconomic status, which could be a source of variability in cognitive development hence learning process at preschool level. Therefore, it is necessary to establish how nutrition affects performance in number work in preschool children in Uasin Gishu County, which becomes the criteria for making informed decisions during selection of children for primary education. Several

studies done in Kenya have focused on other variables that affect nutritional status of pre-schoolers age 5 and below (Murungi, 2009; Mwaniki, 2007; Ndungu, 2004; Waswa, 2005; Shihundu, 2005), but not the effect of nutrition on children's performance in number work activities in pre-school children, therefore this became the focus of this study.

1.4 Purpose of the Study

The purpose of the study was to establish the effect of nutrition on children's performance in number work activities in pre-schools in Moiben Constituency Uasin Gishu County.

1.5 Research Objectives

The study sought to achieve the following objectives:

- i. To determine the effect of nutrition on children's performance in number work activity in Moiben Constituency
- ii. To find out the effect of feeding frequency on children's performance in number work activity in Moiben Constituency
- iii. To establish the effect of parental nutritional knowledge on children's performance in number work activity in Moiben Constituency

1.6 Research Questions

The study was guided by the following research questions:

- i. How does nutrition affect children's performance in number work?
- ii. To what extent does the frequency of feeding affect children's performance?
- iii. How does parental knowledge on nutrition affect pre-schooler's performance in number work?

1.7 Significance of the Study

The study findings will generate useful information that can be used by stakeholders. They include the parents, teachers who were aware of the importance of proper nutrition and in turn educate all the stakeholders who are directly and indirectly involved with children. Ministry of education will ensure that children at preschool level have access to a balanced diet, which will aid in proper cognitive development. The county governments will highly benefit from the research findings of this study since the early childhood subsector is now under its jurisdiction, which will make it easier for the counties to implement school feeding programs. The findings will also be of importance to the ministry of health, which will further sensitize both parents and other caregivers in ensuring that children get a proper and balanced diet and improve the feeding programs that are provided in schools. The findings will also provide information that will be useful to scholars and will provide new knowledge to those in the field of early childhood education. Curriculum developers will also benefit from the study, as the research findings will aid them in developing policies that ensure children receive school feeding programs that are beneficial to proper growth and development.

1.8 Limitations of the Study

A limitation is that which hinders a research or test from being achieved. Due to the bad weather conditions experienced the researcher found some difficulty in collecting the necessary information from schools due to inaccessibility because of poor infrastructure. Most of the respondents are not educated. This made the interview process slow down since an interpreter was required. Honesty and sincerity of the respondents was disadvantaged by the use of questionnaires as a data collection method.

1.9 Delimitations of the Study

The research was carried out in Moiben Constituency, in pre-schools attached to primary schools. The study focused on the effect of nutrition on children's performance in number work activities. The study was carried out in public pre-school and the respondents included teachers, parents of pre-school children, pre-school children and the head teachers.

1.10 Assumptions of the Study

The study assumed that all the respondents would give honest and accurate information. All the questionnaires would be filled and returned promptly and that all other conditions will remain constant and not interfere with the outcome.

1.11 Definition of Operational Terms

Balanced diet: Diet containing foods from all food groups in the correct proportion required by the body

Child: Whereas the term child refers to a person below the age of 18, this study will focus on children from pre-school. A child will therefore be anybody aged between 3-6 years.

Diet Types of food or drink taken regularly by individual or group.

Health State of complete physical, emotional, mental, and social well-being, not merely the absence of disease or infirmity.

Healthy life: e.g. water, protein, fats, carbohydrates, minerals and vitamins

Malnutrition: Lack of enough of proper type of nutrients from food.

Meal: Is the sum of food ingested at one feeding

Number work: Is a science of numbers, quantity, space and their interrelationships

Nutrition: Are components of food required by the body in adequate amount in order to grow, reproduce and live a normal life.

Performance: Status of a pupil in respect to the attainment of knowledge and skills in comparison with others and usually evaluated through formal examination.

Pre-school: Education set up serving 3-6 year-olds before joining primary school.

Pre-schoolchild: Refers to a child who is either a boy or girl aged 2-6 years and attending pre-school.

School feeding programme: This is an activity where the school provides balanced diet to the children at school.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter highlights some of the previous studies in the field citing existing gaps in knowledge on the influence of school feeding program on academic performance among the pre-school children. The purpose of this section was to establish study foundation, on the performance and school feeding programs of the pre-school children and explore experiences of different studies and to provide a framework within which the study was to be contextualized and interpreted. The section starts by exploring the background information on pre-school education, nutritional status of pre-school children and nutritional programmes of pre-schools. The background literature and gaps therein lay a foundation for empirical literature and gaps on that furthers explore: the effects of nutrition, effect of feeding frequency on children's performance on academic performance and parental knowledge on nutrition. It further indicated theoretical and conceptual framework encompassing major variables of study, their interactions and possible influence on pre-school children performance.

2.2 Policies on Nutrition of Preschool Children

The Kenya demographic and health survey indicates that 35% of children under the age of five are stunted 16% are underweight and 7% are wasted. This statistic gives the more reason why the research found it necessary to examine the effect of nutrition on cognitive development. The early years of a child are most important to both the child and the nation at large. Raising healthy children brings a healthy and productive nation. Children from rural

areas and those from poor homes are likely to be malnourished (KDHS 1998-2008). This is due to the economic disparity between the rural and urban areas.

Several policies have been put in place to address nutritional problems in Kenya, i.e. include the *Sessional Paper* No 1 of 2012 which was used to develop FNSS 2012-2017 and National Nutrition Action Plan 2012-2017 where the government and its partners agreed to put in more resources for nutrition. Among the objectives of the National Nutritional Action Plan is to focus on the activities that will promote the exploitation of the critical windows of opportunity from before birth to two years as endorsed in the UN 2010 summit resolution on nutrition.

The early childhood development regional conference held in Mombasa on the 17th-23rd of February 2002 syndicate 6 on issues within the family units and institutions in relation to ECD programmes stated that many families were constrained in provision of complementary feeding since they lacked food security and provision of a balanced diet. Its recommendations were that the community health workers and ECD stakeholders needed to provide a balanced using locally available foods and hygienic practices. The ministry of health also recommended that in turn stakeholders should educate the involved parties on the importance of providing balanced diet. According to the master plan on education and training 1997-2010 on issues dealing with early childhood care, development and education highlighted that provision of adequate nutrition and promotion of good health constitute the foundation of proper growth of children. Among its objectives was to improve the nutrition and health status of children.

The comprehensive education sector analysis report 1994 highlighted the provision of health, nutrition and care for the pre-schoolers. All these policies have placed emphasis on the

importance of nutrition and providing a balanced diet to children. This in turn helps the children's growth and development and the outcome of this is good performance in number work activity.

2.3 Pre-school Child Education

Every child needs education to be able to grow and develop. The significance of early childhood education cannot therefore not be overemphasized, as can be attested by its positioning at the various global conferences (Omulako, 2016). On this front, the world community that assembled in Jomtien in 1990 and in Dakar, Senegal, in year 2000 for their commitment to the Education for All (EFA) reaffirmed its commitment to early childhood care and education, especially for the most vulnerable and disadvantaged children. The remarkable commitment of EFA was also supported earlier by the United Nation (UN) through the (1989) UN Convention on the Rights of the Child and the (1979) Convention on the Elimination of All Forms of Discrimination Against Women. Emphasis has been placed on both the rights of children and the obligations of the state, international community and the society. The government of Kenya formulated policies that have been followed up to the national level through these international pledges which the government of Kenya is a signatory to. Yet, in most developing countries, including Kenya, governments have had limited capacity for developing policies and systems in which the early childhood care and education has not been part of public policy (Mulando, 2014). Most importantly, there is little research evidence on the policies that guide early childhood education in the context of limited resources.

Studies have been done to show relationship between pre-primary education and improved child in primary schools and at later stages in education (Stuart *et al.*, 2010; Morrison *et al.*, 2014; Cloud, 2016; Wasonga, 2017). Child growth and development during the first years the

brain development is rapid and it is exposed to countless stimuli in a variety of environments (Morsten, 2015). Several studies have shown that when children undertake early childhood programmes their academic performance is higher and they adjust better during later schooling years. Brooks (2014) states that when children learn at an early age they exhibit improved social skills, have few behavioural problems and achieve better grades without special attention. More importantly, preschool education exposes the children to an enriched environment, academic stimulation and avenues through which children of the same age group are able to socialize (Odebero, 2015). Obiekwe and Osuji (2016) state that attending school at an early age plays a vital role in preparing children holistically for higher education and proper understanding of different subjects.

In Kenya, pre-school education is not compulsory but it is a vital component for growth and development of young children before joining formal school (Kaburu, 2014). Children are not required to attend pre-school or early childhood development education centres before enrolling to primary school. Nevertheless, pre-schools are attached to the many public primary schools. In Kenya, education follows a systematic process where at pre-school education knowledge is imparted to the learners in the best way for better understanding of the young children. Local research has shown that nutrition aids in cognitive development and enhances the attendance and participation of children as they enrol for primary education (Mageto, 2006; Ogello & Ondieki, 2015).

