

**SCHOOL FEEDING PROGRAMMES AND HOW THEY AFFECT  
ACADEMIC PERFORMANCE OF GRADE TWO PUPILS IN NAKURU  
COUNTY, KENYA**

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## DECLARATION

I declare that this research project is my original work and has not been presented in any other university for consideration. This research project has been complemented by referenced sources duly acknowledged. Where texts, data (spoken words), graphics, pictures or tables have been borrowed from other sources including the internet, these are specifically accredited and references cited in accordance with anti-plagiarism regulations

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## **DEDICATION**

This project is devoted to my dear partner and wife Consolata, and our children Castoria, Hillary, Emmanuel and Chrisostom. It is also devoted to my mother Demtila Nanjala and my late dad Fidelis Wabwire.

## **ACKNOWLEDGMENTS**

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## **ABBREVIATIONS AND ACRONYMS**

<b>ASALS</b>	:	Arid and Semi-Arid Lands
<b>ECDE</b>	:	Early Childhood Development and Education
<b>EFA</b>	:	Education for All
<b>FFE</b>	:	Food for Education
<b>GoK</b>	:	Government of Kenya
<b>IFPRI</b>	:	International Food Policy Research Institute
<b>KDHS</b>	:	Kenya Demographic Household Survey
<b>KNNAP</b>	:	Kenya National Nutrition Action Plan
<b>MDGs</b>	:	Millennium Development Goals
<b>MoE</b>	:	Ministry of Education
<b>NGO</b>	:	Non-Governmental Organization
<b>NSFC</b>	:	National School Feeding Council
<b>NSFP</b>	:	National School Feeding Programmes
<b>SFP</b>	:	School Feeding Programmes
<b>SPSS</b>	:	Statistical Package for Social Sciences
<b>UPE</b>	:	Universal Primary Education
<b>WFP</b>	:	World Food Programme
<b>WHO</b>	:	World Health Organization

## ABSTRACT

Kenya has over 30 years history of school feeding Programme. It began in 1979 with a government-led school milk programme. The purpose was to improve intellectual capabilities of school going children. A study by the Ministry of Education indicated that 80% of grade two pupils performed poorly in their final examinations with low grades posted by grade two pupils in Gilgil Sub County, there was need to establish whether this Programme has any influence on academic performance. This research work will help primary school head teachers, and administrators to understand better the issues related to nutrition and healthy eating habits. Previous studies have contextual and methodological gaps that were addressed by this study. This research therefore aimed at establishing the influence of school feeding Programmes on academic performance of grade two pupils in public primary schools. The study was guided by the theory of nutrition and the theory of academic achievement. The survey adopted a mixed methodology that made use of both quantitative and qualitative approaches. The sample population was 2302 respondents, consisting of 41 head teachers, 79 teachers of grade two, 82 representatives of parents, and 2100 pupils of grade two. A sample of 340 respondents was obtained using the Yamane Formula. Stratified sampling was used in the sub-county of Gilgil to produce five different strata based on the number of zones. Two head teachers, 13 grade two teachers, and two parents from each zone were selected using purposeful sampling. However, 51 grade 2 pupils were selected from each zone using the simple random sample to avoid bias. This sampling process allowed the researcher to get a sample of 10 head teachers, 65 grade two teachers, 10 parents' representatives and 255 grade two learners. Questionnaires were used to gather data from teachers in grade two, interviews with school heads and parents' representatives. In contrast, a checklist of observations was used to collect data from pupils in grade two. A pilot study was carried among 34 respondents from a sample found from public primary schools in Gilgil, Using the test-re-test technique, reliability was determined and the consistency ratio,  $r = 0.725$ , was acquired using the Cronbach Alpha Method, which showed high adequate validity. Qualitative data were analyzed along the study goals using Kitwoods Qualitative Technique of Analysis and presented in narrative forms, while quantitative data were analyzed using descriptive statistics, inferential statistics and percentages and using Pearson's Product Moment Correlation Test Analysis inferentially with the help of Statistical Packages for Social Science (SPSS Version 23) and presented using tables. This study's findings contribute to knowledge gap by ascertaining the idea that school feeding Programmes have significant contribution in motivating pupils and enhancing their academic performance. The study found that school feeding Programmes influence pupils' ability to grasp basic numeracy and linguistics skills. The study suggests that all public primary schools should have school feeding Programmes as a way of motivating grade two pupils and enhancing their academic performance.

## **CHAPTER ONE**

### **INTRODUCTION AND BACKGROUND TO THE STUDY**

#### **1.1 Introduction**

This chapter focuses on the study background, the problem statement, the aim of the study, the study objectives and the research questions. The importance of the study, limitations, delimitations and assumptions of the study are also covered. Moreover, the section covers both the theoretical and conceptual framework.

#### **1.2 Background to the Study**

Children need a reliable food supply to meet the metabolic supplies of body growth and brain development (Akanbi, 2013). Consistent with these assertions, Moorck and Leslie (2013) argue that school education committees in Nepal, in an educational environment riddled with struggling schools and apathetic learners, have looked for ways to enhance examination achievements and build school structures where all learners obtain good learning. School feeding Programmes in primary school has been noted as the significant intervention in increasing learners' enrollment, attendance and reducing the possibility of dropout. Therefore, there is need to study the effects of school feeding programme on academic performance of grade 2 pupils.

According to Del Rosso (2014), there is a correlation between the provision of nutritious food and learners' cognitive development, health as well as school attendance, which immensely contribute to academic achievement of grade two learners. However, while numerous research papers concentrate their studies on nutritional benefits of proteins, vitamins, and food ingredients as they have emotional impact on learning and brain function, while none has touched on their influence on academic performance.

Primary schools can play a crucial role in preparing and preserving pupils' future academic capacities in grade two and benefiting their social habits by delivering healthy mid-morning meals and lunches on school days. Providing healthy food to the country's low-income children has been a problem for a very long time. To minimize short-term hunger in the classroom, school feeding initiatives aim to include meals or snacks so that pupils can concentrate and not be distracted by hunger. Furthermore, it seeks to draw pupils to school and to make them regularly attend classes.

There are slightly more deficiency in daily nutrient intakes for children who lack these morning food requirements, containing increased consumptions of fat and slight intakes of dietary fiber than young learners that consume a healthy meal. Nations like the US, UK, and Sweden have school feeding Programmes sponsored by Governments or Non-Governmental Organizations, which seek to provide children with free nutritious diets and thereby boost nutrition and academic performance. They have seen an increase in enrollment and retention of an estimate of 12.5 percent (Wilson & Parnell, 2014).

In the Netherlands, primary schools have feeding services for children from 0-5 years of age. These Programmes are primarily funded by families, individuals, or local authorities and are essential for children's growth in psychological, physiological and cognitive terms. Similarly, Cueto (2014) argues that grade two places a solid basis for elementary, secondary, and further education, exposing children to different involvements that boost their progress, preparing them for elevated careers, and finally helping them to live a healthier life.

In Africa, Section 18 of the Constitution of the Republic of South Africa declares primary education as a right for everyone; it also outlines the principles of school feeding Programmes. In South Africa, the National School Nutrition Programme (NSNP), a food Programme, purposes to promote quality learning by improving the learning ability of children, promoting steady school and class attendance and time-keeping, reducing inequality of gender, talking about food deficiencies, and easing hunger by supplying 30 percent of the child's daily body vitality necessities (Hoyland, 2015). Besides, two main pillars of the National Nutrition Policy of South Africa for grade two learners are, according to Cueto (2014), to use school grounds to inspire school farming and inspire healthy lives.

As a result, new steps to standardize what choices should be on the school feeding Programme were taken in 2015 in South Africa (Alderman, 2015). The minimum strategy is to provide food from early childhood to grade seven, with balanced diets for 196 days in a specific year. Menus ought to include energy, and at least basic food nutrients necessary for general growth and development with at least 20 percent of the daily dietary allowance. Additionally, to increase learning ability, a meal must be served before 10 O'clock in the morning. Popular food components comprise of beans, rice, maize meal, fruits and vegetables for South African school meals.

In Kenya, a school feeding Programme is a clearly outlined Programme for a school to feed children to improve education and different activities in school. In spite of the fact that school feeding projects cannot turn around the results of prior lack of healthy

food, research shows that giving suppers at school can significantly affect dietary status and learning results in children.

In Gilgil, for example, the academic achievement of grade two learners is still below average. A study conducted by Ng'eno (2012) in Gilgil Sub-county revealed that grade two learners have recorded and continue to achieve dismal results in basic numeracy, language, and creativity abilities. Besides, Ng'eno (2012) also demonstrates that 56.9% of grade two pupils cannot perform simple tasks in mathematics, 67.8 percent have poor communication skills and record low grades in reading, writing, and speaking skills, while 51.7 percent lack imaginative and creative skills. However, much is yet to be done to determine the degree to which school feeding Programmes affect the academic performance of grade two pupils in public primary schools, hence the necessity for this research.

### **1.3 Statement of the Problem**

As shown before in the contextual introduction of the research in Gilgil Sub-county, grade two learners have showed and still continue to record miserable outcomes in elementary mathematical ability, linguistic and imagination skills. It was reported that 56.9% of pre-primary school learners cannot perform basic tasks in number work, 67.8% have poor communicative competency and register low grades in reading, writing and speaking skills whereas 51.7% lack innovativeness and creativity skills. Nutritious food is important in brain development of grade two pupils. Several studies show that nutritional status can directly affect mental capacity among school children aged below 7 years. For example, iron deficiency, even in early stages, can decrease dopamine transmission, thus negatively affecting cognition. Grade two pupils were chosen to participate in this study since they are at their early years of cognitive

development. Notwithstanding these observations, few studies have cross-examined the magnitude to which school feeding Programmes affect academic performance of grade two learners in public primary schools, hence the purpose of this study.

### **1.3.1 Purpose of the Study**

This study aimed at assessing the effect of school feeding Programmes on academic performance of grade two pupils in Gilgil Sub-county, Nakuru County, Kenya.

### **1.3.2 Objectives of the Study**

The aims of this study were to:

- i. Ascertain the levels of academic performance after the initiation of school feeding Programme of Grade Two pupils in Gilgil Sub-county.
- ii. Examine the effect of quality of food on academic performance of grade two pupils in Gilgil Sub-county.
- iii. Establish the effect of feeding frequency on academic performance of grade two pupils in Gilgil Sub-county.
- iv. Establish the effect of availability of food varieties (plant/animal) on academic performance of grade two pupils in Gilgil Sub-county.

### **1.3.3 Research Hypotheses**

H<sub>01</sub>: There is no substantial effect of quality of food on academic performance of grade two pupils in Gilgil Sub-county.

H<sub>02</sub>: There is no significant effect of feeding frequency s on academic performance of grade two pupils in Gilgil Sub-county.

#### **1.4 Significance of the Research Study**

This research work will help primary school head teachers, and administrators to better understand the issues related to nutrition and healthy eating habits. It will also enable them to provide healthy diets for learners and raise awareness among parents about the importance of their children's formal learning and holistic growth. The Education Ministry and County Governments may derive value from this particular research in making relevant guidelines to safeguard the well-being of grade two pupils. It will lead to provision of a well-balanced diet and advice on adoption of proper nutrition habits by these primary schools as well as budgetary allocation to the schools.

Parents may also benefit from this study by making them get more empowered economically when the government and NGOs support them to start small scale businesses which will be a source of money to fund the SFPs. Finally, other researchers and scholars interested in researching the same field may also benefit from the study since it may lay a firm foundation.

#### **1.5 Limitations and Delimitations**

The following segment discusses the study limitations and delimitations.

