IMPACT OF FEEDING PROGRAMME ON PUPIL'S PERFORMANCE IN MATHEMATICS IN GOVERNMENT AIDED PRIMARY SCHOOLS IN NYONDO SUB COUNTY MBALE DISTRICT

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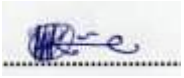
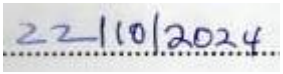
ABSTRACT

The study concentrated on the impact of feeding programmes on pupil's performance in mathematics in Government aided primary schools in Nyondo Sub County Mbale District: the study was carried out in line with the three specific objectives: To find out the influence of feeding programme on pupil's performance in Mathematics in government aided primary schools in Nyondo.sub county, Mbale district,To assess the challenges affecting implementation of feeding programmes in government aided primary schools in Nyondo sub county, Mbale district and lastly examine possible measures of improving feeding programmes and pupils performance in Mathematics in government aided primary schools in Nyondo sub county, Mbale district. The study used a mixed research approach which was descriptive in nature and it considered a sample size of 80 respondents. Study findings concluded that: providing breakfast to disadvantaged primary school students improved their performance in mathematics significantly, that feeding programmes face a challenge of insufficient funding, that low educational status of parents is a challenge of implementation of feeding programs, that Promotion of community participation is a measure to improve school feeding programmes, that improving target and coverage is another measure that can improve school feeding programme and lastly that the wide coverage of feeding programmes is a measure to improve their implementation. The study recommends that: There should be more investments by different Governments in a number of strategies so that feeding programmes are effective in schools and lastly that there is need to sensitize the community and parents about the importance of children having better feeding programmes.

DECLARATION

I, KWAPE MARTIN hereby declare that this research report entitled "impact of feeding programme on pupil's performance in mathematics in Government aided Primary Schools in Nyondo Sub County Mbale District" is my original work and to the best of my knowledge has never been submitted to any other institution of higher learning for any academic award.

Sign:  **Date:** 

KWAPE MARTIN

APPROVAL

This research was carried out under the supervision of Mr Tsemayi Vincent on the topic "Impact of feeding programme on pupil's performance in Mathematics in Government aided Primary Schools in Nyondo Sub County Mbale District" and it is now ready for submission as a partial fulfillment for the requirements of the award of a bachelor's degree of Education of Uganda Christian University.

Signature:  Date: 23/10/2024

Mr. Tsemayi Vincent

Supervisor

DEDICATION

This research report is a special dedication to my beloved family members and relatives who have in one way or another supported me till the completion of my course. May the Almighty God bless them all abundantly.

ACKNOWLEDGEMENT

I acknowledge God the Alpha and Omega, for the precious gift of life, strength, knowledge and wisdom which have enabled me carry out this research successfully.

I acknowledge my research supervisor Mr. Tsemayi Vincent for his tireless efforts and guidance till the completion of this research report may God the Alpha and Omega bless the work of his hands abundantly.

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LIST OF ACRONYMS

AU	:	African Union
CDO	:	Community Development Officer
CSO	:	Civil Society Organisation
DEO	:	District Education Officer
IDI	:	In-Depth Interview KII Key Informant Interview
LC	:	Local Council
MDMS	:	Mid-Day Meal Scheme
NPA	:	National Planning Authority
PTA	:	Parents Teachers Association
SAC	:	School Age Children
SFP	:	School Feeding Program
UPE	:	Universal Primary Education
WFP	:	World Food Program

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter presents information about the background to the study, problem statement, objectives of the study, research questions, scope of the study, and significance of the study, limitations and delimitations to the research study

1.1 Background to the study

Globally, every day, more than 66 million school children attend classes hungry, while 23 million hungry children reside in Africa (WPF, 2020). The Food and Agriculture Organization (FAO) reported hungry children started school lately, drop out sooner, learn less, and are more likely to have higher school absenteeism. Oburu et al, (2020) Attending classes hungry severely impacts children's and adolescents' abilities to learn, thrive, and realize their full potential (WHO, 2019). Improving children's diets and nutrition can have positive effects on their academic performance and behaviors at school as well as their long-term productivity as adults (FAO, 2017). On the other hand, malnutrition led to delayed entry to school, less overall schooling, and 14% lower earnings as adults (Partnership for Child Development, 2020)

Performance in Mathematics is often referred to as "student success," includes academic achievement, attainment of learning objectives, skills and competencies acquisition, satisfaction, persistence, and post-college success in the subject of mathematics (Partnership for Child Development, 2020). Cumulative Grade Point Average (CGPA) and continuous assessment are two ways to measure student academic performance/achievement, depending on the student, teacher, or institution's educational goals (WHO, 2020b). While school feeding is one of the public health interventions where meals are provided at school or take-home rations or in some cases families got food support for sending their children to school. Globally, nearly 66 million children are not fed daily at school and yet the program remains an important component of national social protection systems in both high-income and poor countries (FAO, 2017). World Food Program is actively supporting school feeding programme (SFP) labeling it as "investments in the world's poorest children". If implemented properly,

school feeding program (SFP has been suggested to improve academic performance in Mathematics (MTCs), school enrollment, and school attendance.

Earlier studies by Walter et al, (2018) had shown positive results on the utilization of school feeding programs in improving academic performance. A meta-analysis of controlled before-and-after studies found a mean improvement in mathematics test scores with a Standardized Mean Difference of 0.66 as a result of school feeding programs. In addition, a study done in Bangladesh reported that school feeding delivered as a fortified biscuit program was associated with a 15.7 percent increase in test scores, with particularly strong improvements in mathematics (WFP, 2021). Moreover, evidence from a study in the UK, Germany and Scandinavian countries also suggested that food quality affects education outcomes even for children in a rich country who are not undernourished. In a study done using a difference-in-difference approach for comparison with areas that had yet to make the change, the study found significant improvements in Mathematics (MTCs) and sciences, Joelisy et al., (2019).

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. The school feeding programme significantly had not increased learners performance. Adelman et al. (2018) pointed out that literacy scores had decreased to a sample of students who received home food than students who were received school food.

In the early 2000s, the Tanzanian government introduced the Primary Education Development Programme (PEDP) with the purpose of increasing access to education and improving the teaching and learning infrastructures. The programme stressed on free primary education. Enrollment and attendance of learners in schools was not proportionally appended to the programme (Partnership for Child Development, 2020). To support the objectives of the programme, the government introduced the school feeding programme at primary school level in the regions of food insecurity but implemnentation was marred by insufficient funding. Parents have been contributing to push their children to attend regularly in schools. School feeding programme didn't any way raise school enrollment, reduce the possibility of dropout from school and increase school attendance and performance in Mathematics Mamba et al, (2020).

School feeding programmes in primary school has been noted as the significant intervention in increasing learners' enrollment, attendance and academic performance in Tanzania.

Therefore, school Feeding Programme (SFP) is a crucial ingredient in the human's body growth and cognitive development. Children need a reliable food supply to meet the metabolic supplies of body growth and brain development Akanbi, (2018). Setting priority to school feeding programme is fundamental involvement in reducing the short- term hunger, providing learner's cognitive function by and enhancing the learning environment Lawson (2018). The school feeding programme would enable learners to increase their regular attendance in order to improve their academic performance. The study carried in Malawi had been indicated that school feeding programme had an effect on learner's enrollment and attendance. The enrollment increased up to 5% and improvement of attendance up to 36% (WFP, 1996).

The government of Uganda is currently implementing the school feeding and nutrition guidelines using an integrated sector wide approach to sustainably address malnutrition among children holistically Ministry of Education and Sports (MoES) (2017). Integrated sector wide systems connecting education agriculture, health, nutrition and social protection have been documented in Uganda (Gelli et al., 2020) as successful solutions to malnutrition among school going children and communities. These school feeding interventions must provide quantifiable returns (UWEZO, 2019). For instance, the school feeding guidelines of Uganda indicate that school meals must provide at least a third or all nutrients requirements respectively, for non-boarding or boarding school going children. However, school foods in Uganda are not uniform, affecting the nutrition and health outcomes of children, resulting in increased dropouts from schools (FAO, 2019). The un-uniform and inadequate meals served in schools are a reflection of how the current school feeding and nutrition guidelines are not fully implemented. As a result, this study documented the various school feeding programmes in Uganda, the successes and challenges experienced in implementing the programmes, in view of identifying opportunities on how to scale up implementation. The data will provide essential information necessary for improving the school feeding facilities and operations in order to supply adequate nutrients to children.