In Kenya, there are more than 40,000 ECDE centres with 70% attached to primary schools and out of the 114,831 teachers, less than half of them are professionally trained. It has been established that the Kenyan working force is now embracing more women, which has led to a rise in the demand for early childhood education services. Although a good number of children attending these pre-school centres do not receive quality services (Ravinda, Sonji &

Muluka, 2015). With the number of trained teachers being a handful, the government of Kenya has given little financial assistance to the early childhood education sector. Most of the centres are characterized by lack of health and nutritional services poor and inadequate play and learning materials this has been aided by the mushrooming of early childhood centres where the proprietors are out to make money, most of them do not have any knowledge on early childhood education and the set rules and regulations by the ministry of education are not adhered to. Sungu (2013) shows that children from poor households would have significant adverse implications on their school preparedness and opportunities later in life due to inadequate preparation for pre-primary school and low quality education. Therefore, more emphasis continues to be laid on the standards of education at the early childhood centres.

The Ministry of Education Science and Technology (MOEST) has been obligated with the duty of catering for the early care, development and education of young children. The importance of an integrated approach to holistic development has been raised although gaps still appear in practice. Omanga (2016) argues that many ECDE centres pay more attention to teaching the young children basic learning skills, drilling the learners to compete for admission positions to various schools and most of the services provided are not well developed. Most stakeholders consider ECDE as “early schooling”. A good strategy for enhancing care and education for the ECDE children would be educating of parents on the importance of the early years and teachers also get the required training. The introduction of the free primary education made poor parents keep their children at home until they were of age to join in primary school. Decline in enrolment had earlier been experienced before the FPE policy was implemented which suggests that FPE was not the only reason for the decline.

Access to ECD Centres is inequitable due to the high costs this makes it difficult for poor children from semi-arid, arid and urban slum areas to enrol in them. The huge margin between actual and retained enrolment numbers indicates that in some ECD schools, parents enrol children who have exceeded the minimum age. This in itself underscores the fact there is a great emphasis on ECDE in Kenya. However, one of the major challenges in the ECDE centres is lack of food for the children since feeding must be supported by the parents who are always from areas of low socio-economic conditions.

2.4 Nutritional Status of Pre-school Children

Children are the future of any society and therefore need to grow and develop as healthy beings. Therefore, any project aimed at the development of people ought to begin with taking care of children. Children are the sure guarantee of the posterity and survival of any society (Tommason, 2014). Nutrition is a basic vital component in a child's holistic growth and development and in provision of a totally adequate environment. Food is important in any society as it influences each stage of physical, mental and emotional development of children. Kibwage (2017) confirms that for the human body to function well it must be provided with the right kinds of food in adequate proportions. When emphasis and early investment is given to child nutrition education the foundation for future growth and development of the nation is assured and when vice versa occurs it leads to the vicious cycle of deprivation and under development.

Early childhood Development and Education (ECDE) is incomplete if the health nutrition and safety of the child is not given adequate attention right from conception (Mabeta, 2011). Stimulation of a child's senses through the provision of a balanced diet are vital components of child care in that it enhances the development and organization of the brain. The

development of the brain in turn increases a child's ability to learn and develop. Neglected children and unhealthy children are normally less equipped to learn. Today in the country of utmost importance to educators, parents and the society is the education of children, which has led to the involvement of many related philosophies that have often ignored the important area of child health and nutrition. Malnutrition that affects children continues to plague societies in developing countries and end up affecting all other developmental programmes.

The need for adequate nutrition throughout the early years from pre-natal to eight years cannot be emphasized. Poor nutrition before birth and the in the first years of life interferes with brain development of a child and consequently leads to neurological and behavioural disorders which results to learning disabilities and mental retardation (Tomlisky, 2010). Child survival, growth, development and happiness are dependent upon the child's feeding patterns during this period (KIE, 2006). No doubt as asserted that to a car that "we are what we eat" and our outer bodies are machines as compared to a car that requires fuel to run smoothly so the body also needs food and water in the right quantity and quality to operate efficiency (Anon, 1986).

According to Research in Kenya, malnutrition among the pre-school children has highly increased. As many as 30% of pre-school children are severely or mildly malnourished (KNBS, 2010), those suffering from protein energy malnutrition under five years are at 40% (PEM). Due to lack of vitamin A, it is approximated that 500,000 children under five years lose their sight every year. A few become blind while two third of them die. About three million people, mostly children, suffer from a critinism (Iodine deficiency disorder) which results to both mental and physical retardation (UNICEF, 1990). These conditions make the children attendance of pre-primary school to be a mirage.

Research has greatly emphasized the first years of life and the necessity for meeting the nutrition that is adequate for physical, social, emotional and mental development of every child (WHO, 2014). It is the role of all the stakeholders and those working with children to educate and provide health and nutrition during the early years of childhood that are of utmost importance since they shape up a child's future. This statement is in accordance with the UN instruments on children's rights and the visions of WHO, UNICEF and UNESCO. Therefore, nutrition must be recognized as a vital component of quality ECE programme. For the body to keep healthy it needs nutrients, these nutrients found in the food we eat act like fuel which should be received in enough proportions because each nutrient vary in their chemical composition (KIE, 1998). Among children's right is the right to enjoy the highest attainable standard of health, nutrition and education. Food is a basic need for the human body to grow and develop and is a right for survival for all humanity.

Maslow (1970) states that food is a basic biological need, and human beings operate in a hierarchy of needs, which ranges from the lowest level, which is food, survival and safety to the highest needs. Therefore, before children are taken to school to learn these needs should be met. Nutrition is a very serious health issue as it is crucial for health of every person from conception to death and that for a person to stay healthy, she/he must be well nourished.

2.5 Nutritional Programmes of Pre-school

School feeding programmes has a history back in the 1930s this is according to Tomlison (2007) in the United Kingdom and United States of America. These countries later instituted the feeding programmes as part of their national programmes with the main aim of improving children's growth. The United States of America started the school feeding programme in Austria as international aid its aim was to combat severe malnutrition in the 1940s.

In developing countries many children are malnourished in their early years as a result of poverty, in these developing countries a very big population of almost 60 million children go to school hungry with almost 40% of them in Africa. Some of them even right from the time they have been in their mother's womb. It is well known that malnutrition affects the development of all the human tissue adversely, its effects are also adverse on brain development which is well known to the medical profession for a number of decades now. The quality of nutrition affects a child's ability to acquiesce to the school context as well as their psychological development in general. Poor nutrition robs the child of the emotional motivation and the psychological drive to grow in the new context of school as opposed to that of home. Lack of adequate nutrients in early childhood is unfortunately quite common among the children of the poor.

By investing in children's growth and development, nations can indirectly alleviate the problems of hunger and poverty. Since the late 1970s the government of Kenya has undertaken the initiative to improve children health, nutrition and school participation. The national School Milk Programme was established through a Presidential Directive in 1979 and it was designed to supply milk to all primary schools. Another school feeding programme activity which is run by the National School Feeding Council of Kenya is it supports school feeding and encourages these activities in areas where parents have the ability to sustain the programme themselves. Every year the National school feeding council is provided with grants from the government of Kenya to supplement the funds from other non-governmental individuals and organizations (MoE, 1987). The Government of Kenya/World Food Programme's school feeding programme was designed to increase school enrolment, retention and completion through provision of school meals. Recently the national school feeding council of Kenya (NSFCK) revised its policy on the provision of school feeding

programmes. Here, it stated that school feeding programmes other than being provided to the children in needy areas, in areas where parents can afford to maintain the feeding programmes it should be encouraged. This programme is currently under the Director of the (NSFCK) with funding support from parents, donations from individuals and other organizations and a minimal grant from NSFCK relies on the school communities headed by the school head teacher, members of the feeding staff and the school management committee (SMC) and food commodities are bought from the local market.

The main objectives of these school feeding activities is to give and provide food supplements to both the pre-primary and primary school children so as to help improve their health and nutritional status and provide them the energy to participate in school particularly in food deficit and semi-arid areas of the country. To achieve sustainable economic growth and human development a country can increase its human capital for its younger generation by investing in nutrition of the school aged children. All countries of the world have found it necessary to provide their students with some sort of school feeding to achieve certain social and economic outcomes.

The WFP is the largest international actor in provision of the school feeding programs with 45 years of experience. It has come under criticism due to three factors: First and foremost, school feeding has been considered as an education only intervention. Donors, national governments and development stakeholders have seen the provision of food to hungry children as a good and effective way to promote and improve educational outcomes in poor countries. Secondly, school feeding programmes have been implemented as an intervention that can do on its own with little integration or alignment with national policy strategies. In most countries, there has been limited partnerships, collaboration and cooperation with the

WFP and the national governments which have its effectiveness of hand over strategies and transition of national ownership. Thirdly relative high costs as compared to national education budgets and other food aids tools have been associated with the traditional school feeding programmes.

All these three factors have had an impact on the donors' willingness to fund both the school feeding and national governments interest in achieving national ownership. The WFP school feeding came up with a framework responding to the organizational move from food aid to food assistance. The framework of eight standards had to ensure quality, sustainable and nationally owned school feeding. Through the achievement of these standards it represents the main objective of the new generation of school feeding programmes.

According to Ahmed (2004), Dreze and Kingdon (2001) and Lazmaniah *et al.* (1999), there is solid empirical evidence that school feeding programmes have an impact and proves that it increases school enrolment and attendance by reducing drop-out. Moreover, these programmes supersede the purview of education goals to bring change to entire societies and economies. In situations of emergency, protracted crisis, economic shock and vulnerability, the school feeding is a productive safety net. This, according to Bundy *et al.* (2008), reiterates the findings of the World Bank and WFP in their evaluation of the quality of school meals programmes the world over. In 2008, the World Bank set aside USD1.2 million to address the global food crisis, some of which funds should go into supporting school feeding programmes (Grosh *et al.*, 2008). In other words, the World Bank recognizes the need to invest in school feeding programmes within the larger framework of addressing food problems globally.

