



Addis Ababa University

College of Education and Behavioral Studies

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Educational Leadership Program

School Feeding Program and Learners’

Engagement in Pre-Primary and Primary

Government Schools in Addis Ketema Subcity,

Addis Ababa

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**A Thesis Submitted to Addis Ababa University College of
Education and Behavioral Studies Department of
Educational Planning and Management in Partial
Fulfilment of the Requirements for the Degree of Master
of Arts in Educational Leadership Program**

June, 2023

Addis Ababa

Addis Ababa University College of Education

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Thesis Approval

This is to certify that the thesis prepared by Blen Fekadu, entitled: “School Feeding Program and Learners’ Engagement in Pre-Primary and Primary Government Schools in Addis Ketema Subcity, Addis Ababa” submitted to Addis Ababa University College of Education in partial fulfilment for the requirements of Master of Educational Leadership complied with the regulations of the Addis Ababa University and meet the accepted standards with respect to originality and quality.

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I, the undersigned, declare that “School Feeding Program and Learners’ Engagement in Pre-Primary and Primary Government Schools in Addis Ketema Subcity, Addis Ababa” is my original work and has not been presented for a degree in any other university, and that all sorts of materials used for this thesis have been duly acknowledged.

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ACKNOWLEDGEMENTS

I am deeply indebted to my advisor, Fekadu Mulugeta (PhD.), for the invaluable guidance, expertise, and patience granted to me. My advisors' mentorship has helped to shape my research and academic growth. I would like to acknowledge the blessings and guidance of Allah throughout my academic journey. Alhamdulillah, I am immensely grateful for the opportunity to pursue knowledge and complete this thesis. I would like to express my sincere gratitude to my family, especially my mom for her unwavering support, encouragement, and prayers. Her love and belief in me have been my constant motivation. I want to say to my late father that am forever grateful for all the unconditional love and support you have given me you are always in my heart and always be my strength. I extend my appreciation to my friends for their camaraderie and moral support, their supportive presence really meant a lot. Finally, I offer my heartfelt thanks to everyone who has contributed directly or indirectly to this thesis. May Allah bless you all abundantly for your kindness and support!

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ACRONYM

SFP: School Feeding Program

SF: School Feeding

TSR: Teacher Student Relationship

PSL: Peer Support in Learning

FSL: Family Support in Learning

FAG: Future Aspirations and Goals

CRSW: Competence and Relevance of School Work

IM: Intrinsic Motivation

SEI: Student Engagement Instrument

BMI: Body Mass Index

WFP: World Food Programme

ABSTRACT

The study investigates the relationship between the School Feeding Program (SFP) and students' learning engagement in government schools within Addis Ketema Sub-city, Ethiopia. Employing a descriptive correlation design and mixed methods methodology, the research combines a quantitative survey and qualitative interviews. The quantitative component involves 138 student samples from primary while the qualitative involves 74 student samples as subjects of interview to 38 homeroom teachers. The qualitative component focuses on 11 primary and 10 pre-primary schools which may overlap, and the quantitative element shares the 11 from the qualitative. Data analysis encompasses descriptive statistics, Pearson r correlation, and ANOVA for quantitative data, along with content analysis for qualitative data. The findings reveal a significant and positive correlation ($r = 0.78$) between the SFP and learners' engagement. Notably, moderating factors such as age, Body Mass Index classification, grade level, parental occupation, rank, and material availability influence this relationship. Finally, this study unveils that school feeding is positively related to learners' engagement and also recommends that longitudinal research be conducted to examine the relationship between school feeding and learners' engagement in the long-term. The research provides valuable insights for educational policymakers and stakeholders involved in school feeding programs.

Keywords: *School Feeding, Learner's Engagement, Relationship, Addis Ketema, Addis Ababa*

Chapter 1: Introduction

This chapter comprises the background of the study, problem statement, research questions, purpose of study, objectives of the study, significance of the study, scope and limitations of the study, delimitation of the study, assumption of the study, and definition of terms.

1.1 Background of the Study

According to the World Bank and World Food Program (2012), a school feeding program is a targeted social safety net that provides educational and health benefits to vulnerable children, leading to increased enrolment rates, reduced absenteeism, and improved food security at the household level. The first school lunches were served in Munich, Germany in 1790 by Benjamin Thompson, also known as Count Rumford (Gunderson, 2003).

The Global Child Nutrition Foundation (2023) reports various types of school meals, including Universal School Meals (USM) and Targeted School Meals (TSM); Universal school meals are provided to all students in compulsory education, regardless of their ability to pay, while targeted school meals are specifically designed for poor or vulnerable students.

According to World Food Programme (2019), Ethiopia initiated its school feeding program in 1994, focusing on food-insecure areas and providing a hot meal consisting of corn soya blend, vegetable oil, and salt. Later, a take-home ration was added for girls in pastoralist areas. In Addis Ababa, the school meal program was officially launched on, Monday, October 14th, 2019, to prevent students from dropping out of education in state-run junior schools (Borkena Ethiopian News, 2019). The program aims to benefit around 300,000 students, boost enrolment, reduce absenteeism, and prevent school dropout (Ethiopia Monitor, 2022).

The Addis Ababa School Feeding Program was implemented to address hunger in schools, particularly for students from poor households (Destaw et al., 2022). It serves as an indirect income transfer to households and incentivizes families to continue investing in education, even during challenging times (Reliefweb, 2019). The program operates in nearly 250 pre and primary schools, providing job opportunities for over 10,000 mothers in addition to supporting the students with meals (Reliefweb, 2019).

Research by Wall, Mosby, et al. (2022) highlights that malnutrition and hunger can hinder a child's learning abilities. School feeding programs are commonly used in African countries,

where childhood under-nutrition rates are high, to address this challenge (Wall, Mosby, et al., 2022). Effective food provision in schools is essential for creating a conducive teaching and learning environment. A study by Destaw et al. (2022) evaluated the impact of the Addis Ababa School Feeding Program on educational outcomes and found positive effects on enrolment, attendance, and academic performance.

Similar positive outcomes have been observed in studies conducted in rural Ethiopia by Poppe et al. (2019) and in the Babati Rural District in Tanzania by Ngussa and Mbifile (2016). These studies highlight the relationship between food availability in schools and students' engagement. In Kenya, Muir, Thinguri, Njagi, and Kiarie (2014) found that malnutrition negatively affected learning due to increased infections, decreased cognitive ability, and low attendance rates.

In the United States, Bartfeld et al. (2019) conducted a study in Wisconsin and discovered that school meal programs were associated with improved attendance and standardized test scores. Offering breakfast at school was particularly beneficial for attendance and test performance.

School feeding programs have gained significant attention and support from organizations like the World Food Program and other development partners due to the recognized significance of providing food in schools. This heightened interest and demand for such programs reflect the growing acknowledgment of their importance (Bundy et al., 2009). However, while all children in high-income countries have access to food in schools, those in middle- and lower-income countries often have limited or no access to school meals (Yendaw & Dayour, 2015). Therefore, further research is needed to explore the relationship between the food provision in schools in developing nations and students' engagement, which is defined by Shapiro et al. (2015) and Chapman (2003) as students' attitudes and willingness to participate in school activities, encompassing their psychological investment in the learning process.

Numerous studies have demonstrated the positive impact of school meals on students' health, energy levels, participation, and academic performance. Ynusa (2012), stated that school feeding programs contribute to preventing malnutrition and improving the nutritional status and academic performance of schoolchildren. Providing meals encourages students to remain in school, ultimately enhancing their academic success (World Food Program, 2017).

Research by Ayehu and Sahile (2021) in Addis Ababa found that participants enrolled in the school feeding program had higher average weight and lower school absenteeism compared to non-participants. Similar findings were reported by Chaula (2015), indicating that school feeding programs positively influence students' attendance. Studies by Dei (2014), Mwavula (2014), and Gordon and Ruffini (2018) also highlight the significant impact of school feeding programs on enrolment, attendance, cognitive development, low dropout rates, and improved school discipline.

The researcher noted a lack of research examining the relationship between the school feeding program and students' engagement, whose indicators are stated by Appleton (2006) as Teacher-Student Relationship, Peer Support in Learning, Family support in Learning, Control and Relevance of School Work, Future Aspirations and Goals, and Intrinsic Motivation. The lack of such research set specifically in Addis Ababa primary and pre-primary schools. It is important to conduct further research in order to gain a better understanding of how the presence of a meal program for pre-primary and primary school students may impact their level of engagement.

1.2 Statement of the Problem

Learning is a crucial aspect of a student's development, and access to proper nutrition is a significant factor that affects their ability to learn effectively, therefore in many countries, the school feeding program has been implemented to provide students with the necessary nutrients like folate, iron, energy per body weight, vitamin B12, zinc, and riboflavin (Hulett et al., 2014), enhancing their attention and academic performance (Kidanemariam, 2019). In Addis Ababa, the school feeding program is mainly targeted at primary and pre-primary students, and the limited existence of literature on the relationship of school feeding program and learner's engagement has been identified as a local research gap that the researcher recognized and turned it into a springboard to conduct this study.

1.3 Research Questions

The research questions include:

1. Do students participating in the school feeding program have high overall internal engagement scores?
2. Do students participating in the school feeding program have high attendance (Behavioral Engagement) rate?
3. What moderating factors impact the relationship between the School Feeding Program and learners' internal engagement in pre-primary and primary government schools located in Addis Ketema sub-city?

1.4 Purpose of Study

The research aimed to investigate the relationship between school feeding programs and learners' engagement in government pre-primary, and primary schools within Addis Ketema sub-city, located in Addis Ababa, Ethiopia, and also to explore any potential moderating factors that may influence the relationship between school feeding program and learners' engagement in pre-primary and primary, schools in Addis Ketema sub-city. The indicators used to measure student engagement are adopted from the Student Engagement Questionnaire (Appleton, 2006), they are Teacher-Student Relationship, Peer Support in Learning, Family support in Learning, Control and Relevance of School Work, Future Aspirations and Goals, and Intrinsic Motivation. The Student Engagement Questionnaire was used by Appleton (2006) to measure these indicator and overall internal engagement, which is the total of psychological and cognitive engagement.