##### **1.5.1 Limitations of the study**

The limitations of a study are its flaws or shortcomings which could be the result of unavailability of resources, small sample size, flawed methodology, etc. No study is completely flawless or inclusive of all possible aspects

Some of the respondents, especially head teachers and parents, were unwilling to volunteer the correct information about school feeding Programme and academic performance of grade two pupils in their primary schools. In this case, the researcher allayed their fears by explaining to them that the study aimed at complementing their efforts in improving academic performance of grade two pupils through effective implementation of nutrition and school feeding Programmes.

The head teachers, grade two teachers, parents' representatives and grade two pupils in the study could not reflect the entire population in Gilgil Sub-county. In this case, the researcher selected samples that were as representative as possible. Some schools were not easy to access since they were situated in the interior. The researcher, therefore, used motorbikes and sometimes walked to ensure that all schools were reached.

Time was a limitation as the schools had a daily routine Programme, which they did not want disrupted. The researcher identified free time in the timetable and maximized collection of data during that time. Some teachers were reluctant to allow the researcher to be part of classroom proceedings for purpose of data collection because they feared it was evaluation of their teaching methodology. Therefore, the researcher explained the importance of the study as far as the pupils were concerned and not an evaluation of teaching methods.

### **1.5.2 Delimitations of the study**

Delimitations are the characteristics that limit the scope and describe the boundaries of the study, such as the sample size, geographical location or setting in which the

study takes place, population traits, etc. Additionally, the researcher might also choose to use some research tools and methodologies to collect data but not others. This research was limited solely to public primary schools in Gilgil. The study concentrated on examining the outcome of SFP in public primary schools on grade two learners' academic performance.

In addition, the study only included public primary schools and not private primary schools. This was because the SFP, which were handed over to the government of Kenya by the WFP in 2009, targeted only public primary schools.

This study did not reviewed literature that was not relevant to school feeding Programmes and academic performance of Grade two pupils. Literature search indicated implementation of SFP in upper classes; however, it was excluded in literature search term.

Questionnaires were fundamental in gathering data of grade two while interview schedules were significant in gathering data from school heads and guardians where parents were not available while a documentary guide was used to collect data from pupils in grade two.

## **1.6 Assumptions**

This research project was carried out on the assumptions listed below:-

That repondnets will coportate with research assistants and that they would provide genuine feedback to register acceptable response rates, that school feeding Programmes influence academic performance of grade two pupils, that provision of quality diets, feeding frequency s and availability of food varieties influence academic

performance of grade two pupils in Gilgil Sub-county, that relevant records and data on academic performance of grade two pupils are available and accessible at the primary schools and that respondents would be cooperative, competent and willing to volunteer correct information.

## **1.7 Theoretical and Conceptual Frameworks**

The theoretical foundations, which directed the study, are presented in this section. The section also provides a conceptual structure that illustrates the relationship between the study variables.

### **1.7.1 Theoretical Framework**

This study was guided by Maslow's hierarchical needs, developed by Maslow Abraham (1943) in which all motives are derived from a hierarchical system of needs, from the 'basic' physiological needs to security and love to aesthetic needs for self-actualization (The Longman Enclopaedia, 1989:482). People who lack food are unable to express high need (The New Enclopaedia Britannica vol-7, 2005).

According to this theory, there are certain minimum requirements that are essential for human needs to facilitate standards of living. These are known as physiological needs and they include food, shelter and health. Apart from above the foregoing description, when this theory is applied to the study, the argument is that, when children are served with meals/food at school, they attend and stay in school and improve the attention span by solving short-term hunger. Therefore, the provision of food/meals through SFPs enhances school enrolment and attendance, alleviates short-term hunger and improves nutritional status. According to this theory, the researcher therefore attempted to apply it to assess the impact of the SFPs at primary schools.

### **1.8 The Conceptual Framework**

The conceptual framework based on SFP echoed through provision of quality diets, feeding frequency s and availability of varieties of food constituted the independent variables whereas academic performance of grade two pupils constituted the independent variables. The intervening variables for this study were availability of trained grade two teachers, availability of instructional resources and involvement of stakeholders such as the government, the community, parents and NGOs as shown in Figure 1.1.

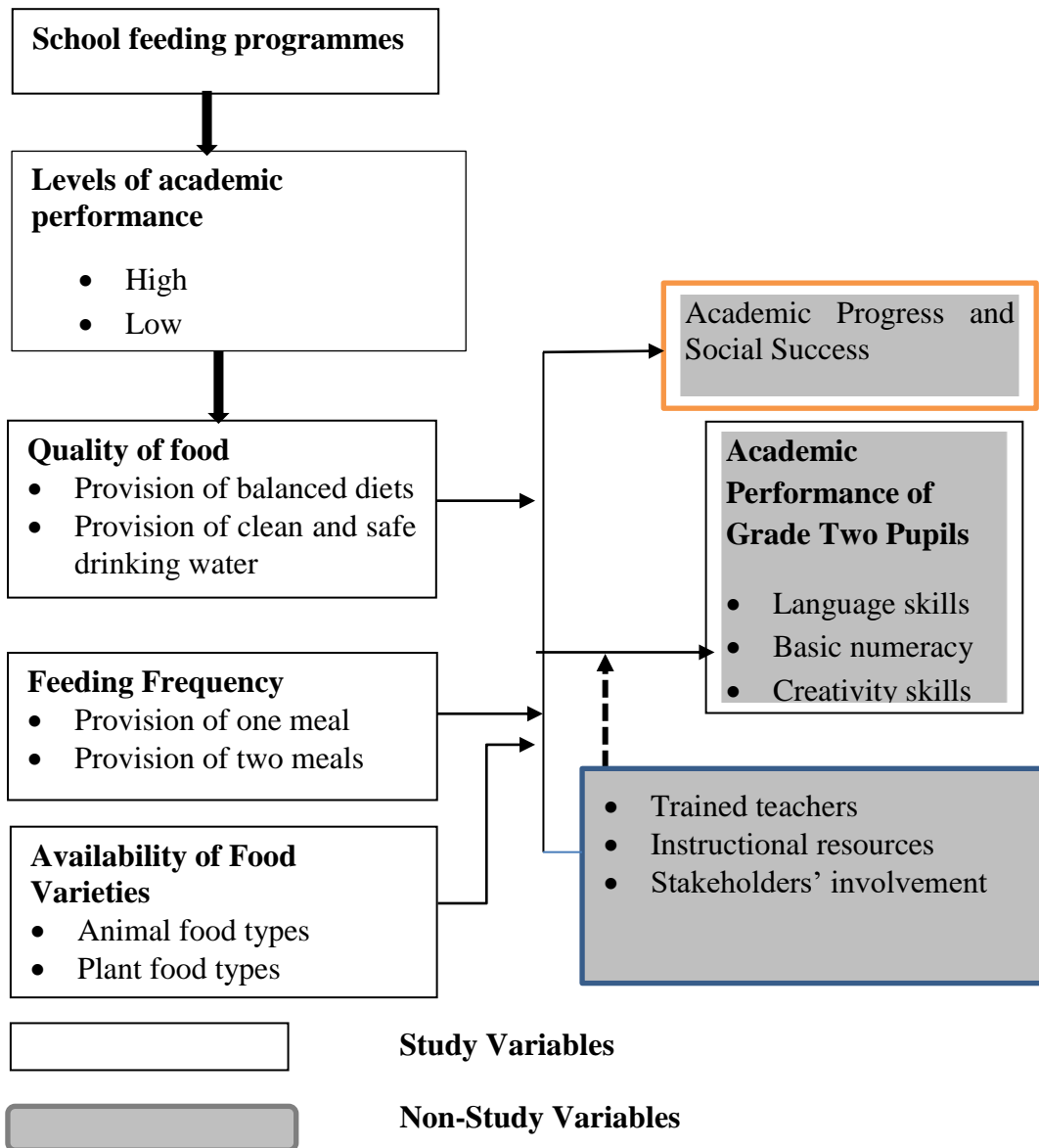


Figure 1:1 The Conceptual Framework

### **1.9 Operational Definitions of Terms.**

This is a description of something in terms of the operations (procedures, actions, or processes) by which it could be observed and measured. For example, the operational definition of anxiety could be in terms of a test score, withdrawal from a situation, or activation of the sympathetic nervous system

**Academic Performance** : as used in this study, this term refers to the level of achievement attained by grade two pupils in basic numeracy, language and creativity skills in Gilgil Sub County.

**Availability of Food Varieties:** refers to the presence of different types of foods either plants or animal foods available for consumption by grade two pupils as used in this study are.

**Feeding frequency** : number of times meals served for example ten o'clock tea or porridge, lunch and four o'clock tea.

**Provision of quality of food** : refers to the provision of a balanced diet and clean water to grade two pupils in Gilgil Sub County.

**School feeding Programmes** : refer to a set of system designed by schools and other government and non-government agencies to provide food for school-going children in Gilgil Sub County.

## **CHAPTER TWO**

### **RELATED LITERATURE REVIEW**

#### **2.1 Introduction**

The literature highlighted in this chapter is reviewed from previous studies that are related to the present study. It also summarizes the studied literature highlighting the study and information gaps recognized during the review.

#### **2.2 Levels of Academic Performance of Grade Two Pupils**

Academic performance refers to learners' degree of accomplishment after undertaking an examination and attaining a graded position. Smilansky and Shefatya (2013) agree that academic performance typically is characterized by a combination of expertise, aptitudes, capabilities, attitudes, and comprehension attained by a student due to their active participation in a specific set of educational experiences.

In Kenya, the school feeding Programme to public schools had shown to increase academic performance compared to schools with no school feeding Programme (Chepkwony et al., 2016). Further, the study carried in the private schools in Nigeria observed that providing food to learners during school time had contributed to learner's attention and academic performance. The supplied food in schools had increased school attendance and reduced dropout among the community schools. In Bangladesh a Programme of school-based food distribution had increased attendance by 20% compared a 2% decline of non-feeding school (Ahmed, 2018). In Jamaica, it was indicated that the learners aged between 7-11 years in food insecure family unit scored lower in arithmetic test compared those supported by school meals. The school feeding Programme significantly had increased learners performance. Adelman et al. (2015) pointed out that literacy scores had decreased to a sample of students who

received home food than students who were received school food. These findings however, did not provide in depth analysis of the influence of feeding Programmes and academic performance of grade two pupils in Gilgil, a gap that will be addressed by this study.

A study by Yendaw and Dayour (2015) in Ghana explored academic performance by looking at the test performance of pupils before and after the implementation of the SFP. The findings of the study revealed that test performance (73.8%) was higher among pupils before the introduction of the SFP compared to the period after the introduction of the Programme with only 26.2% test performance rates. A chi-square test of the hypothesis that there is a statistically significant association between the implementation the Ghana school feeding Programme and the test performance among pupils gave ( $\chi^2=29.767$ ,  $df=4$ ,  $P=0.000$ ) indicating that the operation of the Programme has significantly improved pupil's academic performance in school compared to the period before the introduction of the Programme. This study did not specify the grade of pupils under study a gap that was addressed by this study by studying grade two pupils.

A study done by Ahmed (2004) revealed that school feeding programme has been successful in increasing pupils' performance. A study done in Ghana on the National School Feeding Programme implemented in Ghanaian basic schools showed a positive effect on school enrolment and school academic performance (Abotsi, 2013). A study conducted in 2008 in Mwala division, Machakos county concluded that school feeding programme improves the academic performance of

pupils (Wambua, 2008) but in Yala division in Busia county concluded that school meals do not affect pupils' performance.

According to Matengo (2016), school feeding Programme assists children to participate in school Programmes in Kisumu East Sub-County. Many studies have linked SFP to good health, including better memory and concentration in various activities including co-curriculum. The level of competency is high, mainly in early childhood development education centers that provide meals in schools. Additionally, the WFP report contended that pupils who are in schools, which provide daily meals, perform well in school (WFP, 2017). There has been no study which points out issues academic performance of grade two pupils since most of the studies have been done at primary level, and that no study had been done in the region where the studies were done relating to academic performance in the current study.