There is increasing recognition of the role of good quality food in the health and holistic growth of children in general and particularly in the school context. The school feeding programmes provides food, which at times is also fortified with micro-nutrients; this not only alleviates hunger but also enhances nutrition in the learners. Therefore, such food contributes to children's health and cognitive development in and out of school. Good quality meals in school supply children with the nutrients that the body needs to grow and for the child to stay active. The food is also enriched to provide supplementary diet that supports healthy immunity, meaning that the food also contributes to school attendance and participation (Latham *et al.*, 2003; Van Stuijvenberg, 2005; Solon *et al.*, 2003; Grillenberger *et al.*, 2003). Therefore, a further enrichment of schoolchildren's food with fortification or micronutrient powders, particularly of iron, B-vitamins, vitamin A and iodine, will contribute directly to enhanced cognition and learning capacity.

Recent studies done in Kenya and Uganda have shown that anaemia prevalence is reduced by the provision of the meals in school (Andang'o *et al.*, 2007; Adelman *et al.*, 2008). More than half of the school aged children worldwide are affected by Iron-deficiency anaemia, studies have suggested that deworming children can significantly reduce anaemia this is according to (Brooker, Hotez & Bundy, 2008; Gulani *et al.*, 2007). School feeding programmes also factor in such services as de-worming to enhance the general health and growth of the child (Grigorienco *et al.*, 2006; Sonnino, 2007; Nokes *et al.*, 1992; Bundy, 2005). From these views, school feeding programmes promotes a healthy citizenry or society.

Evidence shows that poor nutrition in the early years adversely affects cognitive development and learning potential: this poor health becomes an additional barrier to education (Jukes, Drake & Bundy, 2008). High enrolment and retention rates in ECDE will increase the number of children accessing education in general. Therefore, the provision of meals in

school must be understood in the wider context of children's education and health agenda. It must also be seen in the context of programmes that seek to enhance prenatal nutrition and after birth child diet, which are the main stages that in which children experience much of the cognitive development (Jukes, Drake & Bundy, 2008). From the perspective of healthcare, the provision of good quality meals in school is part of preventive strategies for children. On the other hand, school feeding contributes to greater access to education in most developing countries.

According to Simeon (1998), school meals also alleviate the immediate and urgent problem of hunger in children, thus enhancing their study concentration and ultimate performance. The food served at school should be given to the learners as early as possible for maximum benefit while the child is in school, making it important for the timing of the meals or snacks to address hunger and reaping cognitive benefits. Therefore, reduced short-term hunger enhances academic achievement and subsequent retention within the hierarchy of educational progress.

Notably school feeding aids in increased time spent in school which leads to increased enrolment and attendance and decreased drop-out rates (Ahmed, 2004). The WFP data from Lao PDR illustrated when attendance increases by 5.5 percent per year, the enrolment by 16 percent, and drop out declines by 9 percent. This means that school feeding not only leads to increased cognition but learning is also improved. A study by Jukes *et al.* (2008) in Lao PDR, has recorded a 9% increase in cognition for every year in which a child remains and is fed in school. Moreover, the food that is provided in school is more nutritious and healthier compared to that found in most of the poor homes. As such, school-fed children exhibit better health and are more attentive compared to their home-fed counterparts. These children also register a higher attendance rate. Indeed, some studies, such as Grigorienco *et al.* (2006) and

Brooker *et al.* (2008), have found a link between the longer duration of schooling and an extended lifespan. This implies that children who are fed in school have a chance to live longer.

Moreover, quality training and good health have been linked with increased employee output. Specifically, a longer duration of basic training will increase earnings for the trainee once employed. Therefore, since school feeding is a factor in retaining children in school, it is safe to say that school feeding programmes ultimately contribute to better workplace performance and subsequent earnings. These two factors also contribute to an extended lifespan. According to De Walque (2004), a longer stay in school is also a contributing factor to increased knowledge on HIV/AIDS, thus reducing exposure to risk factors.

2.6 Effects of Nutrition on Children's Performance in Number Work

Alabi (2003) asserts that many studies done on nutrition have shown that under nutrition leads to children's stunting and mental development, which shows the relationship between nutrition and academic performance. Students who have access to feeding programmes often have the ability to perform well and regularly attend school (Yunusa, 2012).

The extent to which a child has achieved their educational goals is known as academic achievement or (academic) performance which is also the outcome of education. Different methods are used to measure children's academic performance. These include standardized achievement test scores, report card grades and, especially, teacher ratings of number work activities performance. Sattler (2001) described the standardized achievement tests as impartial tools for evaluating the knowledge level and skills of pupils by use of academic output measures of every subject. These measures include reading and comprehension, problem solving in math, writing, among others. In every subject, teachers use standard

criteria to rate pupils' performance on all areas of learning. As such, standardized achievement tests are a reliable way of gauging actual achievement levels of every pupil. On the other hand, report cards are useful when instructors want to assess classroom learning. However, since they do not have a standardized grading system, these cards are hardly used in measuring the performance of early childhood learners (DuPauland Rapport, 1991).

Proper feeding and nutrition starts during pregnancy. The expectant mother has to eat meals that have sufficient protein, fresh fruits, carbohydrates and vegetables to supply the body with proper nourishment for both her and the foetus. A study by Michael and Moore (1995) has found that early observance of nutrition enhances the development of the brain and its functions and enhances the growth of breathing and blood circulation system in children. Studies have also shown that adult rats exposed to impoverished or enriched environment had different physical brain growth (Green, 1981).

Rowe (1994) and Scaur (1992) have found that a child's first environment influences intelligence and language. Across social classes or in different children's homes, Aspects of family interactions can be directly linked to different in measured intelligence. A balanced diet is an critical contributor to a child's growth and development before and even during their schooling life. The education of parents, the income of the family, the child's caretaking arrangements, the health and dietary intake are part of factors that determine in part the child's schooling and performance. When proper nutrition is observed at this early age we are sure to have a healthy nation in the days to come.

A balanced diet is not a meal that costs more, but one that has all the nutrients needed by the body. Not all meals can have all these nutrients; however, it is important to ensure that at the end of the day, a child has consumed the right proportions of all the necessary nutrients to

grow in health. Most of the nourishing foods are less expensive and usually are high calorie foods. The effect of nutrition to learning development is influenced by traditional food taboos, workload, and modern influence, just to mention but a few.

Research on children attending school, which have investigated on the relationship between health, nutrition and school performance in number work show that well-nourished and healthy children often perform better academically than their peers who are sick and poorly nourished (Nkinyangi, 1991). Another study indicated that nutritionally well-nourished children have better attention span, concentration and scored significantly higher on mental ability test (Pollit, 1984). A similar study compared well-nourished and poor nourished on Mental Development Index (MDI), the well-nourished children performed much better than poorly nourished (Pollit, 1994).

When a child's diet is healthy, concentration increases and enthusiasm in learning together with participation and love for learning (Powel, 1978-1983). Powel emphasized that, nutritional characteristics of meals provided in school or classroom setting do not meet nutritional needs of children. However, there are variables associated with both recipients and the institution which are likely to interact with nutritional programmes and they determine its outcome (Pollit, 1984). According to the KIE (1990), feeding has an effect on the development of the brain and body. Without proper feeding children's brain cannot develop to the maximum.

The psychology of children is affected by proper nutrition. Children usually associate food they eat with love, acceptance, happy family and environment. Thus, a child develops confidence that helps him/her to learn better. This good psychology input from food allows children to do things calmly and without worry (Powel, 1978-1983). During the first years of

life having meals that contain all the necessary nutrients increases the potential for good performance and having a successful life. According to Magers (1985), the nutritional quality of food also impacts the unique development of every child, ranging from the growth of their intellectual faculties, emotive growth, ability to communicate, to the general body adaptability to the environment.

Food can help a child face daily school problems with strength and confidence. Lack of correct food makes a child irritable, stressful and unable to concentrate, difficult to teach as teachers attest to the fact that their attention span and school performance is greatly affected and they are also easily affected by a variety of germs and infections. Children who have the right dose of balanced diet every day are able to exploit their optimal abilities to learn, to sustain their concentration for longer durations, and engage in all health-promoting activities of the day. These are the physical indicators of a well-nourished child.

An overview on the present state of knowledge about nutrition and health conditions on learning and school participation was stated by Dr. Van Vynckt. She stated that, over the years, researchers from different countries have documented on the association between nutrition, health and children's school participation. These are all important in the grow and development of the child. A recent UNESCO scientific review qualifies some of the adverse educational consequences of all health and malnutrition (Pollit, 1990). It can be inferred from these UNESCO analysis that common nutrition and health conditions may play a role in determining a child readiness to attend school regularly, learn and progress in school. The nutritional quality of the food that children consume has a lasting impact over the rest of their lives. The physical and psychological excitement or motivation or disposition of a child to enrolling and continuously attending school is dependent on their sense of physical energy

and mental preparedness, which are factors of growth and nutrition. Malnourished children can hardly persevere the pressures of school life. Therefore, proper nutrition at an early age gives the child a sense of psychological security for their physical needs, which enables them to concentrate in school.

Many studies have found a direct link between nutrition and children's educational behaviours. Constant sickness, as a factor of poor nutrition, has been found to have a direct link with academic performance in Kenya. Children who are affected by these problems tend to take time before joining school. They also register a higher drop-out rates compared to their well-nourished counterparts. The reverse is also true, that good quality diets enhance children's ability and attitudes towards learning. Indeed, Crawford (1990), in numerous studies on nutrition and cognitive development, concludes that malnourishment has a lasting effect on a child's initial brain growth and functioning.