The study focused on schools that implemented the school feeding program, which included pre-primary and primary schools. The researcher analysed various factors that could impact learners' engagement, such as psychological engagement and cognitive engagement in the program-implementing schools. Psychological engagement focuses on individuals' positive or negative reactions towards teachers, classmates, academics, or school itself (Finn, 1989; Voelkl, 1997), while cognitive engagement pertains to the level of investment in learning, involving thoughtfulness, strategic thinking, and willingness to exert effort to comprehend complex ideas or master difficult skills (Corno & Mandinach, 1983; Fredricks et al., 2004; Meece, Blumenfeld, & Hoyle, 1988). Ngussa (2020), stated that the quality of school feeding program had a positive relationship with student engagement, but since this study was conducted in Kenya, generalizations could not be made regarding the relationship of school

feeding program and student engagement in Addis Ketema subcity in Addis Ababa, Ethiopia. Therefore, the researcher decided to conduct this study in Addis Ketema sub-city.

1.5 Objectives of the Study

This section presents the general and specific objectives of the study.

1.5.1 General Objective

1. To examine the relationship between learners' engagement: comprising affective and cognitive engagement, and the school feeding program in pre-primary and primary schools located in Addis Ketema sub-city.

1.5.2 Specific Objectives

1. To assess the psychological engagement of learners in pre-primary and primary schools located in Addis Ketema sub-city.
2. To assess the cognitive engagement of learners in pre-primary and primary schools located in Addis Ketema sub-city.
3. To determine the correlation between learners' affective engagement and the school feeding program in pre-primary and primary schools located in Addis Ketema sub-city.
4. To determine the correlation between learners' cognitive engagement and the school feeding program in pre-primary and primary schools located in Addis Ketema sub-city.
5. To identify potential moderating factors that could influence the relationship between the school feeding program and learners' engagement in pre-primary and primary schools located in Addis Ketema sub-city.

1.6 Significance of the Study

The significance of this study lies in its potential to inform all stakeholders by examining the relationship between school feeding programs and student engagement. The findings of this research can contribute to evidence-based decision-making, support policy development, and foster the creation of nurturing and conducive learning environments for students. By investigating this important association, the study seeks to enhance the understanding of the role that school feeding programs play in promoting student engagement.

1.7 Limitations of the Study

This study is not without limitations. As noted by Wordvice (2022), research limitations can arise due to a variety of factors, including constraints on research design, methodology, and materials. In this particular study, there were issues related to sample size calculation and selection, as well as a scarcity of previous studies on the topic.

One potential limitation of the study is related to the sample size calculation. The researcher utilized the Raosoft Sample size calculator, an online tool commonly used by researchers to estimate sample size and power. However, it is important to note that the calculator assumes a response rate of 90% or above when determining the required sample size. The response rate refers to the number of survey respondents divided by the total number of individuals in the sample, usually expressed as a percentage (Wikipedia contributors, 2022; Academic Dictionaries and Encyclopedias, n.d.).

If the actual response rate in the study is lower than 90%, it could indicate a lower participation rate and potentially affect the adequacy of the sample size. This situation could potentially compromise the study's findings which address the research question of whether school feeding program has relationship with learners' engagement and whether their relationship is moderated by other variables. It is essential to acknowledge that the assumption of a high response rate as the basis for sample size calculation may pose a limitation.

However, it should be noted that efforts were made during the data collection process to address this limitation. The researchers concentrated their data collection methods and ensured that data collectors were diligent in ensuring that all items were answered and all

questionnaires were properly filled. These efforts may have mitigated the potential impact of a lower response rate on the overall study.

Another limitation to consider is that data collection was facilitated by individuals other than the researcher due to time constraints. This introduces the possibility of bias that could arise from the data collectors' inadvertent negligence, even though they are properly trained. It is important to acknowledge this potential limitation, as it can influence the objectivity and reliability of the collected data.

Furthermore, the researcher used a population proportion of 90% when stratifying the sample based on participation in the school feeding program, even though the actual population proportion for pre-primary and primary school students was much higher. While this approach may have helped increase the sample size and reduce bias due to under-representation, the assumption of the population proportion is a limitation of the study that should be noted.

A worth-mentioning limitation may be that some data collected through the questionnaire (such as weight and height) may not be as reliable as one gotten from direct measuring, and it was time-wise and budget-wise unfeasible for the researcher to do direct measuring of all participants. Another limitation of this study is the scarcity of previous research on the relationship between school feeding programs and student engagement, particularly with regard to the potential moderating variables that may contribute to this relationship. While there have been studies on related topics, such as the impact of school feeding programs on attendance and academic outcomes, the limited existence of literature on this specific topic limited the study's ability to draw on previous research to inform the study design and interpret the results.

The lack of control of confounding variables is another limitation of this study. While the study aimed to examine the relationship between school feeding program and student engagement, there may be other variables that could impact this relationship, such as age, gender, grade level, BMI Classification, other responsibilities, health status, parental occupation, and material availability. Without controlling for these variables, it is difficult to determine whether the observed relationship is solely due to participation in the school feeding program or if other factors are also at play. Therefore, the findings of this study should be interpreted with caution and considered in conjunction with other research on related variables.

To overcome these limitations in future studies, researchers can consider using a more accurate approach for calculating the required sample size, such as basing it on the actual response rate rather than assuming a predetermined rate. Additionally, using a more accurate representation of the population proportion may help improve the representativeness of the sample. As for the scarcity of previous research, conducting more studies on the relationship between school feeding programs and student engagement, with a focus on identifying the potential mediating variables, may help fill the gaps in the existing literature and provide a more comprehensive understanding of the topic.

1.8 Definition of Terms

School Feeding Program (SFP) is a targeted safety net program designed to provide educational and health benefits to vulnerable children.

Student Engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education.

Academic Engagement is a subtype of engagement which comprises indicators as doing time on task, homework completion (Reschly and Christenson, 2012).

Behavioural Engagement is a subtype of engagement which comprises indicators as attendance, voluntary classroom participation, and extracurricular participation (Reschly and Christenson, 2012).

Cognitive Engagement is a subtype of engagement which comprises indicators as self-regulation, relevance of school to future aspirations, goal setting, and strategizing (Reschly and Christenson, 2012).

Psychological Engagement is a subtype of engagement which comprises indicators as belonging and identification with school (Reschly and Christenson, 2012).

Correlation is a mutual relationship or connection between two or more things.

Disaffection refers to a lack of engagement or motivation towards learning (Appleton, 2006).

Moderating Factors are variables that can influence the strength or direction of the relationship between two other variables.

Pre-primary School is educational institutions often referred to as kindergarten that provide early childhood education to children in children in KG1 to KG3.

Primary School is educational institutions that provide education to children in grades 1 through 8.

Secondary School is educational institutions that provide education to students in grades 9 through 12.

Pragmatism is a philosophical approach that emphasizes practicality and usefulness in determining the validity of knowledge and theories, and it is often used in mixed methods methodology research approach to bridge the gap between qualitative and quantitative approaches.

Chapter 2: Review of the Related Literature

This section provides an overview of school feeding programs and their implications related to different variables, with a specific focus on Ethiopia and Addis Ababa. The review begins by defining school feeding program and discussing its objectives. It then explores the broader context of school feeding programs in Africa, examining case studies from Malawi, Kenya, Rural Senegal, Burkina Faso, and Southern Ethiopia to assess their impacts. The review then narrows its focus to school feeding programs in Ethiopia, discussing experiences and findings in different regions. Specifically, it delves into the contributions, challenges, sustainability, and other outcomes associated with these programs. Shifting the focus to Addis Ababa, the review examines the impact of the school feeding program on school participation, challenges, prospects, and contributions of the program in specific sub-cities. In addition to studying the impact on different variables, the review explores the correlation between school feeding programs and learner engagement. It draws upon theoretical frameworks such as Maslow's Theory of Needs to provide a comprehensive understanding of the factors that influence this correlation. By synthesizing existing research, this review of related literature aims to contribute to the understanding of the significance of school feeding programs in promoting positive educational experiences.

2.1 Defining School Feeding Program

According to Huong (2020), who is an academic researcher from World Bank, school feeding programs involve providing children with meals such as breakfast, lunch, snacks, or milk during their time at school. These programs can vary in terms of the types of meals provided, which may include complete meals, nutritious snacks, or high-energy biscuits. There are two main categories of school feeding programs: in-school feeding, where children are fed at school, and take-home rations, where families receive food when their children attend school. In Ethiopia, through 2020-2021, take-home rations comprised of grains/cereals were provided to 3,976 school children, and the Home-Grown School Feeding Programme operated in public schools (Global Child Nutrition Foundation, 2023).

Law Insider (2023) offers an alternative definition of a school feeding program, defining it as the implementation of the Recipient's Protracted Relief and Recovery Operation (PRRO) program by the WFP. The primary objective of this program is to provide daily nutrition assistance, including two meals per day, to primary and pre-primary students.

The main aim of school feeding programs, as highlighted by Huong (2020), is to address short-term hunger, enhance attention span, facilitate learning, and eliminate the need for children to leave school in search of food. The same author states that in-school meals also serve as an incentive to improve school attendance; additionally Huong states that incorporating cost-effective interventions like micronutrient fortification and deworming into the school meal program are said to have positive effects.

By promoting enrolment and reducing absenteeism, school feeding programs play a vital role in ensuring children's access to education, as emphasized by Huong (2020). Furthermore, once children are in school, these programs contribute to their learning outcomes by preventing hunger and enhancing cognitive abilities (Huong, 2020). The same author states that providing a daily meal not only meets their nutritional needs but also enables them to focus on their studies without the distraction of hunger.

In conclusion, school feeding programs encompass the provision of meals to children during their time at school. These programs can take different forms, including in-school feeding and take-home rations. Their primary goal is to address hunger, improve attention span, facilitate learning, and promote regular school attendance. By incorporating effective interventions, such as micronutrient fortification, school feeding programs contribute to the overall well-being and educational success of children.

2.2 School Feeding Program in Africa

This sub-section consists of a comprehensive review of literature on school feeding programs in various countries in Africa, including Malawi, Kenya, Senegal, Burkina Faso, and Ethiopia. The subsections will cover different aspects of school feeding programs, such as its effects and impacts on various other variables. The literature reviewed will include reliable scholarly articles. Furthermore, this section will provide a summary of the key findings obtained from the literature review.