In Uganda, WFP (2022) reported that school feeding faces several setbacks, including climate change that is affecting crop yields, which in turn affects parents' in-kind food contributions; poverty in some families, which affects their ability to support the feeding of their children while at school; and a lack of a strategy and a policy on school feeding and nutrition programs in Uganda. Challenges cited by WFP include parents not embracing the school feeding role as assigned to them by the Education Act of 2008 (some because of poor attitude; others due to poverty) and inadequate infrastructure (e.g., kitchen and storage facilities). Instances cited of issues with corruption or mismanagement for the Karamoja School Feeding programs, WFP said that some mismanagement of food by a school head teacher and/or the food focal person has been reported and this under mines pupil's performance in Mathematics. The example of head teachers using food to pay cooks and teachers who are not on payroll was given. Oburu (2018)

While school feeding programmes has been instrumental (albeit often unintentionally) in improving pupil's performance in Mathematics in other private schools in conjunction with their adoptive and innovatory readiness, in Nyondo Sub County Mbale district, evidence is both confusing and conflicting. School feeding is facing several setbacks, including climate change that is affecting crop yields, which in turn affects parents' in-kind food contributions; poverty in some families, which affects their ability to support the feeding of their children while at school; and a lack of a strategy and a policy on school feeding and nutrition programs in Uganda. Sub county report (2022). Challenges cited in Sub County report include parents not embracing the school feeding role as assigned to them by the Education Act of 2008 (some because of poor attitude; others due to poverty) and inadequate infrastructure (e.g., kitchen and storage facilities). The example of head teachers using food to pay cooks and teachers who are not on payroll was given. Even as school meal programs have grown in scale, scope, and function, the data landscape on school feeding in Nyondo sub County tends to be fragmented, with inconsistent quantity and quality of information across government aided primary schools. While it is relatively easy to find information on programs implemented by schools or other international partners, information on internally supported programs (i.e., those managed by governments, either alone or with support from development partners) can be quite scarce though the latter are substantial in scale and geographic reach. Furthermore, information is not collected and published regularly, making it difficult to compare school feeding operations across different settings or discern trends over time.

However, several kinds of literature have associated with school feeding programme does not adsdress learner's performance in Mathematics (Chepkwony et al., 2019) (Taylor and Ogbogu, 2022). Additionally, there has been no comprehensive single author survey school feeding programme in Nyondo sub county and its significant relationship to pupil's performance in Mathematics. Not that the subject has suffered from any lack of interests but many historical scholars and publications particularly in Uganda and Africa have often been drawn more to the international scene than to the potentially more hazardous subject of pupil's performance in Mathematics. Very few historical nodes have been made on the subject and the resulting literature has, however, almost exclusively taken the form of edited volumes, specialized monographs and polemical contributions to debates and this is the gap this study intends to fill.

1.2 Problem statement

Despite multiple interventions being spearheaded by the Ugandan government to address feeding at schools, it continues to be a very big challenge. An estimated twelve million children in Uganda go without eating to schools because their families are unable to provide for them timely meals, with about 920,000 children un able to afford school feeding (UBOS and IYC, 2016). During the past 5 years, stunting levels for children have raised, from 22% in 2019 to 46% in 2022 (UBOS and district report, 2023). Over the last five years, the proportion of schools, who have no feeding programs increased, from 12% in 2020 to 23% in 2023. Ministry of education and sports report (2023).Government and development partners have spent billions of tax payers' money to support school feeding programmes but what has been gotten in is poor grades due to improper implementation of such programs.

Additionally, majority of previous feeding programmes studies conducted in Uganda (Ashaba et al., 2015; Nankinga et al., 2019; Madzorera et al, 2021) focused on secondary schools thus less being conducted in primary schools. Yet the primary age group is the most susceptible to poor feeding programs (Prentice et al., 2019), lack of adequate data on school going children (primary school age) and effective feeding programs can conceal the gravity of feeding programs in the group and no study has ever been conducted in Nyondo sub county of Mbale district to assess the impact of school feeding programme on pupil's performance in Mathematics thus leading to limitations and distortions in literature and this is the gap this study intends to address.

1.3 Objectives of the study

1.3.1 General Objective

The major objective of this study is to assess the impact of feeding programme at school on pupil's performance in Mathematics in government aided primary schools in Nyondo sub county, Mbale district.

1.3. 2 Specific Objectives

This study was guided by the following objectives;

I. To find out the influence of feeding programme on pupil's performance in Mathematics in government aided primary schools in Nyondo.sub county, Mbale district.
II. To assess the challenges affecting implementation of feeding programmes in government aided primary schools in Nyondo sub county, Mbale district.
III. To examine possible measures of improving feeding programmes and pupils performance in Mathematics in government aided primary schools in Nyondo sub county, Mbale district.

1.4 Research Questions

I. How do feeding programme influence pupil's performance in Mathematics in government aided primary schools in Nyondo sub county, Mbale district?
II. What are the challenges affecting implementation of feeding programmes in government aided primary schools in Nyondo sub county, Mbale district?
III. What measures can implemented to improve feeding programmes and pupils performance in Mathematics in government aided primary schools in Nyondo sub county, Mbale district?

1.5 Scope of the study

1.5.1 Content Scope

The study will assess the impact of school feeding programme on pupil's performance in Mathematics in government aided primary schools in Nyondo sub county, Mbale district. The study will specifically look at how feeding programme influence pupil's performance in Mathematics in government aided primary schools and the challenges affecting

implementation of feeding programmes in government aided primary schools in Nyondo Sub County, Mbale district. It will also examine possible measures of improving feeding programmes and pupil's performance in Mathematics in government aided primary schools in Nyondo.sub County, Mbale district.

1.5.2 Geographical Scope

The study will be conducted in the selected government aided primary schools in Nyondo Sub County Mbale district.

1.5.3 Time scope

The study will look at the period of 2019-2023. This period was considered because it is during this time that pupil's performance in Mathematics fellow considerably in Nyondo Sub County, Mbale District (Sub County report, 2023)

1.6 Significance of the study

- The study findings may inform the school administration including Parents Teachers Association on how to better organize the school feeding programmes and to ensure that every child enjoy the benefits of school feeding programmes
- Study findings may also guide all the stakeholders including; government, public primary head teachers, school feeding committee members, development partners and community members on how to ensure effective operation and management of school feeding programmes in government aided primary schools.
- The study findings may contribute to the existing body of knowledge on the effect socio-cultural factors on household income.