Malnutrition implies insufficient food intake by quantity (joules or calories) or quality (proteins and carbohydrates) (Kokul, 1991). It is a result of the lack of the right amounts of the required macronutrients in the food. Granted that there are many causes of ill health, but food is the mainstay of preventive healthcare. To add to adequate intake of energy calories each day, individuals need to be disease free (Kokul, 1991).

Studies carried out in Central America and India to assess the full impact of malnutrition of human intelligence and on the functional capacity of the brain show that children who were severely malnourished are often miserable, pathetic, irritable, disinterested in the surroundings and show many other signs of poor mental ability. Their performance in school may be very much affected. According to Stock and Snythe (1963), children aged between two and five years undergo a heightened level of brain development. Interestingly, this

category of children also happens to comprise the majority of those enrolled in ECDE. Indeed, in their study, these authors established that poorly nourished ECDE learners have a skull capacity 14% lower and IQ of 15 points less than those of their well-nourished colleagues.

Bemette (2013) posits that poor nutrition is a major contributor to child morbidity in transitional societies. This view reiterates that of Murray (1988) that malnutrition is the greatest cause of child mortality and movement due to poor immunity. The WHO (1988) also associates the increased frequency and length of sickness with poor nutrition. Malnutrition is truly an undesirable kind of nutrition leading to ill health. It is endemic and it is particularly prevalent among the low-income segments of population. Malnutrition impairs the mental development, lower brain cellularity, lowers child's motivation, energy levels and thus reduces quantity of effective learning (Lloyd-Still, 1979). Such characteristics make the child particularly vulnerable to poor growth and exposure to illness. Low access to good diet and constant ill health at pre-school exacerbate early onset of malnutrition (Pollit, 1990).

The government of Kenya has a clear vision for improving nutrition among the citizens as documented in Vision 2030. The Government also approved a National Nutrition Action Plan in November 2012. However, the country's ongoing process of decentralization of government functions including early childhood education has not incorporated measures to improve nutrition among pre-schoolers despite knowledge that nutrition at preschool level influences learners' performance both in preschool years and later in life. Number work in pre schoolchildren lays the foundation of concepts and skills where future learning and operations are built on.

Education plays a key role in national development since it produces a work force that steers national growth. The key subjects that are usually emphasized from early childhood classes include number work, which is usually referred to as mathematics in upper classes. It is a subject considered core for admission to training in tertiary institutions in the country. Therefore, its performance should be emphasized from as early as preschool level. Performance in number work or mathematics in upper classes has always been a concern in many schools across the country. Measures have been taken to improve its performance among children with varying degrees of success. Children who had iron deficiency tended to register marks to the tune of almost half the average scores in numbers examinations, and the situation was worse among girls than boys. This is according to a research done in the United States (Halterman, 2001).

Studies have been done in many countries on various variables affecting number work at ECD level of education. Research done in Minnesota, (USA), showed that nutrition affects children's health, behaviour and thinking skills thereby affecting number work performance. Nutritional deficiencies during the early years of life can affect cognitive development hence learning of number work from as early as ECD level of education. A study by Bellisle (2004) indicated that nutrition improves concentration, cognition and energy levels improving their ability to understand number work concepts are better.

In Kenya, most of the studies on nutrition at ECD level have focused on the school feeding programme. However, a wide gap still exists on how nutrition provided affects performance in number work. This study will give information to bridge the knowledge gap for ECD schools with Eldoret town environs.

2.7 Effect of Feeding Frequency on Children's Performance

Teras (2005) states that proper frequency of nutrition enhances academic performance. Human body require energy at regular interval and the body of a child although take low levels of energy, it requires the energy at more regular interval because the body burns the food supplied at faster rate (Ken, 2013). Therefore, debate will continue to rage on the most appropriate frequency of feeding that is suitable for a child and the impact such feeding frequency has on the performance. The provision of meals for children in school has been associated with their increased motivation and academic achievement. Teras (2005) notes that proper frequency of school feeding enhances academic achievement, school attendance and punctuality, reduces the impact of physical hunger on the psychological status of children and motivates learners to excel in school. It also improves the overall educational behaviours and emotional development of children. Moreover, quality and properly arranged nutritional supply has been found to contribute to children's mental capacity to tackle math problems and improve their attitudes towards the subject (Teras, 2005).

Proper frequency of supply of good quality food increases children's active engagement in school leading to greater learning outcomes. Interestingly, in recent studies, it has been established that increased physical activity has a direct positive impact on improved cognitive functions in learners. These studies show that schools that go so far as to reduce the length of classwork and add more time to physical education register great improvements in math scores.

In other words, a child's physical health directly relates to his or her mental capacity to tackle intellectual problems of learning (Tapsell, 2007). Tapsell's study established that the most physically fit and active children garnered the highest marks in classroom exams.

Understanding the impact of nutrition on educational outcomes is crucial for parents, learners and teachers alike. The concept of cognitive growth encompasses aspects of attitudes, reasoning and knowledge acquisition. The three major factors that affect cognitive development are nutrition, genes, and environment. Therefore, good nutrition should be provided at preschool level since its impact is usually observed in early years but has link with performance in later years. Poor nutrition leads to decreased physical activity, social maladjustment and impaired mental growth (Tapsell, 2007). In developing countries, parents have low access to information on proper nutrition for children. This is to the detriment of the children themselves. More research followed by awareness campaigns are necessary to improve services offered to pre schoolchildren to help them learn better.

Studies have shown that proper nutrition has a positive effect on number work competence. It is also worth noting that the rate of cognitive growth of children far exceeds that of their physical development (Benton, 2010a). In a study, Sigman (1995) has found that well-nourished Egyptian children showed greater propensity to engage in physical activity early in life. Sigman's study focused mainly on protein intake. Proteins are integral to brain growth; the nutrient is the main source of energy and physical stimulation. A balanced nutrition is usually provided when meals are given at regular intervals and in appropriate quantities of carbohydrates, proteins, fats and vitamins. Bodies of human beings need time to digest and utilize food eaten. Hence frequency with which food are given to children has an impact in how the body uses the food for normal functioning.

Preschool children require food at intervals in order to learn number work. However, more studies are needed to determine how feeding frequency in preschools influence performance in number work. Such information would be used to design good feeding programs for preschool children to enable preschool learners learn better.

2.8 Parental Knowledge on Nutrition

Parent's nutrition and especially that of the mother is intimately linked with that of the child. Therefore, when the mother acquires better knowledge on nutrition, then their children will get the best nutrition (Merk, 2014). However, in Kenya, nutritional knowledge of most parents is not clearly understood. Knowledge of children has the right to adequate nutrition and access to safe and nutritious food, and both are essential for fulfilling their right to the highest attainable standard of health. This is according to the Convention on the Rights of the Child. In recent years some researchers have explored the relationship between parent's knowledge and children's learning. Children from educated parents attain good education which helps to pass the tradition of literacy down the family line. Such children also secure a better future for themselves and the posterity.

Educating young children has been a priority to parents, educators and the whole universe. The future of any society relies on the children and for this reason, parents and caregivers should have the basic knowledge concerning child nutrition. Brain growth is rapid during the first six years of life. To prepare the mind for future learning the following should be focused on, proper nutrition and stimulation of the brain through a variety of activities and emotional support all which maximizes productivity. Parent's literacy on nutrition has a direct impact on the children's food-related health status. According to Grossman (2007), parents' level of knowledge on nutrition directly relates to children's health.

The more knowledgeable parents are on nutrition, the higher the chances they will provide their children with a balanced diet. In addition, mothers with knowledge on food and nutrition tend to seek professional health care services. Such mothers also tend to consume current literature on nutrition, abide by the recommended food portions and quality, and use modern technologies to promote the health of their children. Nutritional training also equips parents with the general knowledge to support the holistic growth of their children.

In research, the level of education of mothers has been reported to have a significant effect on the brain development and social adaptability of children (Corwyn & Bradley, 2002). Moreover, children with less educated or illiterate parents tend to perpetuate the cycle of illiteracy in their own lives and generation. Just like their parents, such children also tend to make poor nutritional choices in their own lives. Therefore, educating parents is a useful strategy for setting the foundation for a healthier future generation and society.

According to Grossman (2007), literate parents know how to provide an accepting and fulfilling home environment to support the holistic growth of children. Moreover, educating mothers on all aspects of children's health also reduces child mortality significantly. In the United States, the promotion of overall literacy has seen multitudes of women educated which has in turn led to increased adoption of healthy behaviours during pregnancy and subsequently child survival.

2.9 Theoretical Framework

This study was based on Maslow's Hierarchy of Human Needs. Maslow based his argument on the idea that human beings function in a hierarchy of needs which must be satisfied for their well-being (Maslow, 1943).

He suggested that the human needs are divided in two groups deficiency needs which is the first and growth needs which is the second. The first hierarchy is the physiological needs these include food, shelter and clothing. The second is safety and security once the physiological needs are met the need for safety and security arises an individual need to be out of danger. The third is the need for belonging and love people want to associate with others and feel loved and accepted. Fourthly, a person seeks a higher self-concept and sense of dignity. They also desire to grow in knowledge and to be accepted by others. Fifthly, an individual want to find self-fulfilment and realize their potential. The individual is ready to act on a higher need if only the lower needs have been met.

For children to learn, their basic needs must be fulfilled, children cannot be motivated to learn when they are hungry, fearful and insecure. When physiological needs are satisfied, the child's safety needs dominate their behaviour. In the absence of physical and economic safety, a child's attendance to school and performance may be affected. In children, the need for belonging is strong and thus it can affect a child's ability to form and maintain relationships. Children have feelings of esteem this presents the desire to be accepted and valued by others.