2.2.1 Malawi: Effect on Reversal Learning and Lean Muscle Mass Growth

Nkhoma et al.(2013),aimed to contribute to the on-going debate surrounding the effectiveness of school feeding programs (SFPs) in developing countries, specifically in Malawi. They examined cognitive and anthropometric outcomes in entry-level primary school children to generate evidence for the impact of SFPs.

The study involved 226 schoolchildren aged 6-8 years from two rural Malawian public primary schools. Over the course of one school year, the researchers compared outcomes between children attending an SFP school, where they received a daily ration of corn-soy blend porridge, and children attending a non-SFP school, who did not receive any feeding program.

The researchers assessed baseline and post-baseline outcomes using the Cambridge Neurological Test Automated Battery cognitive tests, including paired associate learning, rapid visual information processing, and intra-extra dimensional shift. They also collected anthropometric measurements such as weight, height, and mid-upper arm circumference (MUAC).

The findings revealed that the SFP sub cohort exhibited a greater reduction in intra-extra pre-dimensional shift errors (mean 18.5) compared to the non-SFP sub cohort (mean 24.9, P-interaction = 0.02). Additionally, children in the SFP school showed an increase in MUAC from 16.3 to 17.0 (P-interaction <0.0001), indicating catch-up growth in lean muscle mass.

Based on these results, the research concluded that the Malawian SFP is associated with improved reversal learning and catch-up growth in lean muscle mass among children attending SFP schools compared to those attending non-SFP schools. These findings suggest that if the SFP is well managed and ration sizes are sustained, it holds the potential to enhance nutritional and cognitive indicators, particularly for the most disadvantaged children.

2.2.2Kenya: Impact on Academic Performance

Hulett et al. (2014) aimed to address the issue of widespread micronutrient deficiencies and suboptimal energy intake among rural communities in Kenya, which have negative implications for child growth and development. The study focused on the impact of including animal source foods (ASF) in school feeding programs on district-wide school test scores and nutrient intake.

Twelve primary schools in Kenya were selected at random to participate in a study, where each school was assigned to one of four feeding groups. These groups included a plant-based stew called githeri with meat, githeri combined with whole milk, githeri with added oil, or a control group that did not receive any intervention feeding. Over two school years, children were provided with school meals for five consecutive terms. Longitudinal analysis was

employed, considering factors such as energy intake, school attendance, socio-economic status, age, sex, and maternal literacy.

The results showed that children in the Meat group demonstrated significant improvements in test scores compared to all other groups, while the Milk group showed greater improvements compared to the Plain Githeri (Githeri + oil) and Control groups. Specifically, the Meat group exhibited significant improvements in Arithmetic, English, Kiambu, Kiswahili, and Geography test scores compared to the Control group. The Milk group showed significant improvements in English, Kiswahili, Geography, and Science test scores compared to the Control group.

Factors such as folate, iron, and energy per body weight, vitamin B12, zinc, and riboflavin intake were found to contribute significantly to the change in test scores. The findings indicate that the inclusion of ASF in school feeding programs can lead to improved academic performance and potentially enhance overall academic achievement.

In summary, the research conducted by Hulett et al. (2014) in rural Kenya aimed to investigate the impact of snacks containing ASF on school test scores and nutrient intake. The study's findings revealed that children receiving meat in their school meals showed the greatest improvements in test scores, followed by the group receiving whole milk. These results suggest that incorporating animal source foods in school feeding programs can have positive effects on academic performance and potentially contribute to better educational outcomes.

2.2.3 Rural Senegal: Effect on Educational Outcome and Nutritional Status

Azomahou et al. (2019) aimed to assess the effectiveness of school meal programs in improving education outcomes and nutritional status among pupils in rural Senegal. The researchers implemented a large-scale randomized field experiment to evaluate the impact of these programs on various factors including pupils' performance in French, mathematics, and overall test scores, as well as the internal efficiency of schools in terms of enrolment, promotion, repetition, and dropout rates.

The study revealed that attrition and non-compliance were not random occurrences within the experiment. By analyzing the average treatment effect and the effects of those who fully complied with the program, it was found that the school meal program had a positive and significant impact on pupils' test scores and the enrolment rate. However, it was observed that

the repetition rate increased as a result of the intervention. Furthermore, the study highlighted a notable gender effect within the program.

In addition to evaluating the program's impact, a cost-effectiveness analysis was conducted, comparing the school meal intervention with a deworming intervention. The analysis indicated that the deworming intervention was more cost-effective than the school meal program.

In summary, the research conducted by Azomahou et al. (2019) focused on assessing the effectiveness of school meal programs in rural Senegal. The study found that while the program positively influenced pupils' test scores and enrolment rates, it also resulted in an increased repetition rate. Moreover, the study emphasized the importance of considering cost-effectiveness, highlighting that a deworming intervention may be more efficient in terms of cost-effectiveness compared to school meals.

2.2.4 Burkina Faso: Impact on Educational Outcomes

Nikiema (2019) examined the impact of the Catholic Relief Services (CRS) school feeding program on pupils' attendance and girls' enrolment rates in primary schools in northern Burkina Faso. The study focused on the Beoog Biiga program and employed the difference-in-difference (DID) estimation technique to assess the program's effects.

The findings of the study indicated that the provision of take-home rations (THRs) through the CRS school feeding program led to increased school attendance for both boys and girls. Additionally, the research revealed that girls' enrolment rates within schools experienced a significant increase of 3.2 percentage points. This increase was primarily driven by a rise in the number of newly enrolled girls compared to boys. Consequently, the study concluded that the provision of THRs has the potential to enhance girls' educational attainment and contribute to greater gender equality within schools.

In summary, the research conducted by Nikiema (2019) evaluated the impact of the CRS school feeding program on attendance and enrolment rates in primary schools in northern Burkina Faso. The study demonstrated that the provision of THRs positively influenced school attendance for both boys and girls. Furthermore, it highlighted a notable increase in girls' enrolment rates, suggesting that THRs can contribute to enhancing girls' educational opportunities and promoting gender equality within schools.

2.2.5 Southern Ethiopia: Effect on class Absenteeism and Academic Performance

Desalegn et al. (2021) aimed to evaluate the impact of a school feeding program (SFP) on class absenteeism and academic performance of primary school students in the Sidama zone of Southern Ethiopia.

The research was designed as a prospective cohort study, involving SFP-beneficiary and non-beneficiary children aged 10-14 years from sixteen public schools. The participants were followed for one academic year, during which school absenteeism and academic performance were measured. Absenteeism was quantified by the number of days the children were absent from school, while academic performance was assessed based on the average academic scores across ten subjects.

The findings revealed that SFP beneficiaries had significantly lower absenteeism rates, with an average of 4.0 days absent compared to 9.3 days among non-beneficiaries. The adjusted rate ratio indicated that non-beneficiaries were approximately two times more likely to miss classes. Regarding academic performance, SFP beneficiaries exhibited a small but significant mean difference of 2.40 percentage points compared to non-beneficiaries. Additionally, the risk of school dropout was found to be six times higher among non-beneficiaries.

In conclusion, the study demonstrated that the implementation of the SFP in the Sidama zone of Ethiopia positively influenced multiple academic outcomes for socio-economically disadvantaged children. The program was associated with reduced absenteeism, improved academic performance, and a lower risk of school dropout among SFP beneficiaries. These findings provide valuable evidence supporting the effectiveness of school feeding programs in enhancing educational outcomes in food-insecure regions.

2.2.6 Summary and Conclusion

Research by Nikiema (2019) and Desalegn et al. (2021) reveals that SFPs have a positive influence on reducing absenteeism among students. The provision of meals through these programs is found to contribute to improved attendance rates, addressing the issue of student absenteeism effectively.

Moreover, Hulett et al. (2014), Azomahou et al. (2019), and Desalegn et al. (2021) provide evidence of the positive impact of SFPs on academic performance. These studies indicate that students participating in SFPs exhibit higher levels of academic achievement. Notably, Hulett et al. (2014) found that the inclusion of animal source foods in school meals yielded greater

improvements in test scores, while Azomahou et al. (2019) and Desalegn et al. (2021) observed enhanced academic performance among students benefiting from SFPs.

Furthermore, Azomahou et al. (2019) and Desalegn et al. (2021) highlight an increase in enrolment rates associated with the implementation of SFPs, moreover Desalegn et al. (2021) states that dropout rates are as well decreased. This finding suggests that SFPs play a vital role in improving access to education and attracting students to enroll in schools.

However, Azomahou et al. (2019) also note a potential challenge related to an increased repetition rate within schools offering SFPs. It would not be ill logic, if readers perceive that this might have stemmed from students' concerns about losing access to the program after advancing beyond a specific grade level. This highlights the importance of considering the potential consequences and psychological effects of program eligibility criteria on students' educational progression.

Lastly, Nkhoma et al. (2013) focus on the impact of SFPs on cognitive development and nutritional outcomes. Their study demonstrates that the provision of school meals is associated with improved reversal learning abilities and catch-up growth in lean muscle mass. These findings underscore the potential of SFPs to contribute to cognitive development and address nutritional deficiencies among students.

In conclusion, the reviewed studies provide evidence supporting the positive impact of SFPs on various aspects of student well-being and educational outcomes. SFPs are shown to effectively reduce absenteeism, enhance academic performance, increase enrolment rates, decrease dropout rates, and promote cognitive development and nutritional indicators.

2.3. School Feeding in Ethiopia

This sub-section consists of a comprehensive review of literature on school feeding programs in various regions of Ethiopia, including Addis Ababa, Amhara region, Afar, Oromia region, Sidama, and other rural areas. The subsections will cover different aspects of school feeding programs, such as their effects, impacts, successes, challenges, sustainability, as well as their relationship with different variables. The literature reviewed will include reliable scholarly articles. Furthermore, this section will provide a summary of the key findings obtained from the literature review.

2.3.1 Addis Ababa

This sub-section consists of four studies conducted in Addis Ababa regarding School Feeding Program.

2.3.1.1 Assessment of Implementation and Nutrition Status

Goshime (2020) aimed to evaluate the implementation of school feeding programs (SFP) in selected government primary schools in Addis Ababa, Ethiopia, and assess the nutrition status of the beneficiary students. A descriptive-cross sectional-mixed method study was conducted, involving content analysis, interviews, document reviews, and field observations, to assess the extent of implementation of SFP as per the national School Health & Nutrition (SHN) strategy, as well as the nutrition status of 622 school-fed children using WHO growth indices and z-scores standard deviations.