School Feeding Programme (SFP) is crucial for quality education to be realized. Having a full stomach helps learners to concentrate better in various school activities (Evaristo, 2015). Earlier studies have also indicated that when one is hungry, he/she has limited concentration, and tend to become tired often which eventually affects his/her mental, physical and emotional growth and development (Evaristo, 2015). In Kenya, a study conducted in 2018 in Mwala division, Machakos County concluded that school feeding Programme improves the academic performance of pupils (Wambua, 2018) but Obonyo (2019) in Yala division in Busia County contradicted the belief and expectations by concluding that school meals do not affect pupils' performance.

Private schools have also been noted to outshine their counterparts from public schools in terms of learners' competencies (Chepkwony, Kosgei & Kariuki, 2013). The current CBC emphasizes the acquisition of competencies among the learners, which requires learners' engagement in both classroom and out of class activities yet hunger has been noted to limit the learners' concentration ability. It, however, remains unclear whether School Feeding Programme has an influence on the acquisition of competencies among the learners in Pre-primary schools. This study, therefore, sought to fill the gap by assessing the School Feeding Programme and its influence on the academic performance in classroom activities among grade two learners in Gilgil Sub-County.

### **2.3 The influence of providing quality food in SFPs**

A school feeding Programme is an initiative by different agencies and stakeholders in education to ensure that school-going children are supplied with food ration to alleviate the effects of hunger and also keep them at school.

Experts indicate that healthy food consumption is important in enhancing optimum mental growth and efficiency (Given, 2014). Energy levels, attention, and learning may be influenced by food intake. In one study, children and parents of major cities were questioned regarding eating patterns, and the academic performance of the children was appraised (Murphy, Kleinman & Jellinek, 2015). This study found that pupils did not keep school attendance time, high rates of absenteeism, and low hyperactivity in children who were thought as having severe hunger.

The relationship between diet and academic performance is often stated; however, few studies have examined the effects of diet quality on academic performance. Studies of

nutrition and academic performance have typically focused on hunger, malnutrition, and micronutrient deficiency. Undernourished children have been shown to have decreased attendance, attention, and academic performance as well as experience more health problems compared to well-nourished children (Murphy, Pagano, Nachmani, Sperling, Kane & Kleinman, 2012). More recently, studies have examined the impact of breakfast on cognition, behavior, and academic performance of school-age children. This research suggests some positive effect of breakfast on performance of specific cognitive tasks. However, gaps exist in the literature examine ten o'clock tea on cognition are modified by age, sex, and nutritional status.

The single study not restricted to breakfast demonstrated a positive association between the consumption of regular meals and school performance. The predominant approach to studying diet has focused on the role of individual nutrients or foods (St-Onge et al., 2014). However, individuals do not consume single nutrients but combinations of foods. In recognition of the multidimensional nature of diet, studies of the interrelations of nutrition and health have examined the effects of overall diet quality using summary measures of food and nutrient intake. The current study employs such an approach to investigate the association between diet quality and academic performance.

In addition to examining the association between overall diet quality and academic performance, it is also valuable to determine which specific aspects of diet quality are most important to academic performance. The DQI-I was chosen as it encompasses adequacy, variety, balance, and moderation as components of diet quality and provides a score for each. The association between each of these DQI-I component

scores and academic performance was examined independently. The dietary adequacy component of the DQI-I represents the intake of foods and nutrients essential to a healthy diet such as fruits, vegetables, grains, dietary fiber, protein, iron, calcium, and vitamin C (Given, 2014).

Intake of less healthful dietary components such as saturated fat, salt, and “empty calorie foods” is reflected in the DQI-I moderation score. The DQI-I variety score reflects the diversity of foods in the diet, whereas overall dietary balance, in terms of the proportion of energy intake from carbohydrate, fat, and protein, is indicated by the DQI-I balance score. Increased consumption of fruits and vegetables and moderate fat intake are considered as indicative of high-quality diet and are emphasized as part of the total diet approach to improving nutrition among children. In order to determine their specific associations with academic performance, the number of servings of fruits and vegetables and percentage of caloric intake from dietary fat were examined independently. With the exception of DQI-I balance component score, which had a skewed distribution, diet quality indicators were considered as tertiles (Lissau, 2015).

Good nutrition increases the well-being and learning potential of a child which leads to improved educational success. Data indicates affirmative relationships among children who are fed well and enhanced knowledge, engagement, actions, and relationships between children and teachers (The Food Commission, 2011). Good nourishment also promotes responsiveness, societal, and general well-being, leading to improved self-confidence and a healthy body figure. However, despite the facts, because of globalization and ethnic cuisine markets' growth, knowledge of nutritional benefits has been largely lost.

A healthy feeding Programme at school will provide learners with the ability to learn comfortably. Schools must demonstrate to children healthy ways of life and the way to incorporate healthy food (Snyder, 2014). Through the meals and snacks offered at school, pupils learn how to select a balanced diet and acquire various consumer-based expertise, comprising food processing, handling and food preparation. It is necessary to guarantee that messages about food and diet are clear and not contradictory.

Besides, teachers must be allowed to develop their awareness and skills in food education to benefit pupils (St-Onge, Keller & Heymsfield, 2014). Good diet measures must transpire promptly in infancy and puberty to reduce or reverse the bad health effects of weighty and unhealthy consumption habits.

Good diet throughout childhood and puberty is regarded as a cornerstone for a healthy maturity in many Sub-Sahara African countries. Therefore, the many advantages of nutritious food and diet in children highlight the requirement for a high-priority school policy to resolve these issues. Due to the vast difference between African schooling systems, a collective food and diet strategy can't be articulated (Ravinder, 2014 & Whaley, 2016).

It is, consequently, the duty of all counties, schools, or establishments to determine which of the proposals offered in this guide are most appropriate for context-specific circumstances and which are applicable. A study conducted by Scriven and Stoddard (2014) in Ghana; for example, found that schools and learning institutes were established as one of the virtual environments promoting and developing worthy and good eating and living habits. However, embarking upon solving of nutrition-related

problems in childhood necessitates clear intervention in the school location, as success and empowerment can be hindered by the hierarchical culture.

Enhancement of a healthy environment in schools is accomplished by food and diet strategy development. A transcribed policy should be established centered on a context-specific situational exploration and agreed upon by all the various stakeholders concerned. Approximately, half of the estimated 40 million people in Kenya are poor, and some 7.5 million people in the society live in severely poor conditions while more than 10 million agonize from prolonged food uncertainty and poor nourishment (Economic Survey Report, 2014). In a few past years, it has been reported that about two million people need assistance to acquire food at any given time.

The number of individuals in need of food could double during periods of drought, heavy rains, and/or floods. Economic output has a direct influence on the nutrition safety and nutrition state of people in Kenya. However, it is recognized that improved economic quality alone is not enough to ensure food availability and security. In Kenya, the nation experienced rapid growth and increase in living standards in the first two decades after independence (Meyers, 2015).

However, compared with rapid population growth rates in the 1980s and 1990s, economic growth became either stagnant or negative. The agricultural sector's annual growth rates declined from 6 percent in the 1960s to 1.3 percent in the 1990s. There has been a boom in Kenya's economy in recent years, creating renewed opportunities to boost food security and nutrition. The economy grew by 5.8% in 2005, while it grew by 6% in 2006. As a result, extreme poverty plummeted from 56% in 2009/10 to

46% in 2011. (Economic Survey Report, 2013). The Kenya Demographic and Health Survey (MoE, 2018), states that nutrition-related issues affect 35 percent of children under five years. The children are stunted with 16% being underweight and 7% wasted.

According to statistics by Ministry of education approximately 2.1 million children undergo stunted growth in Kenya. These kids will never achieve their total physical and mental capacity, which is a severe national growth matter. In Kenya, regional inequalities in nutrition indicators are significant, with counties in the former Northeastern province having the highest proportion of children with 8% of them being extremely emaciated. In contrast, counties such as Nakuru have the highest level of stunted children of up to 44 percent. Children living in rural areas and those from more impoverished families in Kenya are more likely to be malnourished, as is the case in many other parts of the world (MoE, 2018).

The consistency of the diets given to pupils has a significant influence on their academic accomplishment. Since food provides the brain with power for perception, behaviors are influenced by diet in different ways. Cognitive functions, including memory, thinking, attention, and psychomotor controls are impaired by taking of poor diet. Furthermore, the study suggested that a child's behavior is also impaired because certain foods could contribute to hyperactivity. In a study conducted in Peru to determine the effectiveness of diet on cognition, Cueto (2014) reports similar results. The research centred on the importance of nutrition to academic success, precisely on overall diet quality. Cueto (2014) revealed that declining diet quality and rising body weights among children attract fresh public health attention due to the influence of

diet on young children's academic success and potential health status (Cueto, 2014). The fact that nutrients, ingredients, diets, meals, eating habits, and general nutritional status may have beneficial or adverse effects is supported by these studies. There is, however, no correlation from these studies that suggest that nutrition affects the academic performance of Grade 2 learners. This study explored these discrepancies by identifying the consequences of school feeding schemes on pupils' educational performance in Grade 2.

School Feeding Programmes make nutritious and diverse meals available to children, which include breakfast, bites, and temporary feeding plans (Meyers, 2015). A more focused effort could be warranted to incorporate these Programmes. Improved eating practices have been linked to better results in exams in several Sub-Saharan countries, including Nigeria, South Africa, and Kenya (Ravinder, 2014 & Whaley, 2016). Similarly, in core language and math classes, less nutritious foods have been correlated with more unsatisfactory results. They can lack essential nutrients to maintain optimal cognitive performance when pupils do not eat a balanced diet. In a study conducted in South Africa to determine the relevance of healthy nutrition to learning outcomes, Chopra (2014) indicated that iron deficiency had been connected with poorer understanding, short attention span, tiredness, and significantly lower scores on standardized math exams, particularly when the deficiency is serious enough to cause anemia.

Arguably, the most pressing problem emerging from this research concerns the consistency of the diet for children. Research on the human brain's dietary requirements, together with current data showing the largely low quality of nutrition

and indicating mental malnutrition, there should be an effective corrective action in Gilgil Sub-county. Depriving school-children of quality nutrition causes serious consequences; a dependent correlation has been shown between overall diet quality and academic performance, particularly in diet adequacy and variety. However, studies have not exhaustively shown how the mere provision of quality of food will replace Grade two teachers' positions in class

In addition the studies have not indicated which kinds of foods are considered quality and how such foods enhance acquisition of skills necessary for academic performance. These knowledge gaps endure the inquisitiveness of the researcher, which the present study sought to address.

#### **2.4. Feeding frequency *S* and Academic Performance of Grade Two Pupils**

Growing awareness of nutrition value for health advancement and disease avoidance has led to more significant concern among school children and adolescents regarding diet and eating habits. Eating habits such as eating frequency, skipping breakfast, and the frequency of meals consumed away from home can affect school-going children's dietary status, which ultimately affects their health and academic performance (Shaw, 2013). The World Food Programme (2016) suggested that eating patterns formed during childhood influenced children's diet later in life in its study conducted in Rome to assess eating habits' effectiveness on learning outcomes. The health and development of children and adolescents, eating breakfast is significant. Furthermore, the study indicates that breakfast is a key component of nutritional well-being, leading to total daily energy and nutrients requirements.

The World Food Programme (WFP 2016) has shown that persistent malnutrition affects children's mental growth and educational success and avoiding meals can unpleasantly affect the performance of children in problem resolving activities. In a study conducted in Paris, Pollit, Jacoby, and Cueto (2014) echoed similar views in which they asserted that missing breakfast, lunch, or dinner could adversely affect the problem-solving ability of children, and low energy intake at breakfast can adversely affect physical stamina, creativity, and well-being. The study also found that the academic, behavioral, and emotional functioning of learners is increased by having a good breakfast.