The need for self-actualization is the extent a person is able to achieve or realize his full potential. For a child to reach actualization, all the previous needs need to provide. According to Maslow, it shows that when children's needs make the learning process becomes enjoyable for the child. A hungry child cannot sit to learn because one of the basic needs have not been met this interferes with both the child's health and cognitive development, which can result to stunting. The stakeholders should ensure that the basic needs for preschool children are provided especially food to enable the children learn, grow and develop well.

2.9 Conceptual Framework

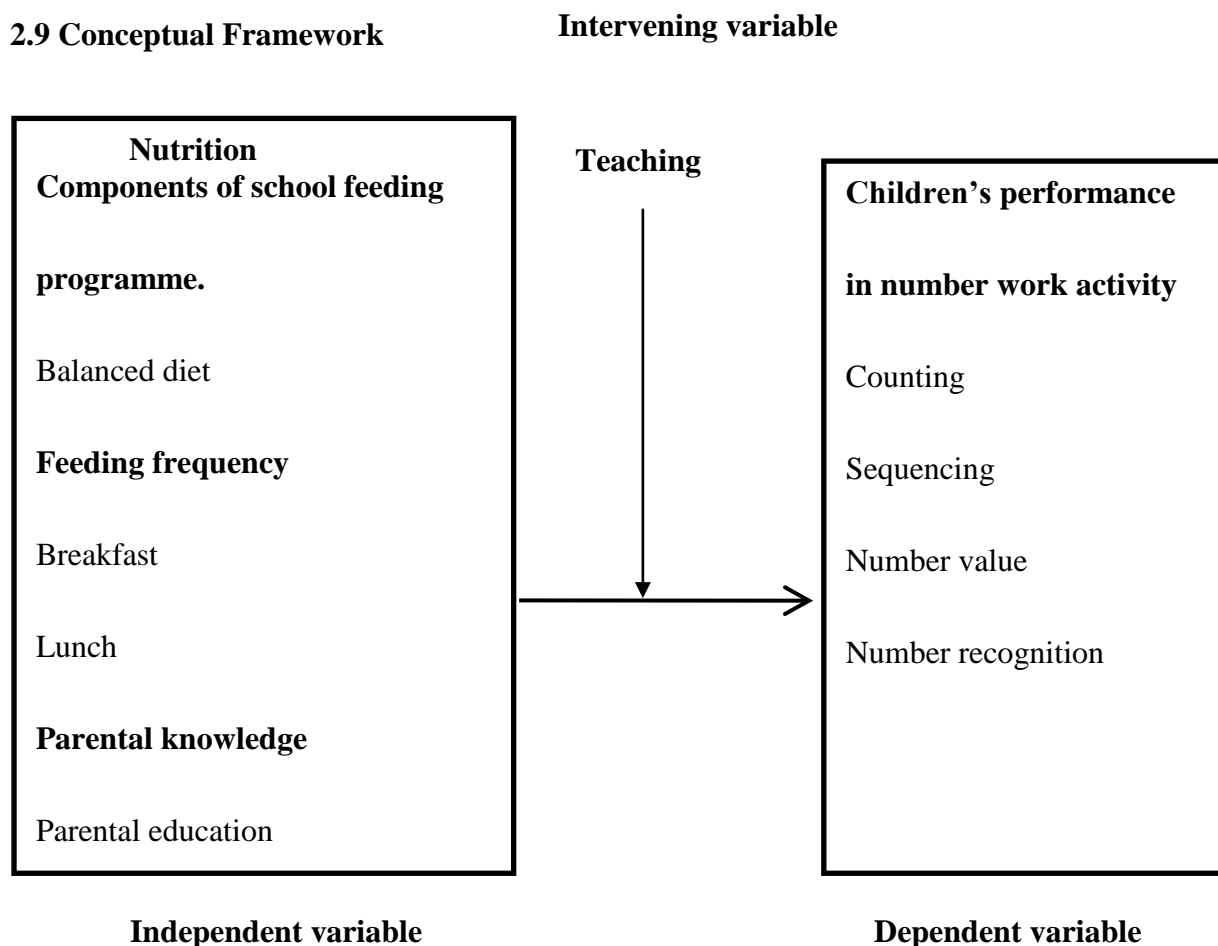


Figure 2.1: Conceptual framework for the study linking nutrition and performance

The conceptual framework will involve the interaction of the variables. The variables include independent, dependent and intervening variables. The independent variable in this study is nutrition while the dependent variable is performance and the intervening variable is teaching. Teaching took place in the schools and the children's performance is dependent on nutrition. Under nutrition, the study will look at the components of the feeding programme, feeding frequency and parental knowledge on nutrition. The dependent variable is the children's performance in number work activity. The parameters to be looked into include counting, sequencing, number value and number recognition.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research design, target population, sample size and sampling procedures, the research instruments, validity of the study, reliability of the study, the data collection methods, data analysis and ethical considerations.

3.2 Research Design

The study adopted a quasi-experimental research design with a mix of qualitative and quantitative data. A quasi experimental design is useful when ascertaining the cause-effect relationship between a treatment and the behaviour of a study subject. It allows the researcher to control the assignment to the treatment condition but not through random assignment. The pre-schools were divided into an experimental group and a control group. The schools, which provide meals, were categorized as experimental while those, which do not provide food, was the control group. Both groups of schools were given a topic by the researcher. The teachers taught the children over a period of three weeks and later a test, which was set by the teachers then moderated by the researcher given to the children. The results were computed using the t-test. In addition to the quasi-experimental design, the study used qualitative technique to obtain data from parents.

3.3 Target Population

A population is a group of people, objects and institutions in a particular area or place. According to Kothari and Pals (1993), target population is the total number of subjects to which a researcher seeks to generalize the results of a study. The target population of this research comprised head teachers, teachers and parents of the ECD respondents. The target

population for this study included 6 preschools, 180 pre-school children, 18 teachers, 6 head teachers and 60 parents of the schools involved.

3.4 Sampling Size and Sampling Procedures

Sampling is the process of identifying the representative members of the target population to provide answers to the research questions. For good representation to occur, the sampled members must bear all the features of the target population. At the time of the study, Moiben Constituency had thirty-five primary schools each with a pre-school. Purposive sampling method was used to select the schools in this study since the researcher was interested in schools that provide feeding programmes and those that do not provide feeding programmes. Random sampling was done to obtain a sample of the 60 parents whose children are enrolled in both categories of the schools selected.

3.5 Research Instruments

The research data from the ECDE parents and teachers was collected using questionnaires, interview schedules and written tests.

3.5.1 Questionnaires

These are written questions to which the respondents provide answers by writing. This was used to collect data from the preschool teachers. The questionnaires contained both open- and closed-ended items. It collected data on the number of meals provided in both schools, pupils' participation and their academic performance. The closed-ended questions were used to conserve time while the open-ended questions were used to give in depth information without holding back any information the respondents thought would be useful to the

researcher. The respondents had the opportunity to fill in the questionnaires and where they needed clarity the researcher was there to assist.

3.5.2 Interview Schedules

This was used to collect data from head teachers, and parents. The interview schedules sought to collect more information from the head teachers on the type of meals that were offered at school and the link between meals and pre-school children's performance in number work activity. Parents also gave information about what they felt was an appropriate diet for their children at school and their recommendations concerning school feeding programmes at school.

3.5.3 Test

The researcher gave the teachers a topic, which was taught for three weeks and a test later given to the pre-school children and marked by the teachers. Tests were marked in percentage and mark lists were made to record the scores. This was grouped into the experimental group and the control group which made it easier to compute and find the mean scores.

3.6 Validity of the Research Instruments

Mugenda and Mugenda (1999) define validity as the truthfulness and relevance of conclusions drawn from the study findings. To ascertain content validity, the questionnaires and interview schedules were given to three different experts who are experts in the field to look at them independently and analyse the instruments. Where their views differ the researcher considered her views and those that differed and took the majority which were incorporated to construct the final instruments.

3.7 Reliability of the Research Instruments

Reliability is the extent to which the research instruments yield consistent results. Reliability in this research was ascertained using the test-retest method. The instruments were administered and re-administered after two weeks to the same subjects. The findings for the two tests were then compared to determine consistency of the instruments using t-test.

3.8 Data Collection Procedures

The researcher sought and obtained a research permit and an introductory letter from the University of Nairobi to allow the research to be conducted in the study area. A cover letter stating the research aims, principles, potential benefits and guaranteeing participants' confidentiality was attached to the instruments and the letters. The researcher visited the school and first asked to see the head teacher. A cover letter stating the purpose value was given to the head teacher so as to seek permission to collect data. The researcher first interviewed the head teacher and was later granted permission to engage with the teachers. A brief introduction was done by the head teacher and later questionnaires were issued to the relevant teachers for response. The teachers filled in the questionnaires and where they sought clarity the researcher helped them. All this was done in all the six schools and this enabled the researcher collect data needed. Prior arrangement was also made for interview sessions between the parents and the researcher. The interviews were done during pick up times for the children and where need be the researcher sought the help of an interpreter to help understand the responses given and ease communication.

3.9 Data Analysis

Data obtained from the field through questionnaires was tabulated and analysed using percentages which were later put in form of bar graphs and tables. Children's test was marked

out of 100 and the scores recorded by the teachers then given to the researcher. The mean scores, standard deviations, were computed using SPSS software to enable the researcher to compare performance of the two groups of pre-schools. Parents interviews were conducted their responses were coded and in questions where parents gave similar responses to questions the researcher gave that as the outcomes.