The study found that there was a knowledge gap about the national Sectoral National Strategy (SHN) strategy among SFP coordinators at different levels. Although the school meal service was found to be relevant in alleviating school hunger, the foods provided were static and monotonous, and there were discrepancies in the school meal service between schools. The SFP faced several challenges and problems, such as poor working infrastructure, weak inter-sectoral collaboration, lack of resources, and transparent and accountable management systems.

The study also revealed that SFP was not being implemented comprehensively, with some services like disease prevention and control and mental, neurological, and substance use disorders not being implemented at all. Moreover, the overall prevalence of malnutrition among the study participants aged 7 to 14 years old was found to be 23.5% underweight, 29.2% stunted, and 0.3% overweight.

In conclusion, the implementation of SFP lacked comprehensiveness, and much emphasis was given only to the school meal services. The SFP was questionable in addressing the national SHN strategic objectives. However, with all its limitations, the SFP is still an important and practical way of solving food and nutrition insecurity of schoolchildren economically. The study recommended that schools and other stakeholders acting on SFP should follow the national SHN strategy and the Ethiopia School Health Program framework. Furthermore, the SFP should be continued, supported, encouraged, and strengthened through community participation and ownership, and stakeholders' enhanced involvement.

2.3.1.2 Impact on Educational Outcomes

This study authored by Destaw (2022), and published under the authority of Public Health Nutrition Journal Centre aimed to evaluate the impact of the Addis Ababa School Feeding Program (SFP) on educational outcomes. The study utilized a single-group repeated measurement/longitudinal study design and multistage stratified sampling design, and employed various statistical methods including effect size estimates, repeated measures ANOVA, Chi-square, Generalised Additive Mixed Model, and mixed effects negative binomial regression. The study collected academic scores, attendance, dropout rates, and height and weight measurements of schoolchildren in primary schools in Addis Ababa, Ethiopia. In addition, the study conducted Key Informant Interviews (KII) with school directors and teachers in fifteen randomly selected schools.

Anthropometric measurements were taken from 4,500 schoolchildren in 50 schools, academic scores were gathered from 3,924 schoolchildren in 46 schools, class attendance records were collected from 1,584 schoolchildren in 18 schools, and annual enrolment records were obtained from 50 schools. The study found that the SFP had a positive impact on educational outcomes, with effect sizes (η^2) ranging from minimum to large scale on academic scores (boys = 0.023, girls = 0.04), enrolment (girls = 0.001, boys = 0.05), and attendance (Cramer's $V = 0.2$). The average academic scores of girls were significantly higher than that of boys ($P < 0.0001$). However, there was no significant positive relationship observed between nutritional status and academic performance, as measured by height-for-age and BMI-for-age Z-scores.

KII results showed that the SFP created a convenient teaching-learning environment, reduced hunger in schools, and boosted enrolment, attendance, and academic performance among schoolchildren. The study concluded that the Addis Ababa SFP has positively contributed to educational outcomes, and recommended strengthening the program to enhance nutritional outcomes and diminish educational inequalities.

2.3.1.3 Impact on Student Performance

In this research study, authored by Feyissa (2018), and published under the authority of Addis Ababa University, College of Health Science, the impact of a school feeding program on students' attendance, drop-out rates and achievement test was assessed in Addis Ababa government primary schools. The study utilized a quasi-experimental design known as the "before-after" approach, with retrospective analysis conducted among 200 students. Multi-

stage sampling techniques were used to select the study participants, and school record reviews were conducted for data collection. The results showed that the average number of absent days for school feeding beneficiaries before the program was 1.67 days, which reduced to 1.23 days after the program. Similarly, the cumulative average score of school feeding beneficiaries before and after the program were 67.61 and 69.02 out of hundred, respectively. The statistical tests showed that school feeding program had a positive impact on attendance rates and academic performance of beneficiaries. However, the drop-out rates before and after the programs were not statistically different. Overall, the findings suggest that school feeding programs can have a positive impact on the academic performance and attendance of school children.

2.3.1.4 Challenges and Opportunities

This study authored by Dires (2020), and published under the authority of Addis Ababa University, College of Education and Behaviour of Educational Planning and Management, aimed to evaluate the challenges and opportunities of implementing the School Feeding Program (SFP) in governmental primary schools in Addis Ababa City, Ethiopia. A total of 423 participants, including teachers, principals, students, and PTA members, were surveyed using a questionnaire, document analysis, and interviews. The study found that community involvement was crucial for the successful implementation of the program. Additionally, the SFP had a positive impact on primary school enrolment and class attendance. However, the study also identified several challenges, such as the provision of food in unclean containers and non-hygienic environments, limited variety of food supplied to students, and problems in the monitoring system. The study recommended that the school should provide continuous capacity building and training for program managers and coordinators to enhance effective and efficient management of the SFP. Furthermore, appointing a professional nutrition coordinator and providing permanent storage facilities and hygienic feeding areas for students were also suggested as solutions to alleviate the identified problems.

2.3.2 Afar Region: Nutritional Status and Associated Factors

The study conducted by Mohammed (2018) focuses on the nutritional status and associated factors of primary school children in the Amibara District of Zone Three, Afar Regional State, Ethiopia in 2018. The study used a school-based comparative cross-sectional design, selecting 679 subjects through a simple random sampling technique, with 50.07% of the participants being from schools implementing the school feeding program and 49.9% from schools that did not. Anthropometric measurements of weight and height were taken and

analyzed using WHO Anthro-Plus 2007 software, and other data were entered into Epi-info version 7 and analyzed using SPSS version 16.0. The results showed no statistically significant differences between beneficiary and non-beneficiary children in terms of stunting and thinness, but wasting was prevalent in both groups. Factors such as father's and mother's occupations, low monthly income, large family size, and lack of Vitamin A were associated with wasting. Similarly, no farmland, age groups of 10-14 years, and the family's source of drinking water being surface water were associated with stunting. The paper suggests multisectoral nutrition interventions in the community and an evaluation of the school feeding program's implementation for future studies.

2.3.3 Amhara Region

This sub-section contains a couple studies conducted in Amhara region regarding School Feeding Program.

2.3.3.1 Impact on School Performances

Kidanemariam (2019), aimed to examining comparatively the impact of school feeding program in public primary school performances with particular references of school in Waghimra Zone, Amhara Region. It was guided by Abraham Maslow's theory of hierarchy of needs and employed descriptive survey design by following mixed approach in order to accomplish the objective of the study. The total sample size was 294. The data collection instruments were both closed and open ended questionnaires for school teachers, open ended questionnaires to PTA, Interviews for principals and feeding coordinators and rosters was analyzed by document checklist, and observation addressed by same questions of checklist. Statistical Packages for Social Sciences (SPSS version 23) have used to organize and prepare data for analyze and linear regression was computed. The main finding is school feeding program has positive impact on school performance by showing significant result that feeding serve as influential to enroll student and has role in enhancing students' regular attendance with fostering learning environment by reducing causes for student absenteeism with having very high effect of feeding on enhancing of learners attention by facilitating active learning mind in class by its high energized independent learning and perfections in following instruction. The other finding was feeding has positive impact on academic achievement by influencing on students promotion and reducing the dropouts as support teachers and all other involved in the study. There was also performance difference between schools while comparing each other depending on average achievement. The study recommends, in addition to participation different stakeholders creating ownership of local governments and

community is more advisable to continue the program with address of all poor students in addition to making additional funding projects and need to make manage based on planned to strengthened SFP in sites where food in security is observed to provide sustainable primary schools performance positive impacts.

2.3.3.2 Relationship with Thinness and Stunting

The study authored by Demilew and Nigussie (2020), and published under the authority of Bahir-Dar University, College of Medicine and Health Sciences, also published on BMC Nutrition journal aimed to investigate the relationship between school feeding programs with thinness and stunting among primary school students in Meket Woreda, Ethiopia. Under-nutrition is a significant issue among Ethiopian school children, affecting academic performance. To address this problem, the government, in collaboration with the World Food Program, implemented a school feeding program. However, data on the nutritional status of primary school students were scarce in the country.

A school-based comparative cross-sectional study was conducted among 1091 students, selected using a multi-stage stratified sampling method. The study collected data using a structured questionnaire, and Anthropometric data were analyzed using Anthro-plus software. The results showed that thinness was more common in non-school feeding program schools (37.5%) compared to school feeding program schools (27.8%), while stunting was less common (48.3% versus 58.5%). However, after adjusting for confounding variables, there was no significant difference in stunting levels. On the other hand, the adjusted odds ratio for thinness in non-school feeding program schools was 2.6 times higher than in school feeding program schools.

The study also found that independent risk factors for thinness were having an uneducated mother, being male, and taking only one meal per day. Meanwhile, ethnicity, uneducated mother, un-piped water supply, taking one meal per day, type of diet, and being male were independent risk factors for stunting. The provision of meals seems to offer considerable protection against thinness, but not against stunting. Therefore, the study recommended the scaling up of school meal programs in food-insecure areas to address the issue of under-nutrition among school children.

2.3.4 Oromia Region: Correlation to School Performance

W/Mariam (2021) aimed to investigate the correlation between school feeding programs (SFP) and academic performance among primary school children in Mieso District, Ethiopia. A mixed-method, school-based comparative cross-sectional study was conducted among 423 students, and data was collected through questionnaires and in-depth interviews with four school principals from four public elementary schools in Mieso District from September 2, 2020, to September 30, 2020. The results showed that the average score of students who received SFP was significantly higher than those who did not receive it. The school principals confirmed the positive impact of SFP on short-term hunger alleviation, school enrolment, dropout rates, and absenteeism. Therefore, the study recommends that SFP should be scaled up in other food-insecure areas to improve the academic achievements of school children.

2.3.5 Sidama Region

This sub-section contains a couple studies conducted in Sidama region regarding School Feeding Program.