Given the significant contribution of school-based food to children's daily diets, such diets' impact on juveniles' nutrition is of great concern to scholars. Schools also deliver a more general and different forms of food choices than in previous decades, like other non-home food sources. School meal services have been introduced in most Sub-Saharan Africa countries to ensure that children in early childhood settings have daily and appropriate lunches and breakfasts on a typical school day (Schweinhart & Weikart, 2015). It was revealed by Schweinhart and Weikart (2015) that lunch accounts for 31% of daily calories, while breakfast accounts for 22%. Almost all children who eat school breakfast often eat school lunch; school meals for such children will account for about half of their daily caloric intake. In Kenya, providing healthy meals and snacks is essential for the optimal growth and development of young children. The Kenya National Nutrition Action Plan (2012) demonstrates that feeding and energy outcomes given by nutritious foods ensure that children can fully engage in the learning opportunities of the day. Grade 2 pupils learn to make nutritional choices during meals and snacks, find a wide range of different foods and

develop healthy eating patterns during meals and snacks. Similar instances are witnessed in Gilgil Sub-county where grade two learners with healthy feeding frequency s register impressive learning outcomes. However, the reviewed studies have not indicated how feeding frequency s adopted by different children are directly linked to the acquisition of problem-solving skills, enhanced creativity and cognitive development, which are the ingredients of academic performance. The studies carried out by Kenya National Nutrition Action Plan (2012) and Schweinhart and Weikart (2015) have not indicated whether a specific feeding frequency contributes to academic performance. This study clearly highlights the type of feeding Programmes that influence academic performance of Grade 2 pupils.

## **2.5 Availability of Food Varieties and Academic Performance of Grade Two Pupils**

In reference to Young, (2015) the unavailability of nutritionally balanced and unhealthy foods has connection with impaired mental functioning and more unsatisfactory academic performance and test scores. Food insecurity is common in Alberta Province in Canada, characterized as a lack of admittance to accessible and sufficient food by public standard (Young, 2015). Around 12 percent of the province's children and young people come from food-insecure households. Although caloric deficiencies have adverse effects on cognitive utility and academic performance, the study demonstrate that an addition of calories is also linked to cognitive and mental development.

In particular, daily caloric surpluses can decrease synaptic flexibility by causing uncontrolled formation and increased cell vulnerability to injury (Bundy, 2015). Seshehardi (2016) in his efforts to explore the possible connection between food

choices, which cause obesity, affecting school attendance, academic performance, reviewed nine scholarly papers published in India on mental ability between school kids aged 5 to 18 years. The nine studies established meaningful connections among obesity and irregular attendance of classes, low academic performance, or weakened mental abilities.

Measures to prevent obesity consisted of dietary and workout elements on pupil academic performance as indicated in a study carried out in Chile by Rodriguez (2016) on fatness. The research showed that irrespective of ethnic background and other potentially influencing factors, the group involved in the study had considerably higher math scores than the control group.

Overeating and taking unhealthy categories of food, combined with physical inactivity, can contribute to weight increase in children, young people, and adults equally (Strupp (2016). However, not eating adequate food can have adverse influence on the growth, knowledge ability, and physical activities of a child.

A well-proportioned diet that contains an assortment of foods throughout the day, in good portions and sizes suitable for the age and gender of a child, will help facilitate academic performance. Children who are overweight, especially girls, appear to have worse academic results and are also likely to have mathematics and interpretation problems.

Socioeconomic status and mental health issues can affect this relationship and influence children and young people to obesity and reduced academic performance.

The number of Victorian children and young individuals who were weighty or obese increased from 15 percent to 26 percent between 1978 and 2008, making this a common problem in schools, Ainely, (2013). In an academic environment, children who ingest inadequate, excessive, or imbalanced amounts of nutrients are more likely to fail.

A connection between food unavailability, low academic performance, and poverty was established in a study by Ainely (2013). Their analysis showed that food-insufficient learners were more likely to skip school and repeat grades than food-sufficient children.

Ainely (2013) also revealed that food inadequacy had both biological and emotional influence on a child, some of which included shortages in micronutrients, decreased food consumption, and feelings of deficiency, stress, and anxiety. A clear correlation between lower-income families and food-insufficient children was found in their study. Coming from a lower-income family often impacts the quality of health care a child may receive due to lack of accessible health-care and inhibiting the desire to eat healthily. In infants, this may lead to incapability to identify iron deficiency as well as undernourishment.

Children have adopted a healthy lifestyle in Kenya beginning from a young age. In helping shape the eating habits of children, parents play an essential role. A Kenya National Nutrition Action Plan (KNNAP, 2012) study did not shed light on the particular diet that would result in pupils' high academic success in grade 2. The present study went further and highlighted the type of food necessary for the brain

growth and intellectual success of a child. Ainely (2013), Rodriguez (2016), and KNNAP (2012), however, have not indicated which particular types of food affect children's cognitive development and improve their acquisition of creativity. The reviewed empirical studies have not indicated which specific processed foods would enhance academic performance of children in early childhood settings.

## **2.6 Summary of the Gaps of Knowledge that the Study Intended to Fill**

A study by Kenya National Nutrition Action Plan (2012) established that school feeding Programmes play an important part in academic performance of grade two learners. However, this analysis revealed various investigation gaps. For instance, the study has not exhaustively indicated how provision of quality of food can result to academic performance of grade two pupils. In a different study carried out by Schweinhart and Weikart (2015), indicated how feeding frequency s adopted by different children are directly linked to the acquisition of problem-solving skills, enhanced creativity and cognitive development, which are the ingredients of academic performance. On availability of food varieties and academic performance of grade two pupils, a study conducted by Rodriguez (2016) did not indicate the types of food that influence the cognitive development of children. These knowledge gaps triggered the inquisitiveness of the researcher and which this study sought to address.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

This section entails the procedures and research methods utilized in this study. The design, research methodology and locality of the study, the target populace, sampling procedures, and the size of the sample are also included in this chapter. Furthermore, the study explains tools used in the experimental study, the study validity and consequently reliability, data gathering methods and procedures for analysis of data. The study's ethical considerations and logistics are also explained too.

#### **3.2 Research Design**

The study applied concurrent triangulation research design since it is a single-phase design in which researcher implemented quantitative and qualitative methods during the same timeframe and with equal weight. This design was suitable since it resulted in well-validated and substantiated findings since there were no interactions between respondents filling questionnaires and those being interviewed. Creswell (2014) asserts that this design generally involves the concurrent, but separate, collection and analysis of quantitative and qualitative data so that the researcher may best understand the research problem. The researcher merged the two data sets through triangulation. This design enabled gathering of data that described events and then organized, tabulated, depicted and described the data collection. This was also followed by in-depth and narrative descriptions of small numbers of cases.

### **3.2.1 Variables of the study**

The variables of this research comprise of both dependent and independent variables as explained below.

#### **Independent Variables**

The independent variable entailed school feeding Programmes. This variable was measured nominally by assessing the feeding frequency and establishing the influence of availability of food varieties. A variable measured on a nominal scale is a variable that does not really have any evaluative distinction. One value is not any greater than another. In this case, balanced diet and clean drinking water are nominal values that are equal and measured using either 1 or 0.

The independent variables were measured qualitatively with values representing different categories. There is no special way of ordering these categories.

Provision of quality of food was measured by focusing on whether the school feeding programme had balanced diet and clean drinking water. Data on feeding frequency *s* were measured using ratio by focusing on provision of one meal or two meals.

#### **Dependent Variables**

Academic performance of grade two pupils denoted the dependent variable, which was measured by ordinal levels in terms of ranking performance of grade two pupils in basic numeracy, language and creativity skills as being 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, etc.

### **3.2.2 Research Methodology**

The study used a mixed methodology that made use of both quantitative and qualitative approaches. This method was appropriate because this study entailed

gathering and analyzing of both quantitative and qualitative statistics in a particular study. In the present study, the researcher used the strong points of both quantitative and qualitative strategies to support each other.

### **3.3 Location of the Study**

This research was done in Gilgil, Nakuru County, Kenya. Gilgil has an estimated populace of 171, 838 individuals and has a region of 1348.4 km<sup>2</sup>, that is, a populace density of 128 individuals per every km<sup>2</sup> (KNBS, 2019). Gilgil has a high enrolment of children in public pre-primary schools and primary schools in relation to other sub-counties in Nakuru. However, as noted earlier, in Gilgil Sub-county, many pupils in grade two register low grades in examinations.

Grade two learners in public primary schools in Gilgil Sub-county have recorded and continue to record miserable outcomes in elementary numeracy, linguistic and imagination skills (Ng'eno 2012). He further asserts that 56.9% of pre-primary school learners cannot perform basic tasks in number work, 67.8% have poor communicative ability and they register low grades in reading, writing and speaking skills whereas 51.7% lack innovativeness and creativity skills. This informed the investigator's emphasis on Gilgil as the appropriate site of the study.

### **3.4 Target Population**

Gilgil has 41 primary schools. The target populace was 2,302 participants, comprising of 41 head teachers, 79 grade two teachers, 82 parents' representatives and 2,100 grade two pupils as presented in Table 3.1 below.

**Table 3.1: Target Population**

Respondents	Populace
School heads	41
Grade Two Teachers	79
Parents' Representatives	82
Grade Two Pupils	2,100
Total	2,302

Source: Gilgil Sub-county Education Office (2021)

### 3.5 Sampling Procedures and Sample Size

The investigator outlines the sampling procedures embraced and study sample-size.

#### 3.5.1 Sample Size

The researcher used Yamane's Formula to compute the size of the sample. The process was conducted as indicated below:

$$N_0 = \frac{N}{1 + N(e^2)}$$

Where  $N_0$  implies = desired sample size at 95% confidence interval

$N$  = Target Populace

$e$  = Confidence level at 5% (decimal equal to 0.05)

Therefore, the preferred sample was:

$$N_0 = \frac{2302}{1 + 684(0.05)^2}$$

$N = 340$  respondents

### 3.5.2 Sampling Techniques

Stratified sampling was used to create five different strata; head teachers, teachers, parents, pupils and school caretakers based on the number of zones in Gilgil Sub-county. This sampling method ensured samples obtained were homogeneous, uniform and had a high degree of proportional representation from every zone. From each zone, two head teachers, 13 grade two teachers and two parents' representatives were selected using purposive sampling. In this study, the reason for using purposive sampling was that it allowed the researcher to select primary schools that had had cases of low academic performance in national examinations.

This is so because, according to Creswell (2014), the goal of purposive sampling is to make sure that one adequately understands the variation in the phenomenon of interest in the setting and to test the developing ideas about the setting. However, from each zone, 51 grade two pupils were selected using simple random sampling to avoid bias. This sampling procedure enabled the researcher to realize a sample of 10 head teachers, 65 grade two teachers, 10 parents' representatives and 255 grade two pupils as shown in Table 3.2;

**Table 3.2: Sampling procedure**

Categories	Sample Size
School heads	10
Grade two teachers	65
Parents' Representatives	10
Grade two pupils	255
Total	340

**Source: Researcher (2021)**

### **3.6 Research Instruments**

Data were gathered by means of questionnaires, interviews guides and documentary analysis guides. These research tools were well thought-out as most fitting in the gathering of data and as indicated in the section below.

#### **3.6.1 Grade Two Teachers Questionnaires**

In order to gather quantitative data from grade two educators, the investigator used a questionnaire with close-ended test items. As Morse (2010) asserts, questionnaire entails a research instrument or tool comprising of interrogations to collect respondent information and is intended for the arithmetic analysis of the answer. The questionnaire form was organized into two separate segments. The foremost segment included data on the demographic data of the respondents. In contrast, the second portion contained questions focusing on the research objectives in accordance with the 5-point Likert Scale.