3.10 Ethical Considerations

Prior to the research, the participants were informed that the information they would give would be used for academic purposes only and that the information would be handled with utmost confidentiality. The researcher then explained the type and purpose of the research, the data collection procedures, and the potential benefits that would accrue from the research. This information helped to ensure that the participants gave informed consent to take part in the study. The data collected and the sources were protected from misuse and the study focused on analysing the problem to help better the performance of children in pre-school.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents data analysis, findings, presentation and interpretation of the results. The purpose of the study was to determine the effect of nutrition on the performance of children in number work activity. The study also found out the effect of feeding frequency on children's performance in number work activities and established the effect of parental nutritional knowledge on children's performance.

4.2 Questionnaire Response Rate

This study targeted the 6 preschool head teachers, 18 teachers, 180 preschool children and 60 parents. The response rate is shown in Table 4.1. Among these: 4 head teachers were from schools with feeding programme while the other two were from schools with non-feeding programmes. Teachers from schools with nutrition programme were 12 and those without any nutrition programme were 6. A total of 120 children were sampled from schools with nutrition programmes and 60 from those without any nutritional programme, however these pupils were not provided any instrument. Finally, parents from the school with nutrition programme were 40 while those without any nutrition programme were 20. The response rate from the teacher's questionnaire and interview for the head teachers and parents were 100%. All the targeted pre-school teachers from the six schools were able to fill their forms and return them, while the interviews with the head teachers and parents were successful making the response rate good for analysis.

Table 4.1: Response Rate from the Various Categories of Respondents

Respondents	Research	Response	Response rate
Head teachers	6	6	100
Teachers	18	18	100
Parents	60	60	100

4.3 Respondents Socio-Demographic Characteristics

4.3.1 Head Teachers

The researcher sought to know the gender of the respondents, age, and highest level of education and work experience of the head teachers. It was found out that the number of male head teachers constituted over 83.3% while that of the female head teachers were 16.7%. Majority of the head teachers were aged 35 to 50 years, which translates to 66.7% followed by those aged 26-35years giving 16.7% who were similar to those aged over 50 years at 16.7%. The head teachers' highest level of education comprised those with diploma at 50.0%. A level holder, certificate holders and degree holders were all at 16.7%. Head teachers with the most work experience were those who had worked for 6-10 years, followed by those with 2 to 6 years while those with over 10 years' experience were few.

4.3.2 Teachers

The pre-school teachers were asked to state their gender, age, highest level of education and their work experience. The female gender was highly dominated with 61.1% females compared to their male counter parts at 38.9%. Among the sampled teachers, majority were aged 35 to 50 years followed by those aged 26-35 years' old those aged over 50 years were

few. Majority of the teachers also had diploma certificate levels of education at 55.5%, followed by those with certificate at 22.2% and then degree at 16.7% with the lowest number having certificate or A Level qualification at 5.6 %. Majority of the teachers had 6 to 10 years work experience at 50.0 % followed by those with 2 to 6 years work experience at 22.2%, < 2 years work experience at 20.0 % while those with over 10 years of work experience were few in the sample at 11.1%

4.3.3 Parents

The results showed that 69.4% of the household heads were males while 30.6 % were female-headed households. These results suggest that most of the head teachers and parents are males while teachers are females. Most of the parents were aged 35 to 60 years followed by those aged 26 to 35 years and then those aged over 50 years. Those aged below 25 years were few among the respondents. For most parents, the highest qualification was diploma certificates followed by those with certificate levels of education from various tertiary institutions, then A Level while those with degree were few among the sampled respondents.

4.4 Effect of Nutrition on Children's Performance in Number Work Activity in Moiben Constituency

The first objective of the study was to determine the effect of nutrition on children's performance in number work activity in Moiben Constituency. Information on the presence of the school nutrition programme was the first information sought from the head teachers. Among the six sampled schools, 4(67%) offered school nutrition programme while the remaining 2(33.3%) did not offer any school nutrition programme.

Information concerning those who financed the school nutrition programme is shown in Table 4.2. Based on the table, one quarter of the schools were financed each by parents, another quarter by the school, another quarter by school and NGO and the last quarter of the schools financed by parents and school. This information implies that school nutrition programme is not an exclusive programme left to the school alone but there are also other stakeholders who are involved in financing the programme including the NGOs and parents who take their children to the schools. The head teachers asserted to the fact that running the school feeding programmes was an uphill task since the county governments does not provide funds for the meals even though there were funds allocated for the programme.

The NGOs providing the school feeding programmes on the commencement of the programme they provided fuel used to cook food and ingredients for the meals but at current, they only provide the food and have withdrawn from providing fuel (firewood). The head teachers stated that in the near future the NGOs would withdraw from the feeding programmes, this will highly affect the early childhood learners especially those from the disadvantaged socio-economic status putting them at risk of childhood disease and malnutrition. This research finding concur with Nkinyangi (1991) who states well-nourished children perform better in class than those who are poorly feed. The teachers also attested to the fact that when children get good nutrition they are able to concentrate do not get irritated easily and have consistency in their performance.

Table 4.2: Information concerning the Financers of the School Nutrition Programme

Sponsors	Frequency	Percent
Parents	1	25
School	1	25
School + NGO	1	25
Parents + School	1	25
Total	4	100

The researcher also determined the environment where the children take the meals when they are having their school nutrition programme (Table 4.3). Among the four sampled schools offering the school meal programme, a half of the schools were offering the school meal in classroom, another one quarter offered the meals in kitchens and the other quarter in the open field. These results concur with those of a study in Zambia by Bunde (2016) who established that most of the pre-primary school offer school feeding programme without any adequate funding put in place and funds from the parents are not enough to run the programme that requires other facilities such as kitchen and dining room to make it more successful. Most of the children who ate in the open fields their schools did not provide the feeding programmes in school. Either their parents gave packed food from home, which they ate cold, or the children were given money to buy food from the kiosks which most of the time were snacks, and did not have any nutritional value to their bodies.

Table 4.3: Places where the Children took their Meals

	Frequency	Percent
Classroom	2	50
Kitchen	1	25
Open field	1	25
Total	4	100

The type of food was also sought from the school head teachers and the result presented in Figure 4.1 below.

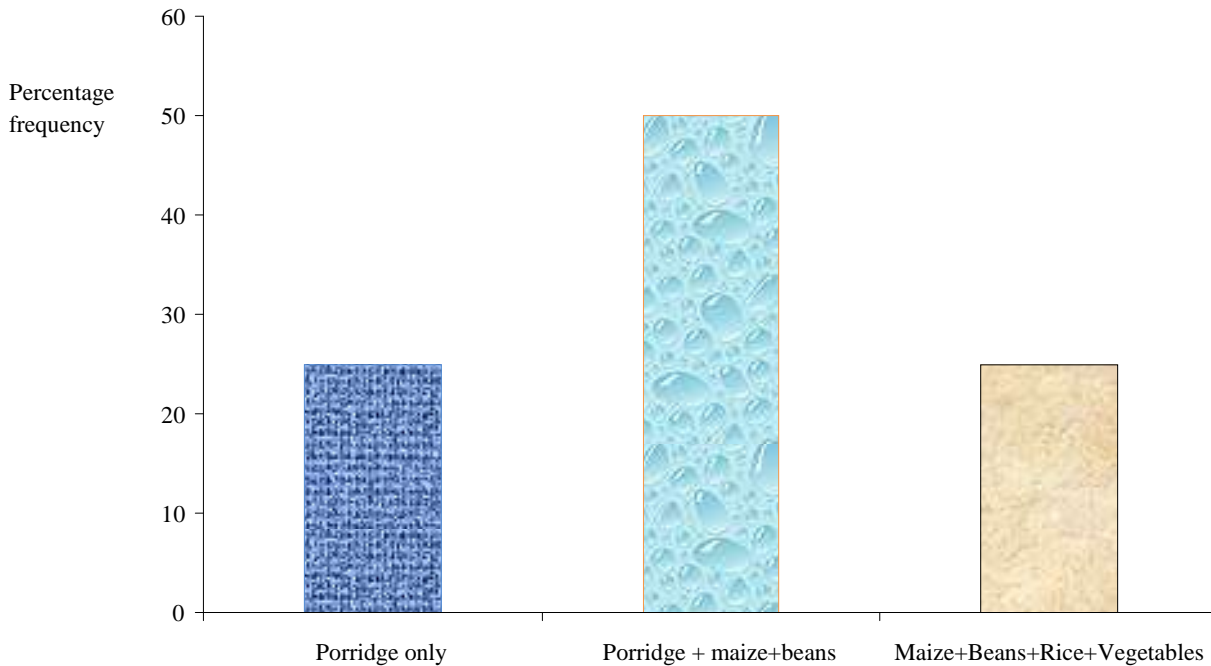


Figure 4.1: Type of food served in schools during the school nutrition programme

The head teachers were asked whether the school feeding programme improved performance of the children and based on the response, 100% of the head teachers attested that the school nutrition programme improved children performance.

The overall performance of the children was also determined relative to schools that provide nutrition programmes vis-à-vis the schools that do not provide any school nutrition programme (Figure 4.2). Based on the performance, it was established that there were significant differences in performance between schools that provide nutrition programme ($94.5 \pm 3.1\%$) compared to school that did not have any school nutrition programme ($85.4 \pm 5.1\%$). When the results were further tested using t test, there were significant differences in the performance of the children in number work ($t = 17.834, df = 1, P = 0.0032$).