2.3.5.1 Effect on Absenteeism and Academic Performance

This prospective cohort study authored by Desalegn and others (2021) was conducted in sixteen public schools in the Sidama zone of Southern Ethiopia. It aimed to evaluate the effect of a school feeding program (SFP) on absenteeism and academic performance of primary school students (grades 5-8). The study enrolled 240 SFP-beneficiary and 240 non-beneficiary children, and followed them for an academic year. The results showed that SFP-beneficiary students had significantly fewer absences than non-beneficiaries, and were also less likely to drop out of school. Additionally, a small but significant improvement in academic performance was observed among SFP-beneficiary students compared to non-beneficiaries. These findings indicate that SFP can have positive effects on multiple academic outcomes in socio-economically disadvantaged children.

2.3.5.2 Effect on Anthropometric and Haemoglobin Status

This study authored by Desalegn and others (2021), and published under the authority of Journal of Nutritional Science aimed to investigate the impact of a school feeding program (SFP) on the nutritional status of primary school children in Sidama Region, Southern Ethiopia. The study enrolled 480 children aged 10-14 years, of which 240 were SFP beneficiaries and 240 were non-beneficiaries. The children were recruited from 16 public schools, 8 of which were implementing the SFP and 8 were control schools. The study

followed the children for an academic year, measuring their height-for-age z-score (HAZ), BMI-for-age z-score (BAZ), and haemoglobin concentration. The data collected was analyzed using multilevel difference-in-differences (DID) analysis. The study found that the SFP did not show a significant effect on the haemoglobin concentration, BMI-for-age z-score (BAZ), and height-for-age z-score (HAZ) of the children. The study recommends that SFP should provide healthy balanced meals to improve the anthropometric and haemoglobin status of school children.

2.3.5.3 Successes and Challenges

This study authored by Desalegn and others (2022), and published under the authority of Journal of Nutritional Science explores the successes and challenges of the program in Sidama Region, Southern Ethiopia. Data was collected through key informant interviews and focus group discussions with participants selected using purposive sampling. The study found that Home-Grown-SFP successfully improved class attendance and academic performance of school children, and helped parents save money and time. However, challenges such as lack of permanent clean water provision, delay in ration delivery, poor-quality food provision, inadequate amount of food allocated for the academic year, lack of necessary infrastructure, and lack of training in sanitation and hygiene for cooks were identified. The study recommends that program challenges receive high-level attention in order to improve the effectiveness of the school feeding program in the region.

2.3.6 Somali Region: Practice, Contribution, Challenge and Sustainability

Haile (2019) aimed to investigate the sustainability of the School Feeding Program (SFP) in the Ethiopian Somali Regional State, focusing on its practices, challenges, contributions, and sustainability. The study was conducted in different zones such as Gode, Jigjiga, Deghabour, and Kebri Dehar, and involved various participants such as teachers, directors, parents, students, Woreda education offices, Region education bureau, and WFP focal persons. The study employed purposive sampling techniques to select participants, and used percentage and thematic analysis to analyze quantitative and qualitative data, respectively

The main finding of the study indicates that there is a clash between the demands of the SFP and the supply side of the program. The Region education bureau, schools, and parents were not jointly working to generate new ways to sustain the program in the region, despite the commitment of the community and the regional government to support the program. The distribution of food service was not properly managed, although the SFP has contributed

significantly to the students' education, such as enhancing their moral and vision to education, increasing enrolment and attendance, and improving the quality of education.

However, there were also different challenges reported, such as the increasing number of students from year to year, lack of government and community commitment to support the program, lack of sectorial engagement, lack of financial and institutional capacity, and lack of an independent SFP structure at different levels, which affects the implementation of the program and its future sustainability. Opportunities were identified in the study, such as the existence of enough land at each school, surplus production, enough rivers, committed government, parents, and community to support the program.

Based on the identified findings, the study recommends that the regional government should establish a new independent structure to run the SFP, redesign the program to accommodate the interests of different sectors, use the existing opportunities effectively, and mobilize pastoral community resources for the program to sustain its implementation in the future.

2.3.7 Other Rural Areas: Educational Outcomes

Poppe et al. (2017) explores the correlation between school meal programs and academic achievements in Ethiopia. The study is conducted in rural areas of Ethiopia and examines the impact of different program modalities and their implementation on educational outcomes. The findings indicate that providing take-home rations in addition to on-site school meals can have a positive effect on concentration, reading, writing, and arithmetic skills. Furthermore, the timing of the distribution of school meals is identified as a critical factor in determining their effectiveness. Overall, this study suggests that well-implemented school meal programs can be beneficial for enhancing educational outcomes in Ethiopia. The authors hope that these results will inform future policy decisions related to school meal programs in the country.

2.3.8 Summary and Conclusion

In terms of enrolment rate, studies by Destaw (2022), Kidanemariam (2019), and Haile & Ali (2019) indicate that the feeding program contributes to an increase in enrolment. These programs have been successful in attracting more students to schools. Additionally, studies by Feyissa (2018), W/Mariam (2021), Desalegn et al. (2021), and Haile & Ali (2019) suggest that school feeding programs have a positive effect on attendance, reducing absenteeism among students. Kidanemariam (2019) specifically notes normal attendance rates in schools implementing the feeding program.

Furthermore, studies by Haile & Ali (2019), Destaw (2022), Feyissa (2018), Kidanemariam (2019), W/Mariam (2021), Desalegn et al. (2021), and Desalegn et al. (2022) highlight the positive impact of school feeding programs on academic performance. These programs have been associated with improved academic achievements and enhanced education quality. Poppe, Frölich, & Haile (2017) and Kidanemariam (2019) also point out that the feeding program increases concentration or attention among students, while Poppe, Frölich, & Haile (2017) further emphasizes the positive influence on reading, writing, and arithmetic skills.

In terms of health indicators, Desalegn et al. (2021) did not observe significant changes in the haemoglobin concentration, BMI-for-age z-score (BAZ), and height-for-age z-score (HAZ) of students participating in the feeding program. However, W/Mariam (2021) notes that the program contributes to hunger alleviation.

Regarding dropout rates, studies by Destaw (2022), Kidanemariam (2019), and Haile & Ali (2019) suggest that the feeding program has a decreasing effect on dropout rates. On the other hand, Feyissa (2018) did not specifically observe a decrease in dropout rates.

In terms of nutritional outcomes, Demilew and Nigussie (2020) found a decrease in thinness among schools implementing the feeding program, but Mohammed (2018) and Tefera (2020) noted that despite the presence of the program, a high percentage of students remained underweight. Haile & Ali (2019) reported a decrease in stunting, while Mohammed (2018) did not observe a significant change in stunting levels. Tefera (2020) also noted a decrease in the prevalence of overweight children in schools with the feeding program.

According to Dires (2020), challenges associated with school feeding programs include inadequate resources, poor infrastructure, and a lack of coordination. However, there are opportunities for improvement, such as community participation and stakeholder involvement in program implementation Dires (2020).

In summary, these findings suggest that school feeding programs have a positive impact on enrolment, attendance, academic performance, concentration, and certain nutritional outcomes. However, challenges need to be addressed to ensure the effective implementation of such programs.

2.4 School Feeding Program in Addis Ababa

In this sub-section, a thorough review of literature on school feeding programs will be conducted in various sub-cities in Addis Ababa, including Bole, Kirkos, Gullele, Arada, Yeka, Kolfe, and Addis Ketema. Different aspects of school feeding programs will be covered, such as their effects on school participation, impact on school participation and dietary intake, assessment of challenges and prospects of the program, factors influencing its success, contribution to quality education, and assessment of its role in enrolment and academic performance. Reliable scholarly articles will be included in the literature reviewed. Additionally, a summary of the key findings from the literature review will be presented, along with a critical analysis of the sources consulted.

2.4.1 Bole Sub-city: School Feeding

Alemu (2020) focused on the School Feeding Program (SFP) in government schools using an anthropological approach. The aim was to investigate the experiences of schoolchildren who face hunger, and to explore the response of both state and non-state actors to address this issue. A qualitative approach was employed to collect and analyse data from six public schools that were purposely selected. The study found that many schoolchildren in Bole Sub-city face hunger, which often leads to dropping out of school or engaging in part-time income-generating labour activities to generate money for food. The Addis Ababa city government has implemented a school feeding program for some of the students from the poorest families, which has helped to increase enrolment rates and reduce dropout rates. However, the program faces resource constraints and is struggling to keep up with the increasing costs of living and food prices. Lack of an independent SFP structure, integration, and sectorial engagement have been obstacles for the program's effectiveness and sustainability. The study highlights the need for strong public participation and multi-sectorial engagement to address this important issue.

2.4.2 Kirkos; Effect on School Participation

Sulle (2022) aimed to evaluate the impact of the school feeding program on school participation in five selected government primary schools. The research employed a descriptive research design, collecting both qualitative and quantitative data from various primary and secondary sources, including questionnaires, interviews, and document analysis. The study found that the school feeding program had a positive effect on enrolment and regular school attendance, making it possible for students who dropped out to return to school. However, none of the sampled schools initiated alternative income-generating

activities to supplement government support. The study suggests that the government could improve the program's quality and sustainability by adapting it to current living conditions while schools could use alternative fundraising mechanisms. Overall, the study underscores the importance of effective implementation and community engagement to maximize the program's benefits and ensure its sustainability.

2.4.3 Kirkos II; Assessment of Challenge and Prospect

Sertse (2019) assessed the school feeding program (SFP) in three primary schools and its impact on students' well-being and participation. The study collected data through key informant interviews, focus group discussions, personal observations, and questionnaires distributed to stakeholders. Before the official SFP was launched by Yeenat Weg, there was fragmented school feeding by individuals, teachers, NGOs, and the community. However, after the SFP started, students in severe conditions were selected to receive the food. The government of Addis Ababa started school feeding in all government primary schools in the 2018/19 academic year, which helped to mitigate hunger in children who came to school with empty lunch boxes. The food provided was enough to fill the children's stomachs, but it lacked nutritional foods such as milk and fruits. Unregistered students also benefited from the program without stigma.

The study revealed various challenges such as lack of awareness, financial constraints, physical capital, policy-related challenges, and insignificant stakeholder participation. However, despite these challenges, the students were happy and did not hesitate for the termination of the program. The study recommended that well-designed policies should be in place for the SF, and there should be collaboration among all stakeholders to achieve the intended results in the education and nutrition sectors. The management process of SF is very difficult, and the collaboration of all stakeholders is necessary for successful implementation. The Ministry of Education should coordinate with other stakeholders to address the challenges and promote the program. Finally, the study concluded that school feeding needs clear policies, integration with higher education institutions, and promotional work to prevent dependency and ensure its success.