#### **3.6.2 Interview Guide for School heads and Representatives of Parents**

The researcher employed an organized interview guide with open-ended quizzes to obtain qualitative data from school heads and those who represented the parents. A structured interview was necessary as it permitted the investigator to ask analytical and supplementary queries.

#### **3.6.3 Observation Checklist for Grade Two Pupils**

In this study, an observation checklist was designed and used to assess grade two pupils' levels of manifestation of basic numeracy, language and creativity skills.

### **3.7 Pilot Study**

Among 34 respondents from a sample found from public primary schools in Gilgil, research instruments underwent piloting since Kothari (2005) suggests that a pilot

sample must entail 10 percent of study sample, i.e. 10 percent of 340. The pilot study aimed at checking the appropriateness and clearness of the queries relating to the tools. It also sought the validity of the evidence collected, and the suitability of the terminologies utilized. Reliability assessment and verification of results from the pilot study were also used to pre-test the testing instruments. It also anticipated respondents' concerns or difficulties, such as analysis when administering the forms and time managing for information gathering. Again, trial-runs were provided to the interview schedules to guarantee that queries were well expressed and draw reasonable answers that helped the investigator define parts for revision. For the duration of the real data gathering, the respondents to the pilot study did not offer their contributions because theirs had been done during the pilot study.

### **3.7.1 Validity of the Research Tools**

Validity is important because it determines what survey questions to use, and helps ensure that researchers are using questions that truly measure the issues of importance. The validity of a survey is considered to be the degree to which it measures what it claims to measure. To guarantee the validity of the investigation tools, before data collection, triangulation of data instruments multiple methods was carried out. This strategy was used to improve the internal validity of the instruments. In this research, almost immediately after cross-examining, the interviewer transcribed the conversation data and sent for the owner's counter-checking. Peer debriefing method was also applied to ensure accuracy of the results. This involved review of the data by experts in the area of research being explored. The experts reviewed and asked questions in regard to the questionnaire. The researcher then involved experts in the area of school feeding Programmes. Their comments, views and suggestions were

used to revise the instruments. This was done by ensuring that the questions were directly related to the objectives and variables of the study.

### **3.7.2 Reliability of the Research Instruments**

Split-in-half procedure was utilized in order to form the dependability of the research tools selected. The research tools were overseen once to a given set of respondents and outcomes separated into two equivalent classes. Cronbach Alpha Method was utilized to inaugurate the reliability ratio amid the two sub-sets. The nearer the Cronbach Alpha Coefficient is to one, the upper the internal uniformity of the research tools elected for experiment in the scale. Cronbach Alpha Coefficient,  $r = 0.725$ , was achieved, which showed high internal reliability and was deemed satisfactory. This is because Kothari (2005) indicates that any Cronbach Alpha unit between 0 and 1 infers high internal uniformity.

### **3.8 Data Collection Procedures**

The researcher utilized Drop and Pick technique, which involves hand delivery to respondents, postal return, postal delivery and personal pick-up to manage the research tools. The researcher interpreted and explained the contents of questionnaire to the respondents where necessary. The interviews were carried out in order to gather qualitative data from the respondents. The researcher also conducted a documentary analysis of the results of grade two pupils.

### **3.9 Data Analysis Procedures**

With the help of the Statistical Packages for Social Science (SPSS) Version 23, quantitative data was descriptively analyzed and presented using frequencies, percentages and inferentially utilizing Pearson's Product Moment Correlation

Investigation to determine association between school feeding Programmes and grade two pupil academic results. Tables and charts were used to show the quantitative assumptions of the research.

Consistent with this research aims; qualitative data was interpreted thematically and portrayed in narrative formats. The relevant data was broken into sentences and phrases, representing a single, clear thought.

### **3.10 Logistical and Ethical Considerations**

In this section, the researcher outlines the logistical considerations and ethical considerations of the study Programme.

#### **Logistical Considerations**

The researcher requested a letter of introduction from Kenyatta University Graduate School and a research license from NACOSTI. The investigator further requested a letter of approval from Nakuru County Director of Education. The investigator also sought the consent of parents who permitted their children to participate in the research.

#### **Ethical Considerations**

Ethical considerations included explaining the research material and what was expected of contributors, how conscious consent was achieved, and privacy guaranteed.

### **Confidentiality and Privacy**

The investigator agreed to uphold the confidentiality of any data provided by the research participants that touched on their individual lives. The investigator informed the participants that no individual's data would be revealed to unauthorized person or party. The participants were told the information was only collected for specified reason and the information given would not exchange hands.

### **Anonymity**

The investigator guaranteed the participants that their personal identities would not be made public. In addition, no identifying details will be published in writing or any other means of communication about the person or their organizations.

### **Informed Consent**

The investigator explained to the respondents the essence and intent of the study. The researcher made clear that protocol was adhered to during the collection of data from the respondents, thus achieving willing participation.

### **Storage of Data Collected**

In order to refer easily, the unprocessed statistics gathered was carefully stored. Printed data was processed and saved, while soft copies were stored in flash disks.

## **CHAPTER FOUR**

### **PRESENTATION OF FINDINGS, INTERPRETATIONS AND DISCUSSIONS**

#### **4.1 Introduction**

This chapter indicates the study results. The study was directed by these research aims:

- i. To ascertain standards of academic performance of Grade Two pupils in Gilgil Sub-county
- ii. To examine effects of delivering of quality of food on academic performance of grade two pupils in Gilgil Sub-county;
- iii. To assess the effect of feeding schedules on academic performance of grade two pupils in Gilgil Sub-county;
- iv. To establish the effect of available varieties of food on academic performance of grade two pupils in Gilgil Sub-county.

#### **4.2 Respondents Response Rate**

This study had 340 questionnaires delivered to respondents who comprised of school heads, teachers of Grade 2 and Grade 2 Pupils where 315 questionnaires were effectively filled and given back. Their rate of response is indicated that head teachers, grade two teachers, parents' representatives and grade two pupils recorded a response rate of 92.7%.

#### **4.3 Demographic Information**

The study tools implored the respondents' demographic information as follows;

### 4.3.1 Gender and Level of Education of Head teachers, Teachers and Parents

The gender of the respondents was recorded in table 4.2 below.

**Table 4.1: Gender Distribution**

Gender	SH		GTTs		PR		GTPs	
	f	%	f	%	f	%	f	%
Male	5	62.5	14	21.9	2	28.6	154	65.3
Female	3	37.5	50	78.1	5	71.4	82	34.7
<b>Total</b>	<b>8</b>	<b>100.0</b>	<b>64</b>	<b>100.0</b>	<b>7</b>	<b>100.0</b>	<b>236</b>	<b>100.0</b>

Key: SH-School Head teachers; GTTs-Grade Two Teachers; PR-Parents' Representatives; GTPs-Grade Two Pupils; f-Frequency

The table above reveals that (62.5%) of school heads were men, with 37.5% being women head teachers. The majority (78.1%) of teachers in grade two were female, with 21.9% being male.

On the other hand, the Level of Education of Head teachers, Teachers and Parents showed that a half (50.0%) of school heads had diploma qualifications, (25.0%) had bachelor's degrees, 12.5% with certificate-level credentials just like those with postgraduate qualifications. Nonetheless, many grade two educators (64.1 %) had certificate credentials, 28.1% had diplomas, 4.7% had bachelor's degrees, and 3.1% had postgraduate qualifications.

### 4.4 Levels of Academic Performance of Grade Two Pupils

The first aim of this study was to ascertain levels of academic performance of grade two pupils.

To achieve this objective, the researcher analyzed pupils' performance through observation and simple tests in basic numeracy, language and creativity skills. Different instructional materials available in the classrooms were noted in the checklist and on the notebook. Descriptive data was collected from grade two teachers who gave their opinion per pupils and results are shown in Table 4.4.

**Table 4.2: Academic Performance Levels of Grade two Pupils**

<b>Indicators of Academic Performance</b>	<b>Good %</b>	<b>Fair %</b>	<b>Below Average %</b>
Elementary mathematical ability skills such as recognizing numbers, ordering them and basic math operations	31.2	15.6	53.2
Linguistic skills such as reading, lettering and communication	40.3	9.1	50.6
Imagination skills such as sketching, coloring, painting and shape formation	26.0	18.2	55.8

**Source: Field Data (2021)**

Table 4.2 indicates that (31.2 percent) of grade two teachers reported that their pupils (grade two learners) had strong basic numeracy skills such as number recognition, ordering, and basic mathematical operations whereas 15.6 percent were fair after introduction of school feeding Programmes. In comparison, (53.2 percent) of the pupils were rated below average.

Table 4.2 also indicates that 40.3 percent of grade two teachers specified that their learners had strong language skills such as reading, writing, and speaking, 9.1 percent showed fair performance after introduction of school feeding Programmes. In contrast, 50.6% of grade-two learners had less than average language skills acquisition.

Furthermore, Table 4.2 shows that 26.0% of grade two teachers indicated that their pupils showed strong artistic abilities such as drawing, coloring, etching, painting and pattern forming, 18.2% showed adequate performance after introduction of school feeding Programmes. In comparison 55.8% scored below average marks.

In Uganda, Uwezo (2011) announced that 20 percent of all children in grade three might not correctly solve grade two written sums. More than 11 percent of all grade seven children could not correctly solve grade two numerical sums. The type of schools, whether government or privately owned, education level and the existence of the feeding Programme in school, among others, were some of the reasons provided by Uwezo (2011) for poor mathematics results. Although the research focused on mathematics success among lower primary school learners, there were no reflections of the appearance of the classrooms to illustrate the presence of instructional materials. Neither did the study shed light on the kinds of instructional mathematical resources used during teaching. Besides, among grade two learners, the report did not discuss mathematics results. This gave the investigator the desire to carry out this research.

On further probing, head teacher, H1 noted:

*“Many pupils do not perform basic numeracy skills such as number recognition, ordering, and fundamental operations in my pre-primary school. Besides, learners do not have listening skills, reading and speaking abilities or strong artistic abilities such as drawing, coloring, etching, painting, and pattern forming”.*

These findings corroborate with Smith Galgleish and Herzmark (2011) that making education more meaningful for pupils in grade two requires them to gain an understanding of the learning plan to give direction to an extra prosperous and more motivated life. The academic achievement approach allows the educational community to grasp the researcher's point by specifically building educational interactions focused on what grade two pupils should be able to do with their expertise.

#### **4.5 Effect of Provision of Quality of food on Academic Performance of Grade Two Pupils**

The second objective was to find out the Effect of Providing Quality of food on Academic Performance of Grade Two Pupils.

To achieve this objective, the researcher analyzed the responses of grade two teachers on the influence of provision of quality of food on academic performance of grade two pupils. Descriptive statistics collected from grade two teachers and outcomes are specified in Table 4.5;

**Table 4.3: Opinions of Grade Two Teachers on the Effect of Provision of Quality of food on Academic Performance of Grade Two Pupils**

<b>Summary</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
In my school, provision of meals to grade two pupils has not been initiated despite policy requirements as a way of improving learners' academic performance	71.8	11.5	1.3	10.1	5.3
In my primary school, grade two pupils are provided with 10 o'clock tea as a way of motivating them to come to school and perform well in examinations	66.9	13.2	2.4	12.7	4.8
Provision of breakfasts to grade two has led to an improvement in their thought process and academic performance	80.5	12.4	1.6	3.3	2.2
In my primary school, many pupils in grade two have registered impressive academic grades since the introduction of lunch	67.4	19.7	3.5	5.3	4.1

The results above in Table 4:3 revealed the views of grade two teachers on the effect of providing of quality of food on exams and classwork performance of grade two pupils. The results indicated that, grade two pupils are provided with 10 o'clock tea as a way of motivating them to come to school and perform well in examinations. The results show that public primary schools have been able to provide clean and safe drinking water for grade two pupils as a way of enhancing their health and academic performance.