1.7 Conceptual Frame work

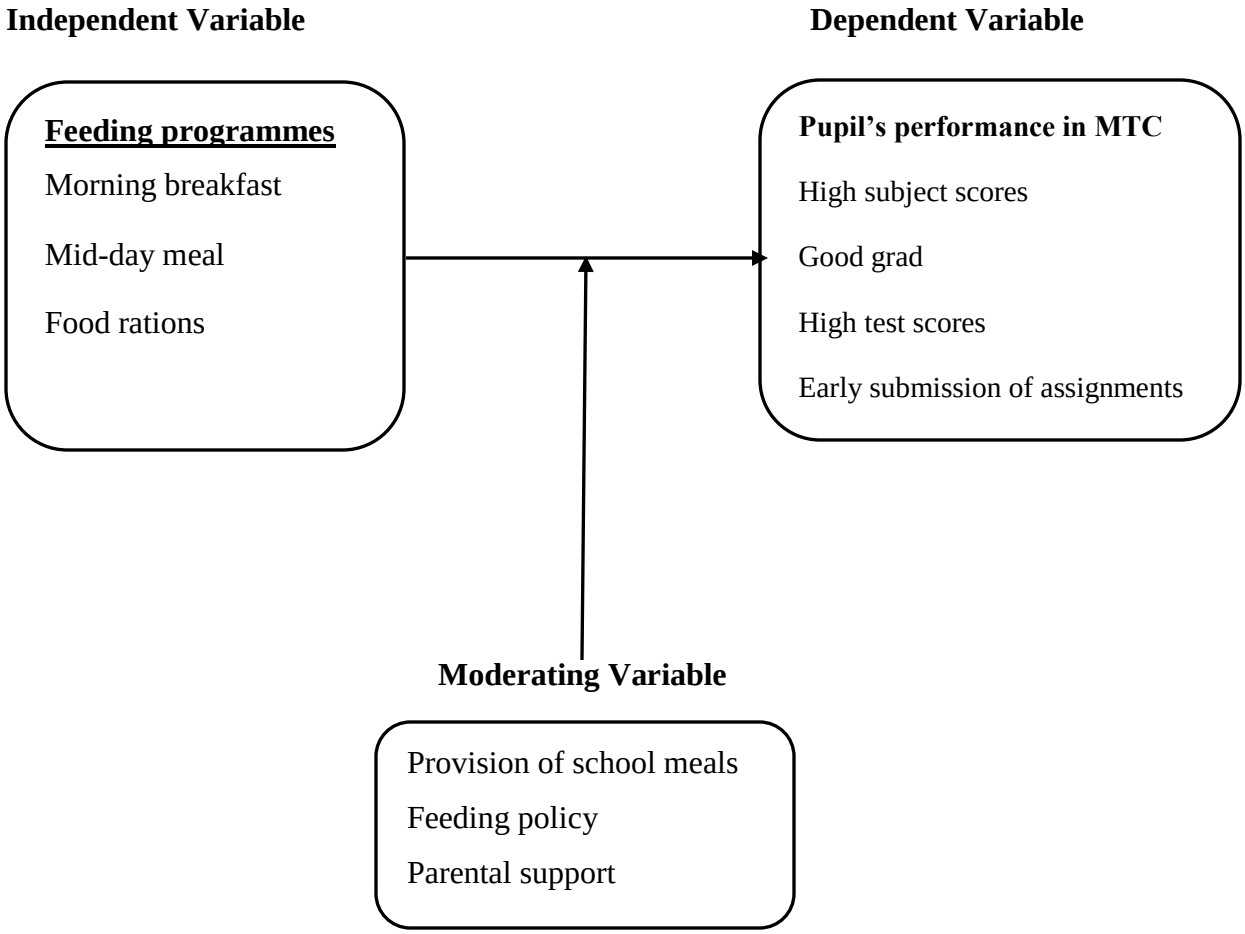

Figure 1.1 Conceptual Framework showing relationship between variables

Source: Miles &Huberman (1994, p.18) and modified by the researcher 2022

Form the above conceptual framework, feeding programme as an independent variable (iv) involves morning breakfast, midday meal and food rations. The dependent variable in this case is pupil's performance in Mathematics with parameters of high subject scores, good grad, high test scores and early submission of assignments. The framework assumes that when feeding programme is well implemented, it is likely to transform pupil's performance in Mathematics. Nevertheless, this may not be automatic as other factors may come into play. These may include government policies and community sensitization. These factors have been dully coined as intervening variables by the study and are being isolated to avoid making wrong conclusions.

1.8 Operational definitions

a) School Feeding: Is defined as provision of food on-site or to take home, which aims to increase school enrolment, attendance and retention and exist as a social safety net for households with low income (Aliyar et al. 2015).

b) Pupil's performance in Mathematics: Refers to the level of achievement attainment by learners in the subject of MTCs (Mande et al., 2020)

c) Government aided primary schools: These are learning institution run and supported by government (MoES, 2021)

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Introduction

This chapter presents the review of the past literature related to area under investigation. The review has been conducted according to objectives of the research study. The will review literature from both primary and secondary sources and the review has been in accordance with the study objective.

2.2 Conceptualization of School Feeding

School feeding has been widely conceptualized by a number of scholars. Aliyar et al. (2015) define school feeding as provision of food on-site or to take home, which aims to increase school enrolment, attendance and retention. Similarly, the World Bank (2017), defines school feeding as" targeted social safety nets that provide both educational and health benefits to the most vulnerable children, thereby increasing enrolment rates, reducing absenteeism, and improving food security at the household level. Wangi & Fawzi (2020) define school feeding in line with the above scholars, as an intervention that regularly provides nutritious foods to children and adolescents attending school. Besides the description of school feeding by various scholars, there are two main modalities of school feeding and these include: in- school feeding, where children are fed in school; and take- home rations, where families are given food if their children attend school (Bundy et al., 2019).

The World Health Organization (2022), shows that children who do not have access to adequate nutrition may experience under nutrition associated with 45% deaths of children under 5 years of age annually. Additionally, School feeding programmes have the potential to alleviate short term hunger, increase concentration, and learning capabilities to those children who have access to SFP (World Bank, 2021). Therefore, school feeding programs are critical for not just the well-being of children but also increase school attendance, cognition, and education achievement (Bundy et al., 2019).

2.2 How feeding programme influence pupil's performance in Mathematics

Contrary to conventional wisdom, nutritional status does not improve with age. The extra demands on school-age children (to perform chores, for example, or walk long distances to school) create a need for energy that is much greater than that of younger children. Moreover, deficiencies of critical nutrients such as iodine, vitamin A and iron among the school aged are pervasive (Partnership for Child Development, 2018). It is estimated that 60 million school-age children suffer from iodine deficiency disorders and that another 85 million are at risk for acute respiratory disease and other infections because they are deficient in vitamin A. The number suffering from iron deficiency anemia is greater still – 210 million (Jamison et al., 2019).

Poor feeding and health among school children contributes to inefficiency of the educational system performance and lowers subject score in Mathematics by pupils. Children with diminished cognitive abilities and sensory impairments naturally perform less well in Mathematics than children who are not impaired; they also enroll in school at a later age, if at all, and finish fewer years of schooling. The irregular school attendance of malnourished and unhealthy children is one of the key factors in poor performance. Even temporary hunger, common in children who are not fed before going to school, can have an adverse effect on learning. Children who are hungry have more difficulty concentrating and performing complex mathematical tasks, even if otherwise well nourished. Research and program experience shows that improving nutrition and health can lead to better performance and better grades in Mathematics

A United States study showed the benefits of providing breakfast to disadvantaged primary school students improved their performance in Mathematics significantly. Before the start of a school breakfast program, eligible (low-income) children scored significantly lower on achievement testes than those not eligible. Once in the program, however, the test scores of the children participating in the program improved more than the scores of non-participants. The Mathematics attendance of participating children also improved (Meyers, 2017).

In Peru school feeding of boys both malnourished and well-nourished were studied and compared to assess the effects of breakfast on cognitive performance. Each boy served as his own control in a manner comparable to the Jamaica study cited above. Breakfast was a nutritionally fortified beverage and a baked grain product fortified with iron, similar to the

meal provided in the government-sponsored school breakfast program. A series of cognitive tests in Mathematics were administered in an experimental setting. Speed in performing a short-term memory test and discrimination of geometric patterns were improved under the breakfast condition in both groups. The effect was more pronounced in the nutritionally disadvantaged children (Pollitt, Jacoby and Cueto, 2018)

School feeding programmes can have a positive effect on rates of enrollment and attendance on Mathematics classes. A recent evaluation of an on-going school feeding program in Burkina Faso found that school canteens were associated with increased school enrollment, regular attendance, consistently lower repeater rates, lower dropout rates in disadvantaged provinces, and higher success rates on national exams, especially among girls (Moore, 2020).

A small pilot school feeding program in Malawi was evaluated for its effect on enrollment and attendance. Over a three month period there was a 5% increase in enrollment and up to 36% improvement in performance in Mathematics compared to control schools over the same period (WFP, 2018)

Fortification of school rations is the most efficient and effective route to alleviating micronutrient deficiencies in schoolchildren where School feeding programmes are in operation. In South Africa, soup fortified with iron and vitamin C was provided to 350 schools in an area of low socio-economic development on the Cape Peninsula. Results showed that initially 12% of six to seven year old and 20% of 8 to 12 year old children had low weight-for-age, and 49% and 31% had low serum ferritin (a measure of iron deficiency) respectively. At follow-up, after 15 weeks of intervention, iron status improved significantly; falling from 49% to 28% in 6 to 7 year old children and 31% to 21% in 8 to 12 year old children (Kruger and Badenhorst, 2019). A relatively new breakfast program in Peru, which includes an iron-fortified ration, was evaluated for its short-term impact on diet, amongst other factors with better performance in Mathematics. The program significantly increased dietary intakes of energy by 25%, protein by 28% and iron by 46% (Jacoby and Pollitt, 2017).

A case-control study of the impact of providing home-fortified cookies to school children in Chile found higher concentrations of hemoglobin among children receiving the fortified cookies through the school lunch program. The impact was most significant among children

with greater demands for iron such as post-menarchial girls and pubertal boys with improved understanding of Mathematics subject matter (Walter and Hertrampf et al, 2016).

2.3 Challenges affecting implementation of school feeding programmes Poverty

In Uganda, parents' economic status was a key factor in the implementation of school feeding programs. This was mainly because most schemes in developing countries were supported by parents. For instance, a study conducted in government public schools of Northern Uganda found that 50% of parents were living in poverty life to the extent that only about 40% of the parents were able to contribute to school feeding programmes and the remaining 60% were unable to pay for school feeding which constrained the implementation of the program (Sanya, 2015). Similarly, the Ugandan Ministry of Education (2015) pointed out that 16% of children in public schools in Addis Ababa stayed hungry the whole day at school due to poverty that limited their parents' capacity to provide packed food for their children and this affected their performance in Mathematics.

Likewise, parents who were extremely poor were unable to pay for school meals of their children as well as supporting the School feeding programmes implementation (Elizabeth, 2017). Therefore, schools found it a great burden on their budget when a big number of students were denied food because of their parents' low economic status (Aburaad, 2020). In addition, poverty made it difficult for parents to make financial contributions to keep the school lunch program going on smoothly (Kirui, 2018). Therefore, inadequate finance and in kind support for the school meals programs by parents was reported to be a challenge to School feeding programmes implementation leading to reduced performance in Mathematics (Omondi, 2018).