2.4.4 Gulele; Impact

In this study conducted by Gebreamlak (2018) the impact of the school feeding program run by Ye Enat Weg was evaluated. The study aimed to assess the effects of the program on school attendance and dietary intake of beneficiary students. A total of 300 participants,

including 260 beneficiary students and 40 key informants, were involved in the study. Data was collected through structured questionnaires, semi-structured interviews, and observation checklists. The results showed that the school feeding program had a positive impact on attendance, learning interest, and participation in curricular and extracurricular activities. It also provided income-generating means for the women who prepared the meals. However, no significant effect was seen on enrolment. More than half of the students believed that the program needed improvement. The study concludes that Ye Enat Weg, schools, and other governmental and nongovernmental organizations should work collaboratively to enhance the program's betterment by involving all responsible parties, including beneficiaries.

2.4.5 Arada Subcity; Factors

Genene (2021) examines the factors that influence the success of school feeding programs in Addis Ababa. Through a literature review and survey questionnaire, the study identifies program planning, financial management, community participation, and monitoring and evaluation as key factors that contribute to the success and sustainability of school feeding programs. The survey involved purposefully selected respondents from offices related to program implementation and schools where the program was being run. The analysis of responses shows that these factors are associated with the success of school feeding programs. Therefore, the study recommends that program implementers prioritize these factors in order to build effective and sustainable programs. The research concludes that further studies are necessary to identify additional factors that may impact the success of school feeding programs.

2.4.6 Yeka Subcity; Contribution

Reta (2020) aimed to assess the appropriateness of the SFP and its contribution to quality education, focusing on academic achievement, completion rates, and creating a positive psychological environment for learning. A mixed research approach was used, including quasi-experimental and non-experimental designs. The study involved 251 students, 118 of whom were SFP beneficiaries and 133 non-beneficiaries but needy, selected through stratified and simple random sampling. Data were collected using student roster cards, questionnaires, and interviews and analyzed using SPSS version 21. The study found that the SFP had a positive and significant contribution to academic achievement and a positive impact on the psychological makeup of students. However, the implementation process was both appropriate and inappropriate, and the program only partially met the target of

decreasing dropouts. Based on the findings, the study recommends practical interventions to enhance the program's effectiveness.

2.4.7 Kolfe; Role on Enrolment and Academic Performance

Adinew(2021) assessed the role of school feeding programs on students' enrolment and academic performance in the Kolfe Keranyo Sub-City Government Primary Schools in Ethiopia during the 2020-2021 academic year. A non-probability sampling technique was used to select four schools, 117 teachers, and 175 parents who were considered representative of the population. The study utilized descriptive statistics and analysis was conducted using SPSS 24 software package. The main findings indicate that school feeding programs have a positive effect on students' academic achievement and have led to an increase in school enrolment. The study recommends that the Ethiopian government should expand and improve school infrastructure and encourage parental involvement to ensure the proper implementation of school feeding programs. Furthermore, all stakeholders should work cooperatively to enhance program effectiveness.

2.4.8 Addis Ketema: Role on Enrolment and Academic performance

This study, authored by Addis Ketema Sub-city Administration Education Office, School Improvement and Supervision Team (2023), aimed to assess the impact of school feeding programs (SFPs) on students' enrolment and academic performance. Using a quantitative approach, the researchers selected 335 respondents through non-probability sampling techniques, including judgmental and purposive sampling, with 292 participants responding appropriately to the questionnaire. Data analysis was conducted using descriptive statistics, and 28 key variables were identified across four categories. The results showed that SFPs have a positive effect on students' academic achievement and an increase in enrolment. The study recommends that the government and Ministry of Education should improve school infrastructure, and parents should be encouraged to contribute to the proper implementation of SFPs. Additionally, all stakeholders involved in SFPs should work cooperatively to enhance program effectiveness.

2.4.9 Summary and Conclusion

This literature review summarizes the findings of eight different articles that investigate the impact and effectiveness of school feeding programs in various sub-cities in Addis Ababa, Ethiopia.

According to Alemu (2020), Sulle (2022), Adinew (2021), and School Improvement and Supervision Team (2023), the implementation of school feeding programs has resulted in an increased enrolment of students. Regarding dropout rates, Yirga (2020) suggests that school feeding programs can effectively decrease dropout rates. However, Reta (2020) presents a contrasting viewpoint, indicating that the impact on dropout rates is partially negative. These differing findings highlight the complexity of the relationship between school feeding programs and dropout rates (Yirga, 2020; Reta, 2020).

In terms of attendance, Sulle (2022) and Gebreamlak (2018) both report an increase in attendance due to the implementation of school feeding programs. These studies provide consistent evidence supporting the positive effect of school feeding on student attendance (Sulle, 2022; Gebreamlak, 2018).

Academic achievement is another variable influenced by school feeding programs. Findings from Addis Ketema Sub-city Administration Education Office, School Improvement and Supervision Team (2023), Reta (2020), Adinew (2021), and Gebreamlak (2018) indicate that school feeding contributes to an increase in academic achievement. Reta (2020) additionally highlights the positive impact on students' psychological wellbeing. These studies provide compelling evidence of the positive effects of school feeding on academic achievement and psychological aspects (Addis Ketema Sub-city Administration Education Office, School Improvement and Supervision Team, 2023; Reta, 2020; Adinew, 2021; Gebreamlak, 2018).

Furthermore, Gebreamlak (2018) states that school feeding programs enhance students' interest in learning and encourage active participation in classroom activities. This finding emphasizes the positive influence of school feeding on students' engagement and motivation in the learning process (Gebreamlak, 2018).

Regarding hunger alleviation, Sertse (2019) highlights the positive impact of school feeding programs in mitigating hunger among students. However, the study also notes that the provided food lacks certain nutritional items such as milk and fruits. This suggests the need for further improvement in the nutritional quality of the meals offered through school feeding programs (Sertse, 2019).

In summary, the reviewed studies provide valuable insights into the effects of school feeding programs. The findings support the positive influence of these programs on variables such as enrolment, attendance, academic achievement, psychological wellbeing, learning interest, and

hunger alleviation. However, there are also contrasting findings regarding dropout rates, suggesting the need for further investigation.

2.5 Learners' Engagement

Student engagement, a term often used to describe students' attitudes and willingness to participate in school activities, encompasses their psychological investment in the learning process (Shapiro et al., 2015; Chapman, 2003). It involves students' active involvement in various academic pursuits, such as attending classes, submitting assignments, and following teachers' instructions. Additionally, student engagement extends to extracurricular activities, which are believed to offer educational benefits, as well as a focus on core curriculum studies (Markwell, 2007).

While closely related, student engagement and motivation are distinct concepts (Sharan et al., 1999). To establish a unified understanding of student engagement, researchers have proposed different perspectives, drawing from psychological and socio-cultural frameworks. This multidimensional construct encompasses affect, behavior, and cognition, with some scholars borrowing ideas from work psychology, describing an "engaged" student as highly activated and energized (Kahu, 2013; Fredricks et al., 2004; Burch et al., 2015).

Student disengagement, on the other hand, refers to a notable withdrawal or lack of involvement in school (Willms, 2003). Disengaged students display passive behavior, lack effort, and easily give up when faced with challenges. They may experience negative emotions such as boredom, depression, anxiety, or even anger in the classroom. Disaffected students may withdraw from learning opportunities or exhibit rebellious behavior towards teachers and peers (Skinner & Belmont, 1993).

Research has identified three key factors that contribute to students' internal process of engagement (Wang et al., 2019). Behavioral engagement relates to active participation and perseverance in learning, while cognitive engagement involves mental processes such as attention and surpassing expectations. Emotional-affective engagement encompasses students' positive or negative experiences with learning. These internal factors are not fixed and can fluctuate as students transition between different learning environments, classrooms, and tasks (Wang & Eccles, 2013).

External factors also play a significant role in shaping student engagement. The family environment, including values and access to opportunities, influences a child's engagement

with learning. Parenting styles and expectations for academic success positively correlate with student engagement. Socioeconomic status also impacts engagement, as higher SES families tend to provide intellectual enrichment and advocate for their children's education (Wang et al., 2019).

Peers exert a strong influence on adolescent engagement. Research suggests that adolescents align their engagement levels with those of their peer group and choose peers with similar engagement levels. During adolescence, peer connections shape students' self-identity, and a strong peer group connection correlates with higher engagement (Wang et al., 2019). Peers also influence younger children as they learn socialization skills and conform to social norms.

2.5.1 Measuring Student Engagement

Student engagement, encompassing behavioral, emotional, and cognitive aspects, has gained considerable attention from scholars, educators, and policymakers (Fredricks et al., 2004). Behavioral engagement involves active participation in academic, social, and extracurricular activities and plays a vital role in achieving positive academic outcomes and preventing dropout (Connell & Wellborn, 1991; Finn, 1989). It is also defined by positive conduct, adherence to classroom norms, and the absence of disruptive behavior (Finn, Pannozzo, & Voelkl, 1995; Finn & Rock, 1997).

Emotional or Psychological engagement focuses on individuals' positive or negative reactions towards teachers, classmates, academics, or school itself; it can be understood as identification with the school, encompassing a sense of belonging, importance, and valuing success in school-related outcomes (Finn, 1989; Voelkl, 1997). Positive emotional engagement is believed to enhance students' connection to the institution and influence their motivation to engage in their work (Connell & Wellborn, 1991; Finn, 1989).

Cognitive engagement pertains to the level of investment in learning, involving thoughtfulness, strategic thinking, and willingness to exert effort to comprehend complex ideas or master difficult skills (Corno & Mandinach, 1983; Fredricks et al., 2004; Meece, Blumenfeld, & Hoyle, 1988).

Various models have been proposed to conceptualize student engagement, ranging from two-dimensional models incorporating behavior and emotion to three-component models encompassing behavior, emotion, and cognition. Christenson and her colleagues have proposed a four-dimensional model, which includes academic, behavioral, cognitive, and

psychological (affective) engagement, further dividing behavior into academic and general behavior components (Appleton, Christenson, Kim, & Reschly, 2006; Reschly & Christenson, 2006). However, further research is required to determine the distinct nature of each dimension and to identify the most appropriate model for describing student engagement.