These findings corroborated Bunde (2016) that among the six schools he sampled, 4 - (66.6%) had school diet Programme whereas the others 2 (33.3%) did not provide any food at school. These results also confirm Ahmed's (2014) finding that implementing and investing in effective school-based nutrition Programmes could increase students' access to healthy food choices, a quality diet, improved academic performance and a healthy life over the long term.

In reference to Shaw (2013), 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 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.

#### 4.5.1 Inferential Statistics on the Effect of Diet Quality on Academic

##### Performance of Grade Two Pupils in Public Schools

To get a relationship that exists between having quality of food and academic performance of grade two pupils, data was collected on how often (Very Often = 5, Often = 4, Sometimes = 3, Rarely = 2 and Never = 1) public primary schools ensure that grade two pupils have access to quality food and clean water and average academic results for three terms of grade two pupils in joint examinations. The results are indicated in Table 4.4;

**Table 4.4: Frequency of Provision of Quality of food on Academic Performance of Grade Two Pupils**

<b>Frequency of Provision of Quality of food (per day)</b>	<b>Average Academic Performance of Grade Two Pupils in Joint Examinations (%)</b>
Lunch only	22
1 Breakfast only	31
Ten o'clock tea and lunch	37
Ten o'clock tea and lunch	43
Ten o'clock tea and lunch	43
Ten o'clock tea, lunch and four o'clock porridge	43
Ten o'clock tea, lunch and four o'clock porridge	54
Ten o'clock tea, lunch, four o'clock porridge and snacks	61

Table 4.4 indicates that, in public primary schools where grade two pupils are frequently provided with well-balanced, healthy and nutritious diets, pupils tend to register impressive grades in joint examinations. These outcomes were tested using Pearson's Correlation Test Analysis as presented in Table 4.5 below:

**Table 4.5: Pearson's Product Moment Correlation Test**

		Provision of Quality Diets	Academic Performance of Grade Two Pupils
Provision of Quality Diets	Pearson Correlation	1	.928**
	Sig. (2-tailed)		.001
	N	8	8
Academic Performance of Grade Two Pupils	Pearson Correlation	.928**	1
	Sig. (2-tailed)	.001	
	n	8	8

\*\* . Correlation is valid at the 0.01 level (2-tailed).

The Pearson Product-Moment Correlation Test shows the corresponding significant level (p-value) of 0.001 generating coefficients of correlation of  $r = 0.928$  lower than the pre-determined meaning level of 0.05, i.e.  $p\text{-value} = 0.001 < 0.05$ . Thus, the insignificant hypothesis,  $H_0$ , There is no major impact on grade two pupils' academic performance in public primary schools of having quality diets. Besides, the association between quality of food and second-year school pupils' academic performance in public primary schools is important. These results were consistent with Ravinder (2014), who notes that a poor quality diet in children constitutes a major health issue in a rising number of low and middle-income countries. Children with strong academic success record quality of food consumption. Furthermore, low quality food impairs physical growth resulting into wasting and stunting. Various researchers indicate that although stunting and wasting may be corrected by high quality nutritional interventions, brain damage due to malnutrition is irreversible.

#### **4.6 Feeding frequency S and Academic Performance of Grade Two Pupils**

The third objective of the research was to find out the effect of feeding frequency s on academic performance of grade two pupils.

In order to achieve this objective, the researcher measured in terms of the types and number of meals provided to grade two learners and the extent to which such meals influence grade two learners academic performance. Descriptive information was gathered from grade two tutors and the outcomes are revealed in the table below;

**Table 4.6: Types of Meals Consumed by Grade Two Pupils**

Types of Meals	Number of Grade Two Teachers	
	f	%
No meal provision	11	17.2
Breakfast only	38	59.4
Breakfast and lunch	15	23.4

Table 4.6 shows that 17.2% of grade two teachers revealed that no meals are provided to grade two pupils in their schools, slightly more than half (59.4%) indicated that primary schools provide breakfasts only to grade two pupils whereas 23.4% indicated that grade two pupils are provided with breakfast and lunch. However, school heads and parents' representatives disagreed with grade two teachers that there is no provision of meals to learners. They noted that the provision of meals to learners is a requirement and thus, grade two pupils take meals at school. Though, some head-teachers and parents' representatives' disagreed, majority concurred with grade two teachers that schools only afford to provide lunches. These findings support the assertions of Ravinder (2014) that for effective learning to occur, grade two pupils should consume at least all the three categories of meals, that is, breakfast, lunch and supper, whether some is taken at school and other food eaten at home. This finding shows that feeding frequency s boost children's nutrition levels and enable them to perform better.

Ravinder (2014) indicated that 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.

**Table 4.7: Views of Grade Two Teachers on the Effect of Feeding frequency s on Academic Performance of Grade Two Pupils**

<b>Summary</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
In some communal schools, provision of meals to grade two pupils has been initiated as per policy requirements as a means of enhancing learners’ class performance	55.9	15.1	2.8	16.8	9.4
In many schools, grade two pupils are provided with breakfasts as a way of motivating them to come to school and perform well in examinations	59.1	23.5	2.7	5.9	8.8
Provision of breakfasts and lunches to grade two has led to an improvement in their class performance	58.9	17.2	2.0	19.3	2.6
In many schools, many pupils in grade two have registered impressive academic grades since the introduction of school feeding Programmes	78.4	11.1	2.1	3.9	4.5

Table 4.7 indicates the views on Feeding frequency on Performance of Grade Two Pupils in Public Primary Schools. The results show that in some public primary schools, provision of meals to grade two pupils has been initiated as per policy requirements as a way of improving learners’ academic performance. The results show that in many public primary schools, grade two pupils are provided with

breakfasts as a way of motivating them to come to school which ultimately leads them to perform well in examinations.

These findings contradict the assertions of Shaw (2013) that eating patterns such as eating frequency, breakfast skipping and frequency of meals eaten away at home may affect the health and academic performance of grade two learners. This indicates that, despite the inability to initiate school feeding Programmes in public primary schools, there is recognition that school meals play a key role in attracting children to school; improve their cognitive development, which, in turn, influences their academic performance.

The results of a longitudinal study in Paris conducted by Pollit, Jacoby, and Cueto (2014) showed that missing breakfast, lunch, or dinner could negatively influence the problem-solving capacity of children, and a low intake of energy-food at breakfast can have detrimental effects on physical stamina, creativity, and general good health. In short, these results point to the enhancement of the academic, behavioral, and emotional functioning of pupils who have breakfast. Given the significant contribution of food obtained at school to children's daily diets, it is of interest to researchers to influence children's diets. Like other non-home foods, schools now offer a broader and more diverse combination of food options than in past decades.

These results support Shaw's (2013) assertions that eating habits such as food frequency, breakfast skipping, and the frequency of meals eaten away from home can affect school children's nutritional status, thereby influencing their health and academic performance. In comparison, a record-breaking majority of grade-two teachers (78.4%) strongly agreed that many primary school children had recorded

outstanding grades in many public primary schools since school feeding Programmes were implemented.

During the interviews, head teachers and parent representatives agreed that the number of meals a child takes in one day influences their basic numeracy skills. These results support the claim made by Schweinhart and Weikart (2015) that a kid who is deprived of food has little energy to play, to explore the world and that the capacity of that child to learn new understandings, concepts, and skills to promote brain growth is minimized by failure to communicate with human and physical environments.

Almost every child who eats school breakfast often eats school lunches; school meals will account for about half their daily caloric intake for these children. These results offer credibility to the outcomes of a study that was done in Rome to determine the effectiveness of eating patterns on learning results. The World Food Programme (2016) suggested that eating patterns formed during childhood form part of their diet later. Eating breakfast is critical for the health and development of children and adolescents.

The study further shows that breakfast is a crucial nutritional component that contributes to the total daily consumption of energy and nutrients. These results corroborate with WFP (2016), who demonstrated that mild undernutrition affects children's intellectual growth and class performance, and missing meals may influence juveniles' performance in solving both simple and complex tasks. The findings also support the statements made in the Kenya National Nutrition Action Plan (2012) that

healthy foods ensure children are ready to participate fully in the day's learning opportunities. Headmaster, H4, noted,

*"Learners in my school who take all the meals on a daily basis record remarkable grades in basic mathematical ability, linguistic and inventiveness skills."*

These verdicts agree with Ainely (2013) that diet can aid a child to look forward to everyday school difficulties with power and assurance. Deprivation of the right diet makes a child short-tempered, tense and not capable to focus, problematic to teach as instructors describe that responsiveness span as well as school performance of these children is significantly inhibited and they are also effortlessly affected by a variation of germs and contaminations.

#### **4.6.1 Inferential statistics on the Effect of Feeding frequency s**

To authenticate the likelihood of the association between feeding frequency s and academic performance of grade two pupils, data was collected on the number of meals provided to grade two pupils and average academic results for three terms of grade two pupils in joint examinations as indicated in the next table.

**Table 4.8: Number of meals provided and Academic Performance of Grade Two Pupils**

<b>Number of Meals Provided</b>	<b>Average Academic Performance of Grade Two Pupils in Joint Examinations (%)</b>
0	22
0	31
0	37
1	43

1	43
1	43
2	54
2	61

Table 4.8 indicates that grade two pupils who take more meals at school get good grades in basic counting, linguistic and imagination skills compared to their counterparts who take no meal or one meal a day. A test for Pearson's Product Moment Correlation Test Analysis was performed and outcomes are presented in Table 4.9

**Table 4.9: Pearson's Correlation Analysis of relationship between Feeding frequency s and Academic Performance of Grade Two Pupils**

		Feeding frequency s	Academic Performance of Grade Two Pupils
Feeding frequency s	Correlation	1	.941 **
	Sig. (2-tailed)		.001
	N	7	7
Academic Performance of Grade Two Pupils	Correlation	.941 **	1
	Sig. (2-tailed)	.001	
	N	7	7

\*\* . Significance level.01 (2-tailed).

Table 4.9 shows the Pearson product-moment correlation test which generated the corresponding significant level (p-value) of  $r = .001$  with correlation coefficients less than the predetermined level of 05, i.e.  $P\text{-value} = .001 < 0.05$ . Therefore, the null theory,  $H_0$ : no substantial effect on grade two schoolchildren's academic performance is rejected in public primary schools by feeding frequency s. These findings show significant links between feeding frequency s and the academic performance of grade two pupils in public primary schools. So, grade 2's who have breakfasts and lunches register impressive academic qualifications in elementary numeracy, language, and creativity. These findings are consistent because a well-nourished child can achieve

better grades, learn all day long, and have energy left for most of the activities at night like pressure management, stress, resistance to infection, an alert and active mind, etc. These are good performance ingredients, beauty and bounty go hand in hand with key players in good nutrition, and the hair reflects one's diet.

#### 4.7 Availability of Food and Academic Performance of Grade Two Pupils

The fourth aim entailed finding the relationship on availability of Food and Academic Performance of Grade Two learners.

To achieve the objective, descriptive statistics was gathered from grade two tutors as represented in the table below.

**Table 4.10: Opinions of Grade Two Teachers on the Effect of Availability of Food on Academic Performance of Grade Two Pupils**

Summary	SA	A	U	D	SD
Many schools, grade two pupils are sometimes provided with animal food varieties which have not motivated them to come to school and perform well	58.8	21.6	4.1	10.4	5.1
Grade two pupils are often provided with plant food varieties at school as a way of improving their cognitive development and thus, perform well	61.6	17.7	3.9	10.5	6.3
Grade two learners have been provided with one food variety which has not helped improve their academic performance	59.9	19.8	2.5	12.2	5.6
Introduction of school feeding Programmes has ensured that grade two pupils have access to different food varieties as a way of improving their academic performance	65.9	13.4	3.7	10.3	6.7

Table 4.10 indicates the results on the views of Grade Two Teachers on Effect of Availability of Food on Academic Performance of Grade Two Pupils in Public Primary Schools. The findings indicate that in many public primary schools, grade

two pupils are sometimes provided with animal food varieties which motivate them to come to school and thus perform well. The results show that Grade two pupils are often provided with plant food varieties at school as a way of improving their cognitive development and thus, perform well. The findings further indicate that Grade two learners have been provided with just one food type, which has not helped improve their academic performance.