Insufficient funding

A study conducted in China found that insufficient funding was the major challenge to School feeding programmes implementation. Insufficient funding in China had resulted into lack of essential nutrients in the school meals thus leading to ineffective School feeding programmes implementation (Wang et al., 2020). Another study in Nigeria found that insufficient funding had hindered the provision of school meals to school children thus hindering their performance in Mathematics (Taylor & Ogbogu, 2016). Similarly, to the study conducted in Kenya that

identified lack of sustainable funding for the maintenance and expansion of School feeding to be the most challenge to the School feeding programmes implementation.

Low education status of parents

A number of studies had shown that educated parents had higher probability of being knowledgeable about the importance of feeding children while at school, feeding practice and health seeking behaviour than their counter parts (Tumusiime et al., 2020). Therefore, educated parents were more willing to pay for school meals of their children than the uneducated whose children have higher chances of missing out lunch and this constrains the school feeding programmes implementation because majority of parents were uneducated thus hindering their performance in Mathematics

Negative perceptions and attitudes of parents, communities and children

According to a study carried out by Elizabeth (2017), showed that parents are non-cooperative and were reluctant in the contribution of finances needed for promotion of School feeding programmes due to their poor attitudes towards School feeding programmes. Similarly, a study conducted in India, showed that the community perceived the Mid-Day Meal Scheme (MDMS) as an evil educational design to distract poor people from education (Chauhan, 2015). Another study conducted by Colombo et al. (2020), showed that children negatively reacted to the new menu together with their general dislike of the school meals which were considered to be a barrier for successful implementation of sustainable meals as well as the program. Other studies showed that parents perceived school meals to be unhealthy and their participation rate was low which constrained the School feeding programmes implementation and this affected their performance in Mathematics (Martinelli et al., 2022).

However, some studies in Uganda showed that not all had negative attitudes and perceptions towards School feeding programs. For instance, Sanya (2019), showed that communities had positive perceptions and attitudes towards school feeding programs and were willing to contribute and participate in the School feeding programmes implementation. Therefore, students who came from poor families perceived School feeding as a driving force that helped them to attend to school, as a motivation to stay at school during class hours and understand their learning.

Shortage of water and storage facilities

A study conducted in Ethiopia showed that shortages of water supply in the district, lack of grain storage facilities in school and inadequacy of cooking equipment and facilities like kitchen, storage area and dining area had constrained the smooth running of School feeding programmes and thus hindering their performance in Mathematics (Zenebe et al., 2018). Similarly, Sanya (2018), contended that storage facilities at school had hindered the smooth running of school feeding programmes. For example, all food that was contributed by either parents or Government was stored in one store together with the construction materials like cement.

Absence of proper institutional functioning

The literature reviewed showed that the absence of proper institutional functioning and stakeholder involvement challenged the effectiveness and stability of School feeding programmes implementation (Acheampong, 2022). Other studies carried out by Buhl (2017), showed that weak institutional arrangements and lack of stable infrastructure had hindered the smooth running of School feeding programmes thus contributing to poor performance in Mathematics.

2.4 Measures of improving feeding programmes and pupils performance in Mathematics

Promote community participation

Schools that depend on the community to organize and implement School feeding programmes offer certain advantages. These advantages include: increasing the contact, and hence communication, between parents and teachers, officials and others; giving parents the opportunity to become more aware of what goes on at schools; and serving to raise the value of education/the school for parents and the whole community. For example, school canteens are viewed as an important feature of education policy in Morocco. Since 1978 WFP and the government have supported school feeding and improve pupil performance in Mathematics (WFP, 2022).

School feeding programs should have strong government and community support and are viewed as part of a necessary package of inputs for improving education. The feeding program is credited with helping to maintain high enrollment and Mathematics class attendance and

encouraging community participation in education. School cooperatives support the school canteens and parents associations assist with the transportation of food aid to pupils (WFP, 2020).

Define the school feeding program policy and objectives

Although many School feeding programmes have been conceived out of ideological, political and economic pressures, the prejudices of international or national personnel, or even commercial or other non-objective influences, the first step toward an effective program is to build programs on sound and transparent objectives (MoES, 2021). Since School feeding programmes are highly visible and can offer a significant income transfer to families they will always be inherently political. Policy development and setting the objectives of school feeding provides the framework for implementing all the other recommendations aimed at improving the contribution that a SFP can make to education and better health nutrition and performance in Mathematics (Mande et al., 2020). The process of policy development calls for compiling information on: what 'food-related' and education-related problems exist in the school age population which could be addressed by school feeding; where, geographically, the problems are located; and which school feeding options are available, or could be developed, for addressing these problems.

Analyzing the nutrition and health situation of school-age children should become a way to engage governments in the problems of this age group. The appropriate method of collecting information will vary by needs, circumstances and resources. Techniques include collecting routine statistics, making special surveys, conducting interviews, and holding focus group discussions with parents, teachers, students and health workers. The idea is to generate a rapid assessment of the situation as opposed to implementing a protracted, expensive and bureaucratically complex study. (Partnership for Child Development, 2018)

Improve targeting and coverage

The goal of targeting is to identify and reach families and communities that lack the resources to adequately provide for their school-age children. If the SFP is intended to motivate families to enroll children in school and to ensure more regular attendance and better performance in Mathematics, the target group is families whose children are not in school or who are

frequently absent. Mechanisms and criteria for SFP targeting are similar in many cases to those used for other social programs: economic, geographic, and nutrition status.

In addition, specific education criteria such as overall enrollment, female enrollment, absenteeism, or student performance in Mathematics would also be included under some circumstances. In general it appears that SFP targeting is best done at the level of the school, or based on some other criteria e.g., location - rather than on individual selection (WHO, 2021). The coverage of School feeding programmes will depend on how many resources are available for programs and on the size of the problem that the program is intended to address

Analyze the cost and financing options of school feeding programmes

By virtue of the fact that they include food, are expensive. Beyond the costs of the food itself, the costs associated with food management, logistics and control can represent a significant financial burden for governments. On-site feeding is costly as it requires daily preparation and delivery of food, but is also a model that can invite, or require, community participations (miwtwi et al., 2018). Programs that make good use of the education infrastructure for delivery and logistics will be most efficient. The very fact that School feeding programmes do not require, for the most part, additional infrastructure means that they can be less costly than other types of feeding programs which distribute benefits to groups that are not in one location.

Programs that finance expensive kitchen equipment and supplies or build new infrastructure/canteens, however, will significantly raise the costs and lower the relative cost-effectiveness of programs (Ojangole et al., 2019). Finding ways to minimize implementation problems, particularly food losses, either to spoilage, to the black market or leakage, will help to ensure the financial feasibility of programs. Some School feeding programmes are intentionally designed as an income-transfer for families, especially those that are trying to help attract girls to schools; the benefit received by families from these programs must therefore surpass the costs of having their daughters away from home attending school.

Determine optimal rations and timing of meals

The ‘best ration’ and when to deliver it depends on the program’s objective including improving performance in Mathematics. School meals provided early in the school day to alleviate hunger before or while classes are in session should help to improve attention,

concentration, and achievement among children. Historically, and even now, political and social objectives dominate in school feeding programming (WHO, 2016, NEPADS, 2020). School meals were viewed, and in many cases still are, as a means for a school child to receive a large meal in the middle of the day, which typically coincides with local dietary practices. These programs served, and continue to serve, not only as nutrition programs, but perhaps more as social welfare programs that provide a substantial economic benefit to the family since the child will not eat at mid-day from the family pot. Nonetheless, the nutritional quality and quantity of a ration should always be assessed as well as the effects of the timing of ration delivery.

Other factors such as local food habits, logistical considerations, food availability, and cost will also influence the selection of the ration. General ration guidelines that can be applied almost universally include school snack or meal usually provides from one-third to one-half of the recommended daily allowance for energy and protein for the school-age group targeted by the program (Nuwagaba et al., 2019). A substantial ration is recommended to ensure overcompensating in order that parents don't withdraw more food at home than the child receives at school. Programs which include older children, particularly adolescents, in the target group will require larger rations to meet the increased nutritional needs during this period

Simplify program implementation

On-site prepared meals, pre-prepared meals and food in bulk or coupons are the primary school feeding program models. Each model is associated with a different set of issues related to program implementation. In many cases the current emphasis on the timing of meals - providing the school meal early in the day to maximize the impact of the program on educational objectives- involves a significant change from current practice (WFP, 2017). Furthermore, given the conditions for meal preparation in many developing countries - e.g., the need to utilize volunteers, long distances to fetch water and fuel for cooking, slow cooking facilities – the successful preparation and provision of meals to children early in the day is not easy (Onyango et al., 2019). New program approaches have recently been developed and tested to overcome some of the technical and logistical obstacles associated with School feeding programmes that countries might consider in developing new and modifying on-going

programs: Use of snack foods. Providing a snack as opposed to what may be a more traditional school meal (school lunch) will significantly cut the preparation time.