Self-report survey measures are commonly used to assess student engagement due to their practicality and ease of administration in classroom settings (Fredricks & McColskey, 2012). These measures can be administered to large and diverse samples of students at a relatively low cost, enabling data collection across multiple time points and facilitating comparisons across schools. Nevertheless, one concern with self-report measures is the potential for students to provide inaccurate responses under certain conditions, such as when administered by their teacher without anonymity, leading to a discrepancy between self-reported engagement and actual behaviors or strategy use (Appleton et al., 2006; Garcia & Pintrich, 1996).

The self-report methodology involves presenting students with items that reflect various aspects of engagement and allowing them to select the response that best describes their experiences. Most self-report engagement measures are general in nature.

According to Appleton et al. (2006), the Student Engagement Instrument (SEI) considers low engagement scores as indicators of negative engagement. Previous research has demonstrated positive correlations between SEI scores and academic variables, including GPA and math performance, while negative correlations have been found with suspensions. Furthermore, Appleton et al. (2006) conducted exploratory and confirmatory factor analyses, which supported the presence of six distinct constructs consistent with the reported sub-scales of the SEI.

Measurement invariance has been established based on grade level and gender (Betts et al., 2010). Furthermore, there are systematic differences in SEI scores among students with different levels of behavioural engagement, with higher rates of disciplinary incidents or absences associated with lower SEI scores (Lovelace et al., 2014).

Christenson and colleagues proposed a 4-part typology of engagement that included academic, behavioural, cognitive, and affective subtypes (Appleton, Christenson, Kim, & Reschly, 2006; Christenson & Anderson, 2002; Christenson et al., 2008; Reschly

&Christenson, 2006, as cited in Check and Connect, 2022a). Indicators of students' academic and behavioral engagement are typically readily available in school data systems; however, affective and cognitive engagement require student self-report (Check and Connect,2022a).

According to check and connect (2022b), Academic and Behavioural are categorized as observable engagement, whereas Cognitive and Affective engagements are categorised as Internal Engagement. The same source states that the various forms of engagement are not isolated but rather interconnected, with affective (psychological) engagement supporting behavioral engagement, and cognitive engagement facilitating academic engagement.

2.6 Correlation between School Feeding and Learner Engagement

In a descriptive-correlational study conducted by Ngussa (2020), the researcher examined the relationship between food provision, teachers' involvement, and pupils' engagement in learning. The study took place in Arusha City, Tanzania, involving a sample of 217 pupils from 14 public primary schools. To ensure research validity, content validity was established through expert judgment, and the questionnaire used in data collection demonstrated good reliability. Ethical standards were followed, ensuring participant anonymity, confidentiality, and voluntary participation. Findings from the study revealed significant relationships. A positive and significant correlation was found between the quality of food provision and pupils' engagement in learning. Additionally, a positive correlation was observed between the quality of food provision and teachers' involvement in the learning process. Furthermore, the study showed a positive relationship between teachers' involvement and pupils' engagement in learning. Pupils actively participated by contributing, demonstrating critical thinking skills, engaging with peers, and participating in group discussions. Pupils expressed satisfaction with the quality of food provision, indicating that their nutritional needs were adequately addressed. Gender-based differences in perception were notable, with female pupils perceiving higher levels of teacher involvement compared to their male counterparts. Based on the study's findings, Ngussa (2020) recommends that primary schools prioritize effective food provision to enhance teachers' involvement and pupils' engagement in the learning process. Teachers are encouraged to leverage pupil participation and engagement to improve educational outcomes.

2.7 Theoretical Framework

Before we proceed and discuss the theoretical framework upon which this particular paper is based, it is preferable to review some conclusions reached by other published papers

regarding school feeding program and other variables. An overview is presented in the following paragraphs.

Trials conducted in developing countries (Agarwal et al., 1989; Bailey, 1962) which focused on addressing nutritional deficiencies, generally yielded positive outcomes. However, it is worth noting that in some instances, the measurement of weight was affected by edema associated with kwashiorkor (Bailey, 1962). On the other hand, trials conducted in high-income countries (Lieberman et al., 1985; Paige et al., 1976; Powell et al., 1998) have produced mixed results. Long-term nutritional supplementation has shown significant effects on growth and occasionally on performance in cases where children were genuinely undernourished but, not when they were not. To prove a point, we may look at studies that examined school milk supplements in Britain in the 1920s, which was a period marked by economic recession, high unemployment, and food shortage; these studies (Orr, 1928) demonstrated a considerable positive impact on children's growth. However, a trial conducted in the 1970s using the same supplement (Paige et al., 1976; Tisdall et al., 1951) did not yield significant benefits, as determined through statistical analysis.

In both developing countries and developed countries, a number of trials were designed based on the theory that school feeding could lead to short-term increases in blood glucose levels, subsequently improving concentration, memory, motivation, and other cognitive prerequisites for learning (Chang et al., 1996; Bro et al., 1994; Bro et al., 1996). However, the effects of these interventions varied across different areas of performance, such as verbal, non-verbal, and mathematical abilities, as well as across different studies.

Criticism has been raised regarding studies that did not adequately control for the effect of benevolent attention of teachers or adult figures toward students benefiting from the feeding program. Powell and colleagues (1983) suggested that, at the very least, the control group should receive a low energy drink or a piece of fruit along with the attention provided by teachers or researchers. In the context of "at-risk" adolescents, including school drop-outs, drug users, teenage parents, or individuals from families with other social problems, Bro et al. (1994,1996) conducted two studies that demonstrated improved attention to set tasks when a generous breakfast was provided before the lesson began, despite these teenagers not being malnourished.

Measuring attendance unbiasedly, Agarwal et al. (1989), Bailey (1962) found that most trials conducted in low and middle-income countries showed significantly higher attendance levels

in the supplemented groups. Whereas studies conducted by Lieberman et al., (1985), Paige et al. (1976) and Powell et al. (1998) in developed nations did not yield statistically significant effects on attendance.

After going through the findings which all these scientific papers presented, I attempted to find and adopt a theory that in little or much intensity covers all these findings in its comprehensive nature. A broad but precise theory that comprises and may relate to all the discussed instances of findings to some extent, according to my opinion based on rigorous researching to decide what theory is appropriate for this particular paper, is Abraham Maslow's theory of Needs. The theory is discussed broadly in the following sub-section, along with its relationships with different variables that relate it to the theme of my research paper.

2.7.1 Maslow's Theory of Needs

Maslow's hierarchy of needs is a model for understanding the motivations for human behaviour (West, 2022). It maps different motivations onto a pyramid, with each level representing a different human need, and these include physiological needs, safety, love and belonging, esteem, and self-actualization (West, 2022).

Maslow's theory differs from more purely physiological representations of human motivation because motivation is seen as being not just concerned with tension reduction and survival but also with human growth and development (Mcleod, 2023). Maslow in 1954, proposed that human beings possess two sets of needs. This five-stage model can be divided into deficiency needs and growth needs. The first four levels are often referred to as deficiency needs, and the top level is known as growth or being needs (Mcleod, 2023).

According to Mcleod (2023), deficiency needs are concerned with basic survival and includes physiological needs (such as the need for food, sex, and sleep) and safety needs (such as the need for security and freedom from danger). Behaviors associated with these needs are seen as 'deficiency' motivated, as they are a means to an end (Mcleod, 2023). Deficiency needs arise due to deprivation and are said to motivate people when they are unmet (Mcleod, 2023). Also, the motivation to fulfill such needs will become stronger the longer they are denied. For example, the longer a person goes without food, the hungrier they will become (Mcleod, 2023).

Mcleod (2023) stated that when a deficit need has been “more or less” satisfied, it will go away, and our activities become habitually directed toward meeting the next set of needs that we have yet to satisfy. These then become our salient needs. However, growth needs continue to be felt and may even become stronger once they have been engaged (Mcleod, 2023).

Growth needs are more psychological needs and are associated with the realization of an individual’s full potential and the need to ‘self-actualize’. These needs are achieved more through intellectual and creative behaviors (Mcleod, 2023). Growth needs do not stem from a lack of something but rather from a desire to grow as a person (Mcleod, 2023). Once these growth needs have been reasonably satisfied, one may be able to reach the highest level, called self-actualization (Mcleod, 2023). Growth needs are achieved more through intellectual and creative behaviors (Mcleod, 2023). Every person is capable and has the desire to move up the hierarchy toward a level of self-actualization (Mcleod, 2023). Unfortunately, progress is often disrupted by a failure to meet lower-level needs (Mcleod, 2023). Therefore, not everyone will move through the hierarchy in a uni-directional manner but may move back and forth between the different types of needs (Mcleod, 2023).

As a researcher, it is important to critically evaluate and contribute to the existing knowledge by examining and testing such theories. The discussion in the following subsection will focus on the interrelationships and implications of the research variables, using Maslow's hierarchy of needs as a framework.