#### **4.7.1 Inferential statistics on the Effect of Availability of Food on Academic Performance of Grade Two Pupils**

To validate the likelihood of the dissimilarity amid the availability of food and Grade two pupils' performance in language skills, information was gathered on food varieties provided to grade two pupils in public primary schools and average academic results for three terms of grade two pupils in joint examinations. The outcomes are indicated in Table below;

**Table 4.11: Number of Meals Provided and Academic Performance of Grade Two Pupils in Public Primary Schools**

<b>Number of Meals Provided</b>	<b>Average Academic Performance of Grade Two Pupils in Joint Examinations (%)</b>
0	22
0	31
0	37
1	43
2	43
2	43
2	54
2	61

Table 4.11 shows that public primary schools, which provided more food varieties to their grade two pupils, resulted into learners getting fair academic grades in examinations. Pearson’s Product Moment Correlation Test Analysis was carried out as shown in Table 4.12

**Table 4.12: Pearson’s Product Moment Correlation Test Analysis Presenting Association between Availability of Food Varieties on Academic Performance of Grade Two Pupils in Public Primary Schools**

		Availability of Food Varieties	Academic Performance of Grade Two Pupils
Availability of Food Varieties	Pearson Correlation	1	.814**
	Sig. (2-tailed)		.014
	N	8	8
Academic Performance of Grade Two Pupils	Pearson Correlation	.814**	1
	Sig. (2-tailed)	.014	
	n	8	8

\*\* . Significance level (2-tailed).

Table 4.12 shows a Pearson product-moment correlation test that created an association coefficient of = 0.931 of 0.001 that is lower than its predetermined significance, 0.05, that is p-value = .001 < .05. Thus, the null hypothesis, H03: There is no noteworthy effect of food varieties' availability on grade two pupils' academic performance in public primary schools, is therefore dismissed. This suggests a significant association between the availability of various food types and grade two pupils' academic success in public primary schools. Thus, children with access to an adequate food supply report strong academic qualifications in basic numeracy, language, and imagination. These results corresponded to Lloyd – Still’s (2014) finding that lack of food impairs mental growth, decreases brain cellularity, decreases motivation for children, and lowers energy levels. This can therefore lead to reduction

of learning. Children with these characteristics are particularly vulnerable during pre-school years to the enduring effects of undernourishment and contamination.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This section highlights in details the investigation outcomes, study conclusions and recommendations. Recommendations for future studies are deliberated under this chapter as well.

#### **5.2 Summary of Research Outcomes**

The study revealed that a few grade two pupils displayed well-developed language skills, with many having difficulties with reading, writing, and speaking. These results indicate that many second-grade pupils also have insufficient levels of basic numeracy and language skills.

##### **5.2.1 Levels of academic performance of grade two pupils**

The first objective of this study was to ascertain levels of academic performance of grade two pupils. To achieve this objective the researcher analyzed pupils' performance through observation and simple tests in basic numeracy, language and creativity skills.

The results indicated that 31.2% of grade two teachers reported that their pupils (grade two learners) had strong basic numeracy skills such as number recognition, ordering, and basic mathematical operations whereas 15.6% were fair after introduction of school feeding Programmes.

### **5.2.2 Effect of Providing Quality of food on Academic Performance of Grade**

#### **Two Pupils**

The second objective was to find out the Effect of Providing Quality of food on Academic Performance of Grade Two Pupils. The results revealed the views of grade two teachers on the effect of providing of quality of food on exams and classwork performance of grade two pupils. The results indicated that, grade two pupils are provided with 10 o'clock tea as a way of motivating them to come to school and perform well in examinations. The results show that public primary schools have been able to provide clean and safe drinking water for grade two pupils as a way of enhancing their health and academic performance.

The Pearson Product-Moment Correlation Test shows the corresponding significant level (p-value) of 0.001 generating coefficients of correlation of  $r = 0.928$  lower than the pre-determined meaning level of 0.05, i.e.  $p\text{-value} = 0.001 < 0.05$ . Thus, the insignificant hypothesis,  $H_0$ , There is no major impact on grade two pupils' academic performance in public primary schools of having quality diets.

### **5.2.3 Feeding Frequency On Academic Performance Of Grade Two Pupils**

The third objective of the research was to find out the effect of feeding frequency s on academic performance of grade two pupils. The results indicated that 59.4% agreed that primary schools provide 10 o'clock tea only to grade two pupils whereas 23.4% indicated that grade two pupils are provided with 10 o'clock tea and lunch. However, school heads noted that the provision of meals to learners is a requirement and thus, grade two pupils take meals at school.

### **5.3 Conclusions**

Based on the findings of the study, it can be concluded that school-feeding Programmes influence academic performance of grade two pupils in Gilgil Sub-County, Nakuru County, Kenya. Lack of school-feeding Programmes affects academic performance of grade two pupils in number-work and elementary language acquisition. School feeding Programmes have had benefits to learners by improving their cognitive development, which improves their academic performance in basic numeracy, language and creativity skills. This implies that healthy eating is essential for grade two pupils in order to attain their full academic prospective, mental growth, and enduring health and well-being.

Further conclusions are made 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 government and NGO'S the feeding Programmes were established. 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. 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. According to 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**

Based on the conclusions of the study, the following recommendations can be suggested.

### **5.4.1 Policy Recommendations**

Alternative financing and cost-cutting options should be analyzed and identified by the school management committees. This could be accomplished by starting income-generating activities to raise funds to supplement government-issued financial support. Besides, advocacy and campaigns in which community well-wishers, political leaders, NGOs, and church organizations contribute funds to support the SFP should be initiated.

### **5.4.2 Recommendations related to practice**

This study recommends that school-feeding Programmes should aim at specific needy pupils in schools to influence families and societies that lack the means and those who want to be inspired should register their kids to school.

Parents who cannot afford monetary resources towards the feeding Programme can play a substantial part and eventually adopt some of the roles like offering services for culinary, firewood/gas, water and guaranteeing clean, sterile atmosphere in the school by keeping the environment hygienic and the wages reverted to their payment for SFP for their children.

In order for community members to participate, it will necessitate them to be influenced and motivated that it is useful for them to be involved in the school-feeding Programme. Elimination of barriers to community contribution and the use of appropriate communication networks, formal or otherwise should be encouraged.

#### **5.4.3 Recommendations for further research**

This research can be repeated in other parts of the world, especially among the urban poor, to increase pupils' involvement in their education in public primary schools. This is because the research sample size used in this study might not represent areas in other parts of the world with different social, economic, and environmental backgrounds.

Help schools supplement government funds, research should be carried out on potential sources of funds for school feeding services, thereby preventing interruption of feeding Programmes when funds are not given or delayed.

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## **APPENDICES**

### **APPENDIX I: LETTER OF INTRODUCTION**

Dear Sir/Madam,

#### **RE: PERMISSION TO CARRY OUT RESEARCH**

I am a student who is taking a Master of Early Childhood Studies course at Kenyatta University. My research subject is the impact of school feeding Programmes in the sub-county of Gilgil in Nakuru County, Kenya, on grade two pupils' academic performance. You have been selected to participate in the research to accomplish this. I kindly recommend that the participants take part in the study. This information will be used solely for academic purposes, and the report will not include your name. The results of the analysis will be made available to you upon request. Your assistance and cooperation will be highly appreciated.

Thank you in advance.

Yours faithfully,

Amollo Chrispinus Ouma

## APPENDIX II : QUESTIONNAIRE FOR GRADE TWO TEACHERS

Dear respondent,

The investigator is a student completing a Master of Early Childhood Educations course at Kenyatta University, researching the effect of school feeding Programmes on the academic performance of grade two pupils in Gilgil Sub-County, Nakuru County, Kenya,.

### Section A: Background Information

1. Gender:

Male [  ]

Female [  ]

2. Level of Education

Certificate [  ] Diploma [  ] Bachelors' [  ] Postgraduate [  ]

### Section B: Levels of Academic Performance of Grade Two Pupils in Public Primary Schools

1. How would you rate the academic performance of grade two pupils in your primary school?

Indicators of Academic Performance	Good	Fair	Below Average
	3	1	1
Basic mathematical ability skills like number recognition, organisation and basic procedures			
Linguistic abilities such as reading, writing and			

communication			
Creativity skills like drawing, colouring, picture stressing, painting and shape formation			

**Section C: Provision of Quality of food and Academic Performance of Grade**

**Two Pupils in Public Primary Schools**

1. Does your school provide quality and balanced diet meal to grade two pupils

1) Yes [ ]

2) No [ ]

2. To what extent do you agree with the following statements on the influence of quality of food on academic performance of grade two pupils in primary school

Key: **SA**-Strongly Agree **A**-Agree **U**-Undecided **D**-Disagree **SD**-Strongly Disagree

Test Items	SA	A	U	D	SD
	5	4	3	2	1
In my primary school, grade two pupils seldom have access to balanced diets to enhance their mental development as a way of improving their academic performance					

My primary school has not been able to provide clean and safe drinking water for grade two pupils as a way of improving cognitive growth and academic performance					
Provision of quality of food to grade two pupils has enhanced their cognitive development hence improving academic performance					
Primary schools where there is provision of quality diets, grade two pupils have performed better in examinations					

**Section D: Feeding frequency s and Academic Performance of Grade Two Pupils**

1. How many meals does your primary school provide to grade two pupils?

No meal [ ]

Ten o'clock tea only [ ]

Ten o'clock tea and Lunch [ ]

2. Rate to what extent you agree with the subsequent statements on the effect of feeding frequency s on academic performance of grade two pupils in your primary school

Key: **SA**-Strongly Agree **A**-Agree **U**-Undecided **D**-Disagree **SD**-Strongly Disagree

<b>Test Items</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
In my school, provision of meals to grade two pupils has not been initiated despite policy requirements as a way of improving learners' academic performance					
In my primary school, grade two pupils are provided with 10 o'clock tea as a way of motivating them to come to school and perform well in examinations					
Provision of breakfasts to grade two has led to an improvement in their thought process and academic performance					
In my primary school, many pupils in grade two have registered impressive academic grades since the introduction of lunch					

### **Section E: Availability of Food Varieties and Academic Performance of Grade**

#### **Two Pupils**

1. Please, tick types of food varieties provided to grade two pupils in your primary school

Balanced diet            [   ]

Animal foods            [   ]

Plant foods [ ]

2. Rate to what extent you agree with the subsequent statements on the effect of availability of food varieties on academic performance of grade two pupils of your primary school

Key: **SA**-Strongly Agree **A**-Agree **U**-Undecided **D**-Disagree **SD**-Strongly Disagree

Items	SA	A	U	D	SD
	5	4	3	2	1
In my primary school, grade two pupils are sometimes provided with animal food varieties which have motivated them to come to school and perform well					
Grade two pupils in my school are often provided with plant food varieties at school for cognitive development and thus, perform well					
Grade two learners in my school have no access to food variety which has not helped improve their academic performance					
Introduction of school feeding Programmes has ensured that grade two pupils in my school have access to different food varieties as a way of improving their performance					

Thank you

Amollo Chrispinus Ouma

### **APPENDIX III: INTERVIEW GUIDE FOR HEAD TEACHERS**

Dear respondent,

The researcher is a student undertaking a course in Master of Education in Early Childhood Studies at Kenyatta University, carrying out research on **Influence of School feeding Programmes on Academic Performance of Grade Two Pupils in Gilgil Sub-county in Nakuru County, Kenya**. The information you provide will be treated with confidentiality and used for purposes of this study.