In Indonesia, for example, a new program will provide from 10 to 15 US cents per ration for the local production of a snack food with 300 kcal and 5 grams of protein. The intent of this program is specifically to avoid industrially produced snack foods, since another objective is to increase local food production, however, the emphasis is equally on the delivery of an appropriately-timed snack. The basic foods to be used are tubers (cassava sweet potato, taro), cereals (rice, corn), fruits, and vegetables. Snack foods also avoid the problem of substitution of the school meal for one of the family meals; this is preferable from a nutritional perspective since the school meal will be additional to the normal diet and help to improve pupil's performance in Mathematics (Bappenas, 2019)

Ensure useful monitoring of processes and evaluation of outcomes

The purpose of program monitoring is to refine and optimize the approach to delivering the SFP to the beneficiaries. The monitoring system is not intended to assess the impact of a program, but to assess how consistently a program is operated relative to its design and performance of pupils in Mathematics. The intention is to gather information that will help program administrators and participants to assess program operation (MoES, 2018). Such monitoring would ideally lead to the identification of bottlenecks in program operation and to suggestions of areas for improvement. It would inform program implementers, in particular, on the 'nuts and bolts' of program operation, such as how many children are reached and where and what level of inputs is being delivered: number of meals served, calories delivered, and micronutrients received.

The evaluation of a SFP entails looking at the impact of the program on some aspect of children's lives, for example, nutrition status, learning or school performance. The purpose of evaluating an on-going program is to explore what the effects of the program have been, to review how things have changed since the program has been in operation and to determine if the program has made a difference (Moody et al., 2018). Program evaluation is intended to contribute to informed decisions that could lead to the continuation of the program in its current form, discontinuation of the program or to changes/improvements in the design. The indicators or measures of program performance to use in program evaluation will vary in each

particular situation; availability of data varied with the capacity of local personnel and institutions. The expected impact of a particular program - the purpose of a SFP - will also vary; for example, those that are aimed at improving gender issues versus those that emphasize alleviation of short-term hunger in all children.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

In order to achieve the desired outcomes of a non-biased study report, this chapter presents the methods that the researcher was employed while conducting the study. It shows the research design, study population, sample size and selection, sampling techniques and procedures, data collection methods and techniques, validity and reliability of instruments, procedure of data collection, data analysis and ethical considerations.

3.1 Research Design

The study adopt a case study design with the help of both quantitative and qualitative research approaches. Etyang(2018) Descriptive research provides a comprehensive picture of the characteristics and behaviors of a particular population or phenomenon, allowing researchers to gain a deeper understanding of the topic. Using descriptive research design helped to provide a comprehensive and accurate picture of the population or phenomenon being studied and described the relationships, patterns, and trends that exist within the data.

3.2 Study Population

The study population was drawn from government aided primary schools in Nyondo Sub County, Mbale district and data was collected from Head teachers, teachers and local leaders. The population consisted of 85 residents of the Sub County, 05 teachers, and 10 head teachers totaling to 100 because this population was enough to give information about the entire sub county and it was also affordable for the researcher in terms of printing questionnaires among others. Population specification is a requirement in the documentation of both qualitative and quantitative research and essential at arriving at valid and reliable findings Asiamah, et al, (2019).

Teachers were chosen to participate in this study because they were directly involved in day to day teaching-learning activities and as such, they had required information. Additionally, head teachers were included in the study because they were responsible for implementing of educational policy guidelines including school feeding programmes in their school. Residents

were chosen to participate in this study because they are the people who send children to these schools for studies thus they had enoughs information about them.

3.3 Sample size

The total population (N) is 100 people and therefore the sample population was 80 respondents, that is to say; 69 residents, 05 local leaders and 6 head teachers from each of the primary schools using Krejcie and Morgan (1970) methods of determining sample size from the population

Table 3.1 Summary of the Sample Size and Sampling Technique

Category	Target population	Sample size	Sampling technique
Residents	85	69	Simple random sampling
Teachers	05	05	Purposive sampling
Head teachers	10	06	Purposive sampling
Total	**100**	**80**	

Source: Primary data, 2024

3.5 Research Instruments

The researcher will use both questionnaires and interview.

3.5.1 QuestionnaireSurvey

The researcher used questionnaire survey data collection method. The questionnaire survey which comprised of closed ended questions which will be answered by teachers. This method allows the researcher to cover the respondents rapidly and cheaply (Bordens & Abott, 2014). The researcher will use self-administered questionnaire as a research tool to collect data from 69 residents. The questionnaire consisted of an introductory note. Section A for respondents' demographic information, Section B, C and D had questions on study variables. The researcher got a list of 69 residents identified through probability sampling to whom the questionnaires will be administered.

According to Fisher (2004), a questionnaire was used because it is easy to administer, not so expensive, and helped to collect unbiased data. The nature of the questions was in form of structured and close ended questions where by a 5 Lakers scale of measurement was on close

ended questions based on a scale of strongly agree (5), agree (4), unsure (3), disagree (2), strongly disagree (1). Questionnaires were used because they allow respondents to provide firsthand information which is free of bias.

Table 3: 2 Likert Scale, Coding, and Interpretation

Scale	Coding	Mean	Interpretation
Strongly agree	5	4.20-5.00	Very high
Agree	4	3.40-4.19	High
Unsure	3	2.60-3.39	Moderate
Disagree	2	1.80-2.59	Low
Strongly disagree	1	1.00-1.79	Very low

Source: Primary Data 2024

3.5.2 Interviews

Data was collected through interviews with the help of an interview guide. An interview guide is a research instrument that contains a set of questions on defined issues under study that are put to respondents on face to face basis (Saunders, et al, 2019). An interview guide collects data that supports the researcher through directing an interview process towards the objectives and issues regarding the study (Etyang, 2018). The interview guide consisted of open-ended questions. The interview guide helped the researcher to assess whether all questions had been asked or not. Interviews were administered to Head teachers and teachers because this category of study population had more knowledge that coulds not be fully captured using questionnaires.

3.6 Data quality control tools

3.6.1 Validity of Instrument

The validity of an instrument was established using the content it entails. The researcher in consultation with his supervisor conducted a first session in which critical assessment of each item was rated for relevancy. Adjustments on the questions were made until validity was achieved. Content validity was established through expert judgement using content validity indexes

3.7 Reliability of Instrument

In the case of reliability, the Cronbach Alpha coefficient method of internal consistency was used to calculate the reliability co-efficient of the questionnaire.

3.7 Data collection procedure

The researcher got a letter from the department of education to allow him for data collection. Thereafter, the researcher sent consent letters to the responders requesting them to participate in the study. Raw data was then compared and coded before data analysis was done. Thereafter, the researcher wrote a report that was submitted to the department for examination.

3.8 Data Processing and Analysis

3.8.1 Quantitative data analysis

Any data that is presented in numerical form like statistics, percentages among others are referred to as Quantitative data. Quantitative data got from questionnaires was computed into frequencies and percentages. The initial step in preparing this data is coding. This involved allotting numbers to the respondents' responses in order that they can be fed into a database (Sekaran & Bougie, 2016). Responses were fed into a data base after they were coded. Raw data was entered using the SPSS (statistical package for social sciences) Data Editor. Data was presented using different methods such as simple frequency tables which will ultimately help to measure the impact of feeding programmes on pupil's performance in Mathematics. This was because data presentation required clear portrayal of the findings presented, and the listed method above clearly fulfilled that purpose.

3.8.2 Qualitative data analysis

On the other hand, qualitative data gathered from open-ended questions in the interview guides were arranged into themes and presented in narrative format. A style called content analysis was used to test the validity and authenticity. Data in form of words is Qualitative data. The initial step in analysing this data is cutting it down through coding and categorization. Data reduction is the procedure of choosing, ciphering and placing data into categories. Coding is the analytic procedure by which the qualitative data that the researcher had gathered was cut

down (Sekaran & Bougie, 2016). The intention of ciphering is to help the researcher to make conclusions that are meaningful on the data. Codes are labels assigned to units of text. These are then placed in groups made categories. Categorisation is the procedure of organising, arranging and classifying coding units. Codes and categories can be formulated both inductively and deductively. Data display comprised of displaying data that had been reduced in an organised, digested way. Drawing of conclusions was the last activity of analysis in the process of analysing data qualitatively.

3.9 Ethical considerations

The following ethical considerations were looked at by the researcher during the research.