2.8 Discussion

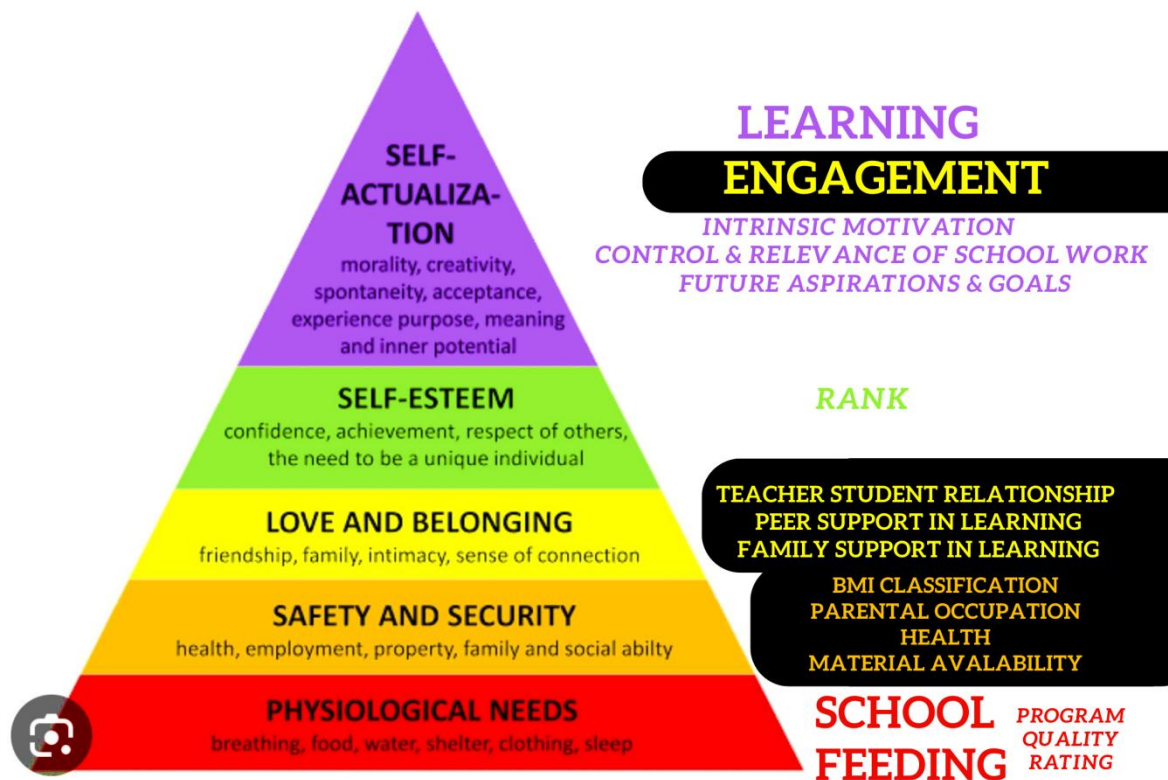


Figure 1: Maslow's Five Stage Needs Theory

As you can see in the figure above, School Feeding Program (our predictor variable, indicated by Program Quality Rating) is at the base of the hierarchy, and our predicted variable (Student Engagement, primarily indicated by Intrinsic motivation, control and relevance of school work, future aspirations and goals and secondarily indicated by teacher and student relationship, peer support in learning and family support in learning) is on top and in the middle. We note here, that while the psychological aspect of engagement lingers on the third need category upward from the base, the cognitive aspect of it is positioned on top. What may we infer from this is that the psychological aspect of engagement may act as a predictor variable to the cognitive aspect of it. A child needs to be supported by his parents, loved by his friends and supported by his teachers before he could start loving going to school, learning and participating in classes and thinking about future goals.

Another thing worth noting is that the SEI questionnaire designed by Appleton et al. (2006) has its indicators fall into a couple need categories from Maslow's hierarchy of needs,

namely: Love and Belonging and Self-Actualization Needs. We may also realise from studying the figure that Academic Achievement or rank comes between the psychological and cognitive engagement, proposing the idea that Rank or Academic achievement may mediate the relationship between psychological and cognitive engagement, making the psychological engagement aspect predictors of the predicted cognitive aspect.

The other thing laid out clear on the figure is safety and security needs come before love and belonging. Let us elaborate a bit, a child who is malnourished may not have good relationship with peers and teachers due to aggressiveness or lack of interactivity caused by lack of food. Again a child whose parents have financial problems or are unemployed and poor may not have the confidence to form bonds with other students as the feelings of inferiority creep in, also the child may lack family support in that the parents are not in a position to give the required amount of attention to their child but work hard to feed the family or to deal with the depression the lack causes. Health as well is another factor that comes before the love and belonging class, because an unhealthy person is barely able to interact in a healthy way with others without having to depend on others for help.

Overall, from the figure, we may infer from this, basing out proposition on Maslow's need theory, that in order for students to be engaged, their physiological needs must be met first; and that is just what the school feeding program does: it feeds students or, in other words provides them food.

Now, before we proceed, let us first verify that the studies of whose findings we have read about earlier are all packed in this single theory. Let us tabulate:

Table 8: Study Verification Matrix

Studies	Maslow's Need Category Involved	Study Concerns
Agarwal et al., (1989) Bailey, (1962) Lieberman et al.(1985) Paige et al.(1976) Powell et al.(1998) Orr(1928) Tisdall et al.(1951)	Physiological	Nutritional Status
Powell et al. (1983) Bro et al. (1994,1996)	Love and Belonging	Feeling Valued
Chang et al. (1996) Bro et al. (1994,1996)	Cognitive (Sub-Part of Maslow's Self-Actualization Needs)	Cognitive Prerequisites for Learning: Concentration, Memory, Motivation
Agarwal et al. (1989) Bailey (1962)	Self-Actualization	Attendance

Now, that we have proved our theory is broad enough to let us grasp a wider understanding in regards to the variables we wish to study, we may confidently state that we have partly secured our needs to proceed and formulate our main research questions based on the laid out graphic information we have here. Hence, the reader may map back the research question to this section of the paper. That being said, using the graphic representation displayed in the previous page as a springboard, let us attempt in the following subsection to sort and explain some other factors that may affect the relationship between our predictor and predicted variables.

2.8.1 Narrative Argument Based on Maslow's Theory

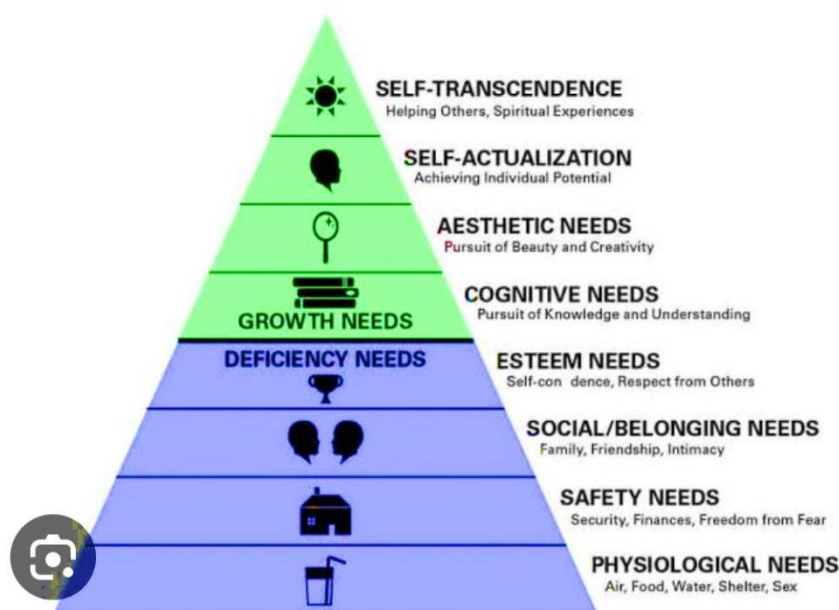


Figure 2: Maslow's Eight Stage Needs Theory

Based on (Figure 1) and (Figure 2), a narrative argument is composed here, which is subject to approval or disapproval by the end results of the analysis of data collected for this particular research.

2.8.2.1 Physiological Need

According to the (figure1) and (figure 2), before students could think of their BMI, they must ease their hunger, and their parent's occupation won't be a glorified sign of shame if they are starving to death, also the availability or lack of learning material won't be a ground of worry for a student with an empty stomach, but once the stomach is fed, the students begin acknowledging the urges from a higher level of need: Safety and Security Need.

2.8.2.2 Safety and Security Need

Once the students attend the needs of the stomach and body, things like the occupation of their parents, their BMI, their health, and availability of learning materials start to worry them. They start worrying if they are too thin or too fat; if their parent's occupation is embarrassing or not; if the foods they eat are healthy or not and if they have materials required for learning in their access.

Students who never worried about the type of food served to them while they were hungry would start developing preference of one food over the other. Students who never thought about having easy access to learning materials, start noticing the lack. They begin comparing

their parents' occupation with others' parents' occupation. This level will affect their approachability, because here, insecurity may develop, and as insecurity decreases approachability, the students may find it hard to acknowledge a higher level of need which is the need for love and belonging.

2.8.2.3 Love and Belonging

Here, the students' focus diverts to making friends or forming healthy relationship with their teachers, and they would start expecting increased attention from their parents as well. If they could do all three without much hustle, they would acknowledge an even higher need: Self-Esteem Need.

2.8.2.3 Self Esteem

Students who have friends they could count on, parents who support them and teachers who are interactive in all positive ways, will divert their attention to performing better, to getting even better grades; they would want to start performing better in their grades, because they would start to compare their achievements with that of the others, and a need for uniqueness and acknowledgement would set in. As a result, the students will pass on to the highest levels, which are concerned with development and growth rather than fulfilment of lacking needs.

2.8.2.4 Cognitive Needs

In this stage, students who used to increase their efforts to exceed in comparison to other individuals realise that competition ought to be with oneself rather than others. Therefore, students start devoting their whole attention to the pursuit of knowledge, they will become seekers. The power of curiosity will drive students to being interactive in class, causing them to be attentive and to participate in class.

On this stage, students yet perform even better on their academics because of increased efforts only with a different cause. After this level of need is satisfied, students pass to the pursuit of beauty and creativity.

2.8.2.5 Aesthetic Needs

This stage is marked by original thinking, therefore growth is boosted, and academic performance as well is positively influenced. When students start thinking that they have ideas to offer, knowledge to share they would barely entertain the idea of staying away from school, therefore absenteeism is automatically decreased. Students will read more and more

nourishing their beauty and creativity seeking desires, and they finally pass on to self-actualization Needs.

2.8.2.6 Self Actualization

Here, students test themselves in attempt to be as good as they could be. Kids who have reached here will most certainly be ones who have good academic achievements. Significant changes in level of academic achievement may not be notices but still there may be some betterment. The last level of need after self-actualization is self-transcendence, which involves helping others achieve better.

In addition to what has been discussed above, the engagement levels of students who have or may not have had their highest needs met, may be affected by some other factors such as gender, age, and grade level, because one gender may address needs in a different way than the other, as would individuals in different age groups. Students who have repeated grades and are in grade levels that don't much their age may put in much effort to succeed than the ones who have not repeated grades.

Overall, the study is based on Maslow's Theory of needs and is based on the assumption that by providing students with nutritious meals through school feeding programs, their basic physiological needs are met, which can increase their ability to focus on learning and engagement in the classroom.

2.9 Conceptual Framework