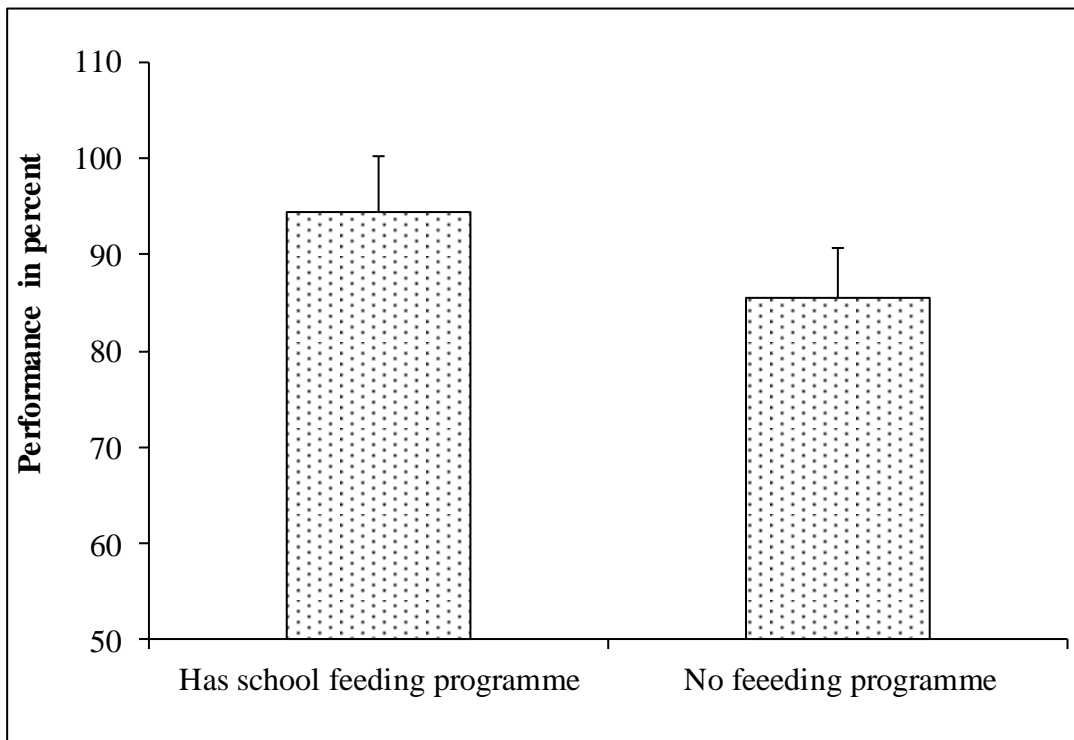


Figure 4.2: Performance of the children in number work between the two categories of schools that provide nutrition programmes and those that do not provide

4.5 Effect of Feeding Frequency on Children’s Performance in Number Work Activity in Moiben Constituency

The second objective of the study was to determine the effect of feeding frequency on children’s performance in number work activity in Moiben Constituency. Based on the information obtained from the four schools that offer school nutrition programme, 50% fed the children once while the remaining 50% of the children were fed twice. On the other hand, two other schools did not have any nutrition programme at all.

The overall performance of the children was also determined relative to feeding frequency (Figure 4.2). Based on the performance, it was established that there were significant differences in performance between schools that provide the school feeding programme once

(92.5 ± 1.1%) compared to schools that provide the school nutrition programme twice (95.2 ± 2.1%). When the results were further tested using t test, there were significant differences in the performance of the children in number work (t = 12.834, df = 1, P = 0.0062). Schools that provided the feeding programme twice saw consistency of their children's attendance and performance. After the children had their ten o'clock porridge, they felt more energized for outdoor play and actively participated in indoor activities until lunchtime. For those who did not get any meals at school it affected their performance, concentration and their consistency to attending school.

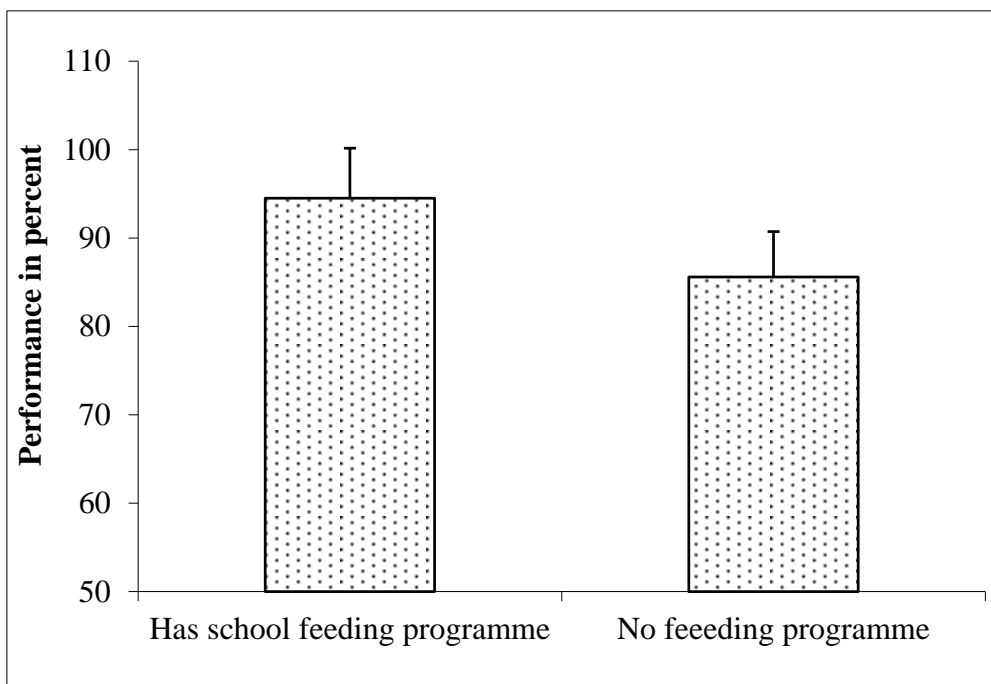


Figure 4.3: Performance of the children in number work between the two categories of schools that provide nutrition programmes and those that do not provide

4.6 Effect of Parental Nutritional Knowledge on Children's Performance in Number Work Activity in Moiben Constituency

The final objective of the study was to determine the effect of parental nutritional knowledge on children's performance in number work activity in Moiben Constituency. The researcher inquired from the parents on whether they understand the school menu. Among the 60

parents, 72% understood what was in the school menu while the remaining 28% did not understand the school menu. They were further asked if they believed that the menu is balance in terms of quality, of which 60% indicated that the menu is balanced and good for the children as opposed to the 40% who indicated that the menu was not balanced. Among the 40% of the parents who believed that the food was not balanced, suggested that more protein should be included in the menu.

Information on the type of food that children are being provided also sought from the parent and the result presented in Figure 4.4 below.

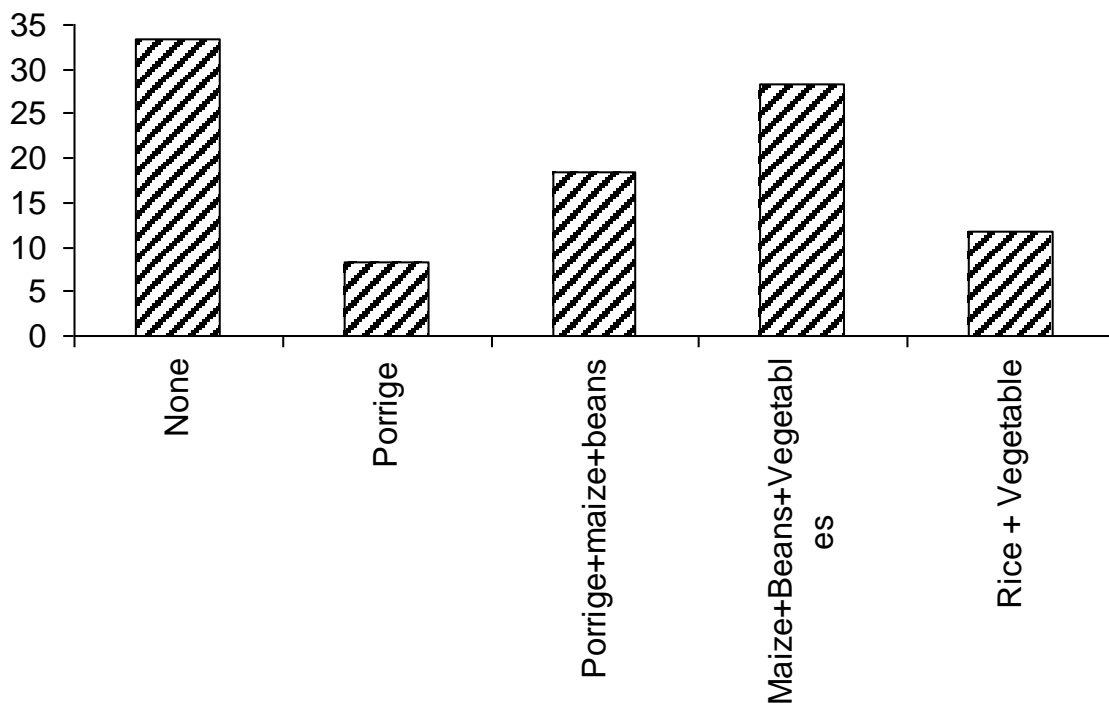


Figure 4.4: Type of food that children are provided with in schools during the school nutrition programme as attested by the parents

Finally, the parents were asked if they believed that school nutrition program effectively improved performance of the children in number work, of which 100% of the parents agreed that indeed school nutrition programme improve number work.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study, conclusions drawn from the findings, recommendations made there to and suggestions for further research, which was conducted in six pre-schools in Uasin Gishu County.