3.9.1 Informed consent and voluntary participation

The researcher got consent from the respondents to involve in the research not just forcing them to participate. Informed consent was the basis of ethical research (Denzin & Lincoln, 2016). The people participating in the study were made aware of what the study was about, it's purpose, usage of the data, and any consequences that could arise from it (Fleming, 2018). The researcher furnished the respondents with information on the reason for the research and the procedure of collecting data. The participants were allowed enough time to ask questions and have any concerns addressed. The respondents exercised free will in deciding whether to participate in research activity or not. All people to be involved in the research were given written informed acceptance.

3.9.2 Confidentiality

Confidentiality is looked at by Walford (2019) to mean information that is private and is not to be divulged to others. Whatever has been said in confidence will remain confidential. The researcher assured the respondents that information offered by them was not to be passed on to another party (third party) without consent of the respondents. Their identity and response was made confidential and anonymized through the use of numbers or through pseudonyms.

3.9.3 Anonymity

Anonymity, termed more appropriately as pseudonymity, is defined by Wiles (2013) as a major means used by the researcher to safeguard the confidentiality of responders by using

pseudonyms. Anonymisation is one of the kinds of confidentiality, comprising of identity concealment of research responders (Saunders, Kitzinger, & Kitzinger, 2015). The researcher ensured that all respondents were anonymous implying that their identities were not known and not silent in the study. Withholding the identity of respondents is a guarantee that their statements are authentic (Taylor, 2019).

3.9.4 Plagiarism:

The researcher ensured that all written work was original and without any borrowed and manipulated texts, results or even expressions. The researcher made sure that, all words and publications of the author are given their due acknowledgement (Mugenda & Mugenda, 2016). The researcher subjected the written works to a software and made sure it was 15% or less compliant of plagiarism material.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter presents analysis and interpretation of study findings in line with the topic under study.

4.1. Demographic characteristics of respondents

Table 4.1: Showing Distribution of respondents by their selected demographic characteristics

Gender	**Number of participants**	**Percentage (%)**
Female	40	34%
Male	60	66
Total	**80**	**100%**
Age Group	**Number of participants**	**Percentage (%)**
18-25	30	30%
26-32	20	20%
33 and above	50	50%
Total	**80**	**100%**
Education level	**Number of participants**	**Percentage (%)**
Primary	12	12%
Secondary	20	20%
Diploma	40	40%
Bachelors	20	20%
Masters	8	8%
Total	**80**	**100%**
Marital status	**Number of participants**	**Percentage (%)**
Married	75	88%
Un married	25	12%
Total	**80**	**100%**

Source: Primary Data, 2024

Age of participants

The general and demographic information indicated that respondents belonged to different age groups. The difference in the age was an important component of selecting respondents for the study, which helped in obtaining different information and also showed maturity in the collected information. In this regard, the selected and interviewed respondents were from the age bracket of 18-25, 26-32 and 33 above. And findings here show that majority of the respondents were in the age bracket 33 and above (50%), followed by 18-25 (30%) and lastly 26-32 (20%) Here, the purpose was to find out the average age of respondents in the study. The above findings indicated that respondent's added value to the responses given that mature respondents are more trustable as they take time to think about a particular aspect of life before giving reliable responses.

Gender of participants

According to the findings of the study, 34% of the respondents were females and 66% of the respondents were males. These findings indicated that the male respondents were the majority hence most of the data was collected from male respondents. Though males were more than females, the findings of the study show that both genders participated in the study.

Educational level of participants

Data showed that majority of the respondents had acquired diplomas (40%) followed by those who had secondary and bachelors all with a percentage of 20%, 12% of the respondents had acquired primary and lastly 8% of the respondents had a qualification of masters. This meant that they easily understood questions in the interview guide and questionnaire and their views were well informed. Uma (2017) asserted that it is important in social investigation research to involve people that have attained an acceptable level of literacy and numeracy in order to be in position to understand and interpret contents.

For purposes of anonymity, the following codes were used:

Table 4.2: Showing Anonymity Codes

Residents RRR1
Teachers TTT1
Head teachers HHT1

4.2: Objective one: Influence of feeding programme on pupil's performance in Mathematics

Table 4.3 Descriptive Statistics

	N	1 (SD)	2 (D)	3 (U)	4 (A)	5 (SA)	Mean	Std. D	Mean comments
Iodine deficiency disorders affect understanding of subject matters	80	5 (3.6%)	5 (3.6%)	10 (15.8%)	40 (50%)	20 (27%)	3.82	1.022	***High***
Poor nutrition and health among schoolchildren contributes to the inefficiency of the educational system and lower subject score in mathematics by pupils	80	0 (0%)	2 (3.5%)	3 (7%)	60 (63.4%)	15 (26.1%)	3.96	0.815	***High***
Providing breakfast to disadvantaged primary school students improved their performance ion mathematics significantly	80	5 (5%)	5 (5%)	0 (0%)	50 (67.0%)	20 (23%)	4.14	0.600	***Very High***
Speed in performing a short-term memory test and geometric patterns improves under the breakfast and lunch condition	80	10 (12.5%)	5 (4%)	5 (4%)	48 (51.1%)	32 (28.4%)	4.01	0.905	***High***
School feeding programmes can have a positive effect on rates of enrollment and attendance on mathematics classes.	80	0 (0%)	0 (0%)	18 (10%)	64 (70.3%)	22 (18.2%)	3.93	0.745	***High***
Valid N (list wise)	80								
Overall Mean & Standard Deviation							**4.00**	**0.824**	***High***

MEAN INTERPRETATION KEY ***0.00-1.00 Very Low, 1.10-2.00 Low, 2.10-3.00 Moderate, 3.10-4.00 High, 4.10-5.00 Very High***

The first objective of the study was to find the Influence of feeding programme on pupil's performance in Mathematics and respondents were asked to reveal whether: Iodine deficiency disorders affect understanding of subject matters, Poor nutrition and health among school children contributes to the inefficiency of the educational system and lower subject score in Mathematics by pupils, providing breakfast to disadvantaged primary school students improved their performance ion mathematics significantly, speed in performing a short-term memory test and geometric patterns improves under the breakfast and lunch condition and lastly whether school feeding programmes can have a positive effect on rates of enrollment and attendance on mathematics classes.

Respondents were asked to reveal if Iodine deficiency disorders affect understanding of subject matters and 50% of the respondents agreed, 15.8% of the respondents were undecided, 3.6% of the respondents disagreed and lastly 3.6% of the respondents strongly disagreed. A high mean of 3.82 indicated that Iodine deficiency disorders affect understanding of subject matters. This study finding was in line with a study conducted by Odiambo et al, (2020) from local areas of Kenya and noted that Iodine deficiency disorders affect understanding of subject matters due to poor school feeding programmes and this in return affect mathematics performance.

Responses on if poor nutrition and health among schoolchildren contributes to the inefficiency of the educational system and lower subject score in Mathematics by pupils showed that 26.1% of the respondents strongly agreed, 63.4% of the respondents agreed, 7% of the respondents were undecided, 3.5% of the respondents disagreed, and lastly none of the respondents strongly disagreed. A high mean of 3.96 indicated that poor nutrition and health among schoolchildren contributes to the inefficiency of the educational system and lower subject score in Mathematics by pupils. This finding was in line with a study conducted by Tomkins 2020 who noted that poor nutrition and health among school children contributes towards poor grades.

Responses on if providing breakfast to disadvantaged primary school students improved their performance in mathematics significantly showed that 23% of the respondents strongly agreed, 67% of the respondents agreed, none of the respondents were un decided, 5% of the respondents disagreed and strongly disagreed. A very high mean of 4.01 indicated that

providing breakfast to disadvantaged primary school students improved their performance ion mathematics significantly. This finding was similar to a study conducted by WHO (2019) from South Sudan which noted that through provision of breakfast by different NGOS, mathematics performance had significantly improved.

Responses on if speed in performing a short-term memory test and geometric patterns improves under the breakfast and lunch condition, 28.4% of the respondents strongly agreed, 51.1% of the respondents agreed, 4% of the respondents were undecided and disagreed, and lastly 12.5% of the respondents strongly disagreed. A high mean of 4.01 indicated that speed in performing a short-term memory test and geometric patterns improves under the breakfast and lunch condition. This study finding was in line with a study conducted by Odinga (2022) from Kenya who conducted a study on provision of timely lunch and breakfast on students' performance and noted that children who eat on time were relatively performing better in class. In the researchers view, provision of lunch and breakfast on time through feeding programmes can have an impact on students' performance in mathematics.