#### **Section A: Background Information**

1. Gender:.....
2. What is your highest level of education?.....  
Certificate [ ] Diploma [ ] Bachelors' [ ] Postgraduate [ ]

#### **Section B: Levels of Academic Performance of Grade Two Pupils in Public Primary Schools**

1. How would you rate the academic performance of grade two pupils in your primary school?

#### **Section C: Provision of Quality of food and Academic Performance of Grade Two Pupils**

1. How often does your primary school ensure that grade two pupils have access to quality food and clean water?
2. To what extent has provision of plant and animal food influenced academic performance of grade two pupils in your primary school?

#### **Section D: Feeding frequency s and Academic Performance of Grade Two Pupils in Public Primary Schools**

1. How many meals does your primary school provide to grade two pupils?
2. What is the influence of feeding frequency s on academic performance of grade two pupils in your primary school?

**Section E: Availability of Food Varieties and Academic Performance of Grade Two Pupils in Public Primary Schools**

1. Which types of food varieties does your primary school provide to grade two pupils in your primary school?
2. How has availability of different food varieties influenced academic performance of grade two pupils in your primary school?

Thank you

Amollo Chrispinus Ouma

**APPENDIX IV:OBSERVATION CHECKLIST FOR GRADE TWO PUPILS**

**A. Basic Numeracy Skills**

<b>Aspects of Basic Numeracy Skills</b>	<b>Observation</b>	
	<b>Can Attempt</b>	<b>Cannot Attempt</b>
Provision of balanced diet has enhanced number recognition such as 6 and 9		
Provision of balanced diet has enhanced grade two pupils ability in ordering and sequencing of numbers		
Provision of balanced diet has enhanced rote counting, e.g. 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10		
Provision of balanced diet has enhanced basic operations such as $23 + 14$ , $56-13$ etc		

**B. Language Skills**

<b>Aspects of Language Skills</b>	<b>Observation</b>	
	<b>Can Attempt</b>	<b>Cannot Attempt</b>
Reading abilities such as phoneme consciousness, phonetics, language, picture reading or recognition		
Writing expertise such as creating		

words, linking syllable to make words and sentence building		
Oral skills such that entails storytelling and memory		

**C. Creativity Skills**

<b>Characteristics of Creativity</b>	<b>Observation</b>	
	<b>Can Try</b>	<b>Cannot Try</b>
<b>Expertise</b>		
Coloring		
Pattern formation		
Drawing		
Crayon and pencil etching		

**APPENDIX V: INFORMED CONSENT FORM FOR RESPONDENTS**

Dear Respondent,

The investigator is a student completing a Master of Early Childhood Studies degree course at Kenyatta University, researching the impact of school feeding Programmes on grade two students' academic performance in the Nakuru County sub-county of Gilgil, Kenya. I request for some time for this research, as you will be probed some quizzes. I will preserve the confidentiality and privacy of your results. Your name will not be written on any of the resources, and your knowledge will only be available to the researcher. The study is not going to help you directly. Your contribution is voluntary, and before and during the research, you can change your mindset and withdraw at any time. We are not going to pay for this participation or offer any facilities. Please sign the form below to participate in this research if you want to participate.

**Participant:**

-----	-----	-----
Name of Participant	Signature	Date

**Researcher:**

Amollo Chrispinus Ouma

-----	-----	-----
Name of Researcher	Signature	Date

**APPENDIX VI: CONSENT FORM FOR PARENTS/GUARDIANS**

Dear Parent/Guardian,

I am a student completing a degree course in Master of Education in Early Childhood Studies at Kenyatta University, carrying out research on the Impact of School feeding Programmes on Academic Performance of Grade Two Pupils in Gilgil Sub-county in Nakuru County, Kenya. I want to inform you, for this reason, that I will be using your child in this report. I'm just going to observe the things the children do with their teachers in their learning. This will be for educational purposes only. I will not use the information for any other purposes, nor will I use your child. I will also request permission for that reason from the head teacher and the teacher of the class. Please kindly allow me to communicate with the baby. I will maintain the privacy and confidentiality of the school and children's information I will receive. Participation is voluntary, and you can change your mind and, at any time before and during the research, remove your child. There will be no payment nor giving of any facilities for this participation, and at the same time, there will be no possible risks involved while conducting the research. Please sign the following form if you want your child to take part in this research.

**Parent:**

-----  
Name of Parent

-----  
Signature

-----  
Date

**Researcher:**

Amollo Chrispinus Ouma

-----  
Name of Researcher

-----  
Signature

-----  
Date

APPENDIX VII

APPROVAL FROM THE GRADUATE SCHOOL KENYATTA UNIVERSITY



KENYATTA UNIVERSITY  
GRADUATE SCHOOL

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)

Website: [www.ku.ac.ke](http://www.ku.ac.ke)

P.O. Box 43844, 00100  
NAIROBI, KENYA  
Tel. 810901 Ext. 4150

Internal Memo

FROM: Dean, Graduate School

DATE: 15<sup>th</sup> August, 2019

TO: Amollo Chrispinus Ouma  
C/o Early Childhood & Special  
Needs Education Dept.

REF: E55/OL/20362/2012

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting 7<sup>th</sup> August, 2019 approved your Research Project Proposal for the M.Ed Degree Entitled, "School Feeding Programmes and Academic Performance of Grade two Pupils in Nakuru County, Kenya".

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you  
  
HARRIET ISABOKE  
FOR DEAN, GRADUATE SCHOOL

c.c. Chairman, Early Childhood Studies & Special Needs Education Department.

Supervisors:

1. Dr. Wanjohi Githinji  
C/o Department of Early Childhood Studies  
Kenyatta University

H1/Ann

**APPENDIX VIII :UNIVERSITY RESEARCH AUTHOLIZATION LETTER**



**KENYATTA UNIVERSITY  
GRADUATE SCHOOL**

E-mail: [dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)

Website: [www.ku.ac.ke](http://www.ku.ac.ke)

**P.O. Box 43844, 00100  
NAIROBI, KENYA  
Tel. 8710901 Ext. 57530**

**Our Ref: E55/OL/20362/2012**

**DATE: 15<sup>th</sup> August, 2019**

Director General,  
National Commission for Science, Technology  
and Innovation  
P.O. Box 30623-00100  
**NAIROBI**

Dear Sir/Madam,

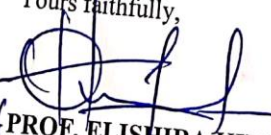
**RE: RESEARCH AUTHORIZATION FOR AMOLLO CHRISPINUS OUMA – REG. NO.  
E55/OL/20362/2012.**

I write to introduce **Amollo Chrispinus Ouma** who is a Postgraduate Student of this University. The student is registered for M.Ed degree programme in the **Department of Early Childhood and Special Needs Education**.

**Amollo** intends to conduct research for a M.Ed Project Proposal entitled, **“School Feeding Programmes and Academic Performance of Grade two Pupils in Nakuru County, Kenya”**.






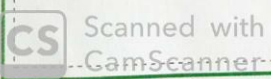
Any assistance given will be highly appreciated.

Yours faithfully,

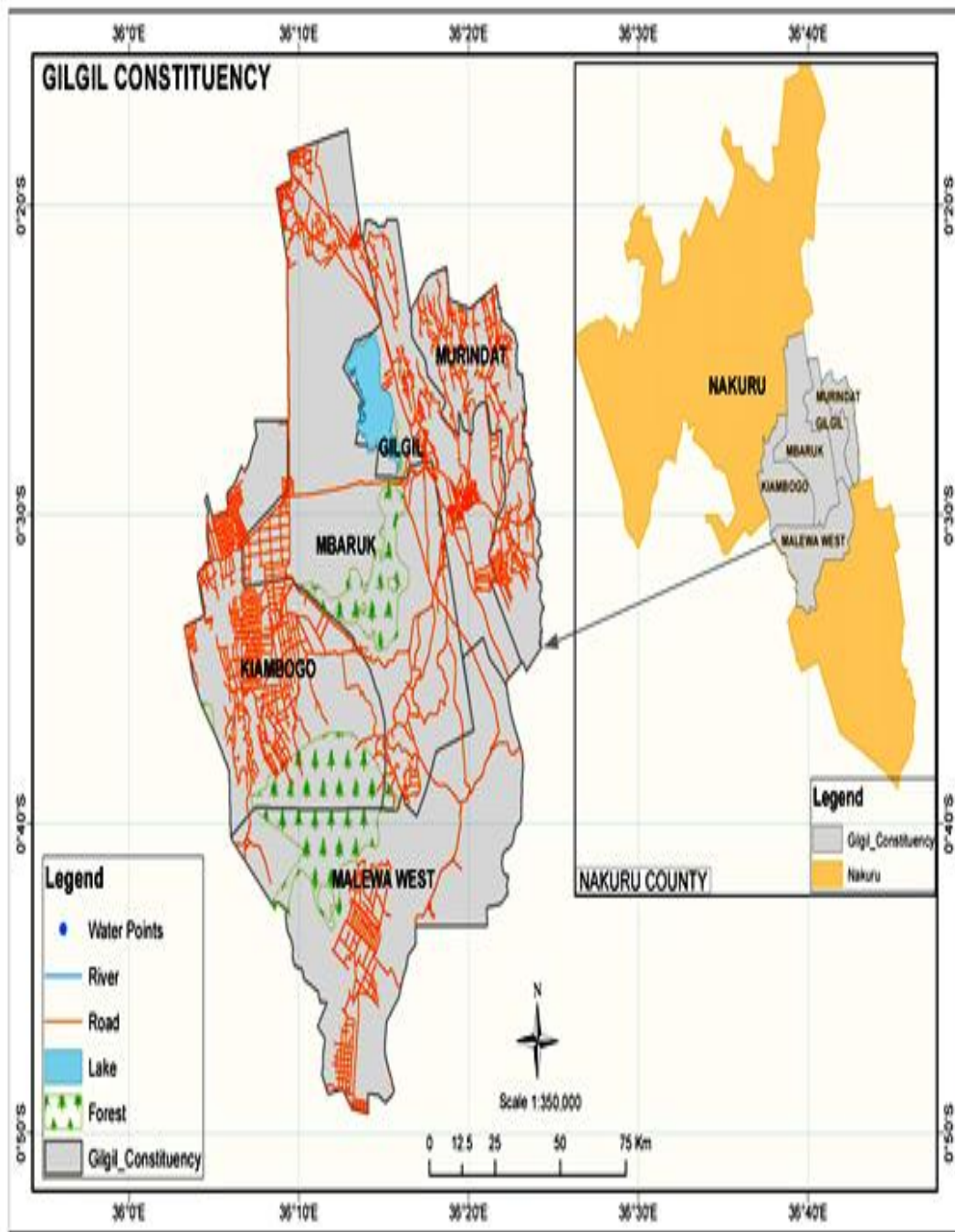
  
**PROF. ELISHIBA KIMANI**  
**AG. DEAN, GRADUATE SCHOOL**

HI/inn

**APPENDIX IX: RESEARCH LICENCE FROM NACOSTI**

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 225245	Date of Issue: 09/September/2019
<b>RESEARCH LICENSE</b>	
	
<p>This is to Certify that Mr.. CHRISPINUS AMOLLO of Kenyatta University, has been licensed to conduct research in Nakuru on the topic: SCHOOL FEEDING PROGRAMMES AND ACADEMIC PERFORMANCE OF GRADE TWO PUPILS IN NAKURU COUNTY, KENYA. for the period ending : 09/September/2020.</p>	
License No: NACOSTI/P/19/1038	
225245 Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code 
<p>NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.</p>	
	

## APPENDIX X: MAP



Source: IEBC (2021)