5.2 Summary of the Study

Nutrition is required for growth and development of human beings. Food consumed in the body should contain nutrients in their appropriate proportion for normal body functions including cognitive development and performance in number work activity. This study investigated the effect of nutrition on performance of pre-school children in number work activity, an area that has not been researched on as demonstrated by scanty literature in the subject area. Consequently, the study sought to determine the effect of nutrition on children's performance in number work activity in Moiben Constituency; to find out the effect of feeding frequency on children's performance in number work activity in Moiben Constituency and to establish the effect of parental nutritional knowledge on children's performance in number work activity in Moiben Constituency.

The research study employed the quasi-experimental research with a mix of both qualitative and quantitative research design where two groups were established, the control group and the experimental group. The target population comprised of the head teachers, teachers, parents and the ECD children in Uasin Gishu County Moiben constituency. Purposive sampling was done to obtain the sample of six schools where four schools provided school

feeding programmes while the remaining two did not provide school feeding programmes. Six head teachers were involved, 18 teachers, 60 parents and 180 pre-school children. A test was prepared by the teachers and analysed by the researcher. The children sat the test after a period of 3 weeks of being taught by their teachers. Questionnaires were used to collect data from the teachers while interview schedules were done for the head teachers and the parents. Validity of the instruments was done by consulting three experts in this field. The collected data was analysed using frequencies, percentages, graphs and figures.

The researcher was interested to establish if nutrition had any effect on children's performance in number work, any obstacles faced by the head teachers while providing school feeding programs and for the schools that did not have a feeding programme if there was any effect on the children's learning. The study found out that most of the schools did not have school feeding programmes earlier but through support from the NGOs, the feeding programs were established.

It was established that 67% of the schools sampled offered school nutrition programme. The school nutrition programme was financed equally by parents, school and NGOs. It was also clear that schools offering the school meal programme, a half of the schools were offering the school meal in classroom; another one quarter offered the meals in kitchens and the other quarter in the open field. The main types of food offered were mainly porridge, maize, beans and vegetables. Head teachers noted that the provision of school feeding programmes enhanced the children's growth health and development since most of the children come from socio-economically disadvantaged families where getting the three meals a day is considered a luxury.

The researcher found that in schools where meals were provided consistent attendance were recorded not only did the meals ensure consistency but also kept the children in good health status which protected them from malnutrition and diseases. Trained cooks did food preparation in the kitchen. This ensured that the cooks knew proper food preparation methods, they observed hygiene and there were minimal cases of food poisoning. The teachers noted that there was a difference when children had had their meals and when hungry. Once the children had taken meals, there was active participation in classroom activities, their concentration was much better and good interaction took place in class. Unlike those children who did not have school meals they were irritable, concentration was poor and classroom participation was not satisfactory. Finally, the provision of nutrition programme improved the overall performance of the children in number work.

The second objective sought to find out the frequency of feeding in the schools some of the schools were either feeding the children once or twice. Based on the performance, it was established that there were significant differences in performance between schools that provide the school feeding programme once ($92.5 \pm 1.1\%$) compared to school that provide the school nutrition program twice ($95.2 \pm 2.1\%$). It was established that providing school feeding program twice improved the performance of the children in number work.

The third objective sought to find out whether parental knowledge had any influence on children's performance. It was also determined that 72% of the parents understood what was in the school menu while the remaining 28% did not understand the school menu, of which 60% indicated that the menu is balanced and good for the children as opposed to the 40% who indicated that the menu was not balanced. Among the 40% of the parents who believed that the food was not balanced, suggested that more protein should be included in the menu. Parents from both the schools supported the school feeding programmes even those from

school that do not provide the feeding programmes wished that the schools would provide food to their children as it had enormous benefit to them.

Parents agreed to the fact that apart from the food been given to the children in proportionate quantity the food was also served hot which enabled them to enjoy their meals unlike those who carried packed lunch from home which they had cold and most of the time the children did not have their lunch. Finally, the parents were asked if they believed that school nutrition programme effectively improved performance of the children in number work, of which 100% of the parents agreed that indeed school nutrition programme improve number work.

5.3 Conclusions

This study has shown that school feeding programme is a vital intervention that has tremendous benefits to education. Initially, all schools did not have feeding programmes but through the support of the NGO'S the feeding programmes were established through the Mary's meals. The study also reveals that the meals provided in school were balanced and majority of the parents were happy with the programmes since their children got balanced meals at school.

The study established and demonstrated that provision of the school feeding programme improved the overall performance of the children in number work with those being fed twice performing better than those that are fed once per day. In addition, the parent's level of knowledge on the school feeding programme was good and they attested that school feeding programme improved the performance of the students in number work. . From the findings, the researcher concluded that when food is balanced, served in appropriate quantity and

within the recommended intervals or frequency, children are able to grow and develop well, attain their potential to the fullest.

5.4 Recommendations

The following recommendations were derived from the study:

The researcher found out that most of the schools providing school feeding programmes were funded by NGO'S which after some time would pull out from the programme. It is recommended that parents would be sensitized on the importance of the feeding programmes so that they would pay for the meals especially for those in schools that do not provide feeding programmes.

It is recommended that pre-school administrations should be sensitized on the need to ensure that food supplied to the pre-school are adequate and contain all the nutrients crucial for the growth and development of the pre-school children that will improve performance.

That the parents within the schools that take their children to pre-schools be sensitized on the need to understand the need to provide the children with more balance food while at home to ensure that the same food quality is provided at home and at school.

5.5 Suggestions for Further Research

A similar study could be carried out in the whole of Uasin Gishu to find out whether the same results will be obtained to allow for generalization of results. The study focused on the school feeding programme on performance in number work, another study should focus on how school attendance due to the school nutrition programme affect performance and pre-school

and in primary school. The researcher recommends that a similar study could be carried out to find out budget allocation for school feeding programmes and why the county governments do not provide funds to the ECD centres to establish the programmes.

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APPENDICES

Appendix i: Questionnaire for preschool teachers

Please fill in each section of this questionnaire and do not write your name or institution all the information given is confidential.

SECTION A

1. What is your gender? Male female
2. What is your age bracket?
25 years and below
26-35
36-46
46 and above.
3. What is your highest academic level?
KCPE
O LEVEL(KCSE)
A LEVEL
4. What is your professional qualification?
Certificate
Diploma
Degree
5. What is your work experience?
2 years and below
6-10 years
11-15years
15 and above
6. Does the school provide for children meals in your school?
Yes

No

b) If yes, what type of meals does it provide?

c) How many meals does the school provide per day?

One

Two

7. Are the parents concerned with the children's feeding at school?

Yes

No

b) If yes, do they participate in the planning of meals at school?

8. Who meets the cost of running the feeding programmed?

School

Parents

Others

9. What is the frequency of children's attendance in school?

Very frequent

Frequent

Not frequent

10. Who prepares the children's meals?

Teachers Experienced support staff Trained cooks

11. Where is the food prepared?

Kitchen

Make shift structure

Classroom

12. Is the meal balanced?

Yes

No

b) If yes, what does the meal consist of?

13. Do you think when children are well fed with a balanced diet they are likely to concentrate on doing number work? Yes No

14. Can school feeding programme improve children performance in number work?

Yes No

15. In your opinion does the school feeding programme affect the children's performance in number work activities?

16. Is there any difference when children have eaten and when they are hungry when being taught?

Appendix ii: Interview schedules for parents

This interview schedule is designed to gather information to seek your opinion on nutritional information about your child. The information is purely for academic purposes.

1. What is your gender? Male female
2. What is your marital status? Married Single
3. What is your age? 30 and below 31-40 41-50 > 50
4. What is your occupational status? Employee Self employed
Casual labourer
5. Are the meals offered at school balanced? Yes No

b) If yes what is the menu given?

- i)
- ii)
- iii)
- iv)

c) If no, give suggestions on what you would like to improve the children's nutritional status.

- i)
- ii)
- iii)

6. Does your child get meals from the school? Yes No

b) If yes, how do the meals affect your child's performance in number work activities?

- i)
- ii)

Appendix iii: Interview schedule for head teachers

1. What is the name of your preschool?
2. What is the enrolment of the preschool children in your school?
3. Does your school provide feeding programme? Yes No
4. If yes who finances the programme?
5. Where do the children have their meals?
6. Do you think the feeding programme has an effect on the children's performance in number work activities? Yes No
7. What is the quality of the food given to the children?
8. What is the frequency of the food given to the children?
Once
Twice
None
9. What ratio is served per child?
10. In your experience do you think that the performance of children in a school with school feeding programme perform better than schools that do not offer the programme

Appendix iv: Children's Number work Test

1. Fill in the missing numbers

8 ----- 10-----12-----14-----16

1-----3-----5-----7-----9

2. Arrange the numbers in order.

1, 3, 2, 4, 5 -----

9, 11, 6, 8, 10 -----

3. Write the numbers in words

4 -----

2 -----

1 -----

3-----

4. Draw the balls

7 -----

10 -----

5. Put together/add

$2 + 5 =$

$9 + 1 =$

$6 + 0 =$

$4 + 5 =$

$6 + 7 =$

$8 + 4 =$

6. Take Away

$4 - 2 =$

$8 - 4 =$

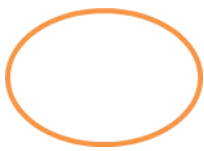
$5 - 5 =$

$6 - 3 =$

$7 - 0 =$

$11 - 4 =$

7. Which one is heavier?

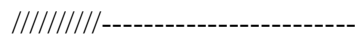
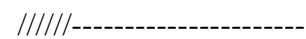
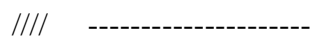


Stone



Paper

8. Count and write



9. Name the shapes