Responses on if school feeding programmes can have a positive effect on rates of enrollment and attendance on mathematics classes showed that , 70.3% of the respondents agreed, 10% of the respondents were undecided, none of the respondents disagreed nor strongly disagreed. A high mean of 3.93 indicated that school feeding programmes can have a positive effect on rates of enrollment and attendance on mathematics classes. This finding was in line with a study conducted by Anthony et al, (2019) who conducted a study in Namibia and noted that the school feeding programmes had an effect on enrollment and attendance which in return improved mathematics performance.

A high overall mean of 4.00 indicated that feeding programmes have a number of influences on pupil's performance in Mathematic.

4.3. Objective two: Challenges affecting implementation of school feeding programmes

Table 4.4: Descriptive Statistics

	N	1 (SD	2 (D)	3 (U)	4 (A)	5 (SA)	Mean	Std.D	Mean Comments
poverty	80	1 (2%)	0 (0%)	4 (6%)	25 (30%)	50 (62%)	4.46	1.072	***Very High***
Insufficient funding	80	0 (0%)	5 (3%)	10 (7%)	45 (54%)	20 (36%)	4.22	0.668	***Very High***
Low educational status of parents	80	0 (0%)	0 (0%)	5 (10.2%)	55 (67.0%)	20 (22.7%)	4.14	0.600	***Very High***
Negative perceptions and attitudes of parents, communities and children	80	2 (1%)	3 (3%)	0 (0%)	25 (38%)	50 (58%)	4.50	0.684	***Very High***
Shortage of water and facilities	80	0 (0%)	0 (0%)	0 (0%)	25 (37%)	55 (63%)	4.58	0.509	***Very High***
Valid N (list wise)	80								
Overall Mean & Standard Deviation							**4.34**	**0.732**	***Very High***

MEAN INTERPRETATION KEY 0.00-1.00 Very Low, 1.10-2.00 Low, 2.10-3.00 Moderate, 3.10-4.00 High, 4.10-5.00 Very High

The second objective of the study was about challenges affecting implementation of school feeding programmes: respondents were asked to reveal whether poverty, insufficient funding, low educational status of parents, negative perceptions and attitudes of parents, communities and children and lastly shortage of water and facilities area challenges affecting implementation of school feeding programmes: responses in line with this objective are shown below:

Respondents were asked to reveal if poverty is a big challenge facing feeding programs and 62% of the respondents strongly agreed with this item, 30% agreed, 6% were undecided, none of the respondents disagreed and lastly 2% of the respondents strongly disagreed. A very high mean of 4.46 indicated that poverty greatly affects feeding programs. Even respondents RRR1 and TTT1 were in agreement with this. This study finding was in line with a study conducted by Galloway (2022) who conducted a research study in Kenya on poverty and students grades and noted that due to high levels of poverty, many parents can't afford school feeding programs and this in return negatively affects performance of mathematics which needs high concentration of students not to miss a point.

Respondents were also asked to reveal if, insufficient funding is another challenge facing feeding program implementation in schools and 36% of the respondents strongly agreed, 54% of the respondents agreed, 7% of the respondents were undecided and lastly none of the respondents strongly disagreed. A very high mean of 4.22 suggested that feeding programmes face a challenge of insufficient funding. This finding was similar to that of Opio, (2021) who conducted a research study among UPE primary schools which were highly related with poor performance in mathematics and noted that it was as a result of insufficient funding from both Government and parents that these programmes would not be implemented.

Reponses on if low educational status of parents is another challenge affecting implementation of school feeding programmes showed that 22.7% of the respondents strongly agreed, 67% of the respondents agreed, none of the respondents were undecided, 3% of the respondents disagreed, and lastly 1% of the respondents strongly disagreed. A high mean of 4.14 indicated that low educational status of parents is a challenge of implementation of feeding programs. This finding was in line with a study conducted Mugenda (2020) noted that most parents with

low education, and the uneducated ones don't know the pain of studying or attending minus eating thus can't support school feeding program.

Responses in line with if negative perceptions and attitudes of parents, communities and children is a challenge facing feeding programmes showed that 58% of the respondents strongly agreed, 38% of the respondents agreed, none of the respondents were undecided, 3% of the respondents disagreed and lastly 1% of the respondents strongly disagreed. Respondents RRR1 and TTT1 assured that negative attitudes and perceptions by parents and children towards feeding programs have affected their implementation.

Responses on if shortage of water and facilities area challenges affecting implementation of school feeding programmes showed that 63% of the respondents strongly agreed, 37% of the respondents agreed, none of the respondents were undecided, disagreed nor strongly disagreed a very high mean of 4.58 indicated that shortage of water and facilities area challenges affecting implementation of school feeding programmes. This finding was similar to that of WHO (2022) which noted that many schools have failed to implement school feeding programmes due to water challenges.

A very high overall mean of 4.34 indicated that all illustrated above are different challenges affecting implementation of school feeding programmes.

4.4. Objective three: Measures of improving feeding programmes and pupils performance in Mathematics

Table 4.5: Descriptive Statistics

Responses	N	SD	D	U	A	SA	Mean	Std. D	Mean Comments
Promote community participation	80	0 (0%)	0 (0%)	7 (3%)	28 (36%)	45 (60%)	4.46	0.694	***Very High***
Define school feeding programme policy and objectives	80	3 (5%)	5 (7%)	0 (0%)	40 (60%)	32 (28%)	4.12	0.731	***Very High***
Improve targeting and coverage	80	0 (0%)	0 (0%)	9 (10.2%)	51 (67.0%)	20 (22.7%)	4.01	0.875	***High***
Analyze the cost and financing options	80	0 (0%)	0 (0%)	8 (6.8%)	22 (35%)	50 (58.2%)	4.47	0.647	***Very High***
Determine optimal rations and timing of meals	80	0 (0%)	0 (0%)	2 (4%)	20 (27%)	58 (69%)	4.56	0.562	***Very High***
Valid N (list wise)	80								
Overall Mean & Standard Deviation							**4.34**	**0.677**	***Very High***

MEAN INTERPRETATION KEY 0.00-1.00 Very Low, 1.10-2.00 Low, 2.10-3.00 Moderate, 3.10-4.00 High, 4.10-5.00 Very High

The third objective to the study was about Measures of improving feeding programmes and pupil's performance in Mathematics and respondents were asked to reveal whether: Promotion of community participation, Defining school feeding programme policy and objectives, Improving target and coverage, Analyzing the cost and financing options and lastly determining optimal relations and timing of meals is a measure of improving feeding programs and pupils performance in mathematics. And responses are shown below:

Respondents were asked to reveal if promotion of community participation is a measure that can improve school feeding programs and pupils performance in mathematics and 60% of the respondents strongly agreed, 36% of the respondents agreed, 3% of the respondents were undecided, none of the respondents neither disagreed nor strongly disagreed. A very high mean of 4.46 indicated that Promotion of community participation is a measure to improve school feeding programmes. This finding was in line with a study conducted by Caserta (2020) from Zimbabwe and found that through community participation like provision of food items, and fire wood; school feeding programmes were being easily implemented.

Respondents were asked if defining school feeding programme policy and objectives is a measure that can improve these school feeding programmes and 28% of the respondents strongly agreed, 60% of the respondents agreed, none of the respondents were undecided, 7% of the respondents disagreed and lastly 5% of the respondents strongly disagreed a very high mean of 4.12 indicated that defining school feeding programme policy and objectives.

Respondents were asked to reveal if Improving target and coverage is another measure that can improve school feeding programme implementation and 22.7% of the respondents strongly agreed, 67% of the respondents agreed, 10.2% of the respondents were undecided, none of the respondents disagreed and lastly none of the respondents strongly disagreed a high mean of 4.01 indicated that improving target and coverage is another measure that can improve school feeding programme. This study finding was in line with a study conducted by Peterson et al urban schools in Kampala who noted that the wide coverage of feeding programmes is a measure to improve their implementation.

Respondents were asked to reveal analyzing the cost and financing options is a measure to improve school feeding progrmmes and 58.2% of the respondents were in agreement with this, 35% of the respondents agreed, 6.85% of the respondents were undecided, none of the respondents strongly disagreed nor disagreed. A very high mean of 4.47 indicated that analyzing financing options is a measure to improve school feeding programmes.

Respondents were asked to reveal if determining optimal relations and timing of meals is a measure of improving feeding programs and pupils performance in mathematics and 69% of the respondents strongly agreed, 27% of the respondents agreed, 4% of the respondents were

undecided, none of the respondents disagreed nor strongly disagreed a very high mean of 4.56 indicated that determining optimal relations and timing of meals is a measure of improving feeding programs and pupils performance in mathematics.

A very high overall mean of 4.34 indicated that the above illustrated are the different measures to improve on challenges facing school feeding programmes.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the discussion of study findings' conclusions and recommendations revealed about impact of feeding programmes on pupils performance in Mathematics in Government aided primary schools in Nyondo Sub County, Manfwa District in line with the three specific objectives of: To find out the influence of feeding programme on pupil's performance in Mathematics in government aided primary schools in Nyondo. Sub County, Mbale district, to assess the challenges affecting implementation of feeding programmes in government aided primary schools in Nyondo sub county, Mbale district and lastly to examine possible measures of improving feeding programmes and pupils performance in Mathematics in government aided primary schools in Nyondo Sub County, Mbale district. This chapter presents discussion of findings, conclusions and recommendations of the study.

5.1 Discussion of Findings

5.1.1 Influence of feeding programme on pupil's performance in Mathematics

Study findings indicated that Iodine deficiency disorders affect understanding of subject matters. This study finding was in line with a study conducted by Odiambo et al, (2020) from local areas of Kenya and noted that Iodine deficiency disorders affect understanding of subject matters due to poor school feeding programmes and this in return affect mathematics performance.

Findings also indicated that poor nutrition and health among schoolchildren contributes to the inefficiency of the educational system and lower subject score in Mathematics by pupils. This finding was in line with a study conducted by Tomkins 2020 who noted that poor nutrition and health among school children contributes towards poor grades.

Findings indicated that providing breakfast to disadvantaged primary school students improved their performance ion mathematics significantly. This finding was similar to a study conducted by WHO (2019) from South Sudan which noted that through provision of breakfast by different NGOS, mathematics performance had significantly improved.

Lastly findings indicated that speed in performing a short-term memory test and geometric patterns improves under the breakfast and lunch condition. This study finding was in line with a study conducted by Odinga (2022) from Kenya who conducted a study on provision of timely lunch and breakfast on students' performance and noted that children who eat on time were relatively performing better in class.

5.1.2. Challenges affecting implementation of school feeding programmes

Study findings indicated that poverty greatly affects feeding programs. This study finding was in line with a study conducted by Galloway (2022) who conducted a research study in Kenya on poverty and students grades and noted that due to high levels of poverty, many parents can't afford school feeding programs and this in return negatively affects performance of mathematics which needs high concentration of students not to miss a point.

Study findings also suggested that feeding programmes face a challenge of insufficient funding. This finding was similar to that of Opio, (2021) who conducted a research study among UPE primary schools which were highly related with poor performance in mathematics and noted that it was as a result of insufficient funding from both Government and parents that these programmes would not be implemented.

Findings indicated that low educational status of parents is a challenge of implementation of feeding programs. This finding was in line with a study conducted by Mugenda (2020) who noted that most parents with low education and the uneducated ones don't know the pain of studying or attending minus eating thus can't support school feeding programmes.

Lastly findings indicated that shortage of water and facilities area challenges affecting implementation of school feeding programmes. This finding was similar to that of WHO (2022) which noted that many schools have failed to implement school feeding programmes due to water challenges.

5.1.3 Measures for improving feeding programmes and pupils performance in Mathematics

Findings indicated that Promotion of community participation is a measure to improve school feeding programmes. This finding was in line with a study conducted by Caserta (2020) from

Zimbabwe and found that through community participation like provision of food items, and fire wood; school feeding programmes were being easily implemented.

Findings also revealed that improving target and coverage is another measure that can improve school feeding programme. This study finding was in line with a study conducted by Peterson et al urban schools in Kampala who noted that the wide coverage of feeding programmes is a measure to improve their implementation.

Lastly findings indicated that determining optimal relations and timing of meals is a measure of improving feeding programs and pupil's performance in mathematics.

5.2 Conclusions

5.2.1. Influence of feeding programme on pupil's performance in Mathematics

The study concluded that : Study findings concluded that Iodine deficiency disorders affect understanding of subject matters, that poor nutrition and health among schoolchildren contributes to the inefficiency of the educational system and lower subject score in Mathematics by pupils, that providing breakfast to disadvantaged primary school students improved their performance in mathematics significantly and lastly findings concluded that speed in performing a short-term memory test and geometric patterns improves under the breakfast and lunch condition.

5.2.2. Challenges affecting implementation of school feeding programmes

Findings concluded that poverty greatly affects feeding programs, that feeding programmes face a challenge of insufficient funding, that low educational status of parents is a challenge of implementation of feeding programs and lastly that shortage of water and facilities area challenges affect implementation of school feeding programmes.

5.2.3. Measures of improving feeding programmes and pupils performance in Mathematics

Under this objective, findings concluded that Promotion of community participation is a measure to improve school feeding programmes, that improving target and coverage is another measure that can improve school feeding programme, that the wide coverage of feeding programmes is a measure to improve their implementation and lastly findings concluded that

determining optimal relations and timing of meals is a measure of improving feeding programs.

5.3 Recommendations

Basing on the discussion of the study findings and conclusions of this report, the study recommends the following to different stakeholders.

There should be more investments by different Governments in a number of strategies to that feeding programmes are effective in schools

There is need for to sensitize the community and parents about the importance of children having better feeding programmes.

Schools both private and government should put up school feeding programs that are less costly in order for all children to benefit and also have better grades.

5.4 Suggested areas for further research

Basing on the study findings, the researcher recommends further research on the following research topics:

Role of Government in implementation of school feeding programmes

Parental roles and implementation of school feeding programmes.

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APPENDIX I: CONSENT LETTER

Dear Respondents

Ref. Request to Complete Research Questionnaire

I **Kwape Martin** a student of Uganda Christian University pursuing a Bachelor's Degree in Primary Education. Carrying out a study on "Impact of feeding programme on pupil's performance in Mathematics in Government aided primary schools in Nyondo Sub County, Mbale district**.** You are kindly requested to participate in this research and your selection to this effect has been based on random basis. Please feel free as you respond to the study questions because the information you are to give will be used for academic purposes only.

Thank you

……..

(RESAERCHER)

APPENDICES II: QUESTIONAIRE GUIDE FOR TEACHERS

SECTION A: REPONDENT'S BIO – DATA

INSTRUCTIONS

Please fill in the blank spaces or tick (√) in the boxes provided where necessary.

1. Name: (optional) …….
2. Age: 15 – 30 ☐ 31 – 45 ☐ 46 – 60 ☐ 60 + ☐
3. Sex: Male ☐ Female ☐
4. Marital status: Single ☐ Married ☐ Divorced ☐ Separated ☐ Widowed ☐
5. Location:

   Cell ……..…… Parish ……..……..

   Sub – county …….
6. Levels of education:

   None ☐ Primary ☐ Secondary ☐ Tertiary and above ☐

   Other (please specify)

   ……

   ……
7. Religion: Protestant ☐ Catholics ☐ Muslims ☐ Born again ☐

   Others (please specify)……..

RESPONSE SCALE

1	2	3	4	5
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

SECTION B: Influence of feeding programme on pupil's performance in Mathematics						
1.	Iodine deficiency disorders affect understanding of subject matter	1	2	3	4	5
2.	Poor nutrition and health among schoolchildren contributes to the inefficiency of the educational system and lower subject score in MTC by pupils	1	2	3	4	5
3.	Providing breakfast to disadvantaged primary school students improved their performance ion MTCs significantly	1	2	3	4	5
4.	Speed in performing a short-term memory test and geometric patterns improves under the breakfast and lunch condition	1	2	3	4	5
5.	School feeding programmes can have a positive effect on rates of enrollment and attendance on MTCs classes.	1	2	3	4	5
SECTION C: Challenges affecting implementation of school feeding programmes						
8.	High levels of poverty	1	2	3	4	5
9.	Insufficient funding	1	2	3	4	5
10.	Low educational status of parents	1	2	3	4	5
11.	Negative perceptions and attitudes of parents, communities and children	1	2	3	4	5
12.	Shortage of water and facilities	1	2	3	4	5
SECTION D: Measures of improving feeding programmes and pupils performance in Mathematics						
16.	Promote community participation	1	2	3	4	5
17.	Define school feeding programme policy and objectives	1	2	3	4	5
18.	Improve targeting and coverage	1	2	3	4	5
19.	Analyze the cost and financing options	1	2	3	4	5
20.	Determine optimal rations and timing of meals	1	2	3	4	5

THANK YOU FOR YOUR TIME

APPENDICES III: INTERVIEW GUIDE FOR LOCAL LEADERS AND HEAD TEACHERS

1. What is your position?
2. How long have you worked here?
3. What is the rationale for providing school feeding programmes in government aided primary schools?
4. Is there any relationship between schools feeding programmes and pupil's performance in Mathematics? If yes, explain.
5. How do feeding programme influence pupil's performance in Mathematics in government aided primary schools in Nyondo sub county, Mbale district
6. What are the challenges affecting implementation of feeding programmes in government aided primary schools in Nyondo Sub County, Mbale district.
7. What measures can be implemented to improve feeding programmes and pupil's performance in Mathematics in Government aided primary schools in Nyondo Sub County, Mbale District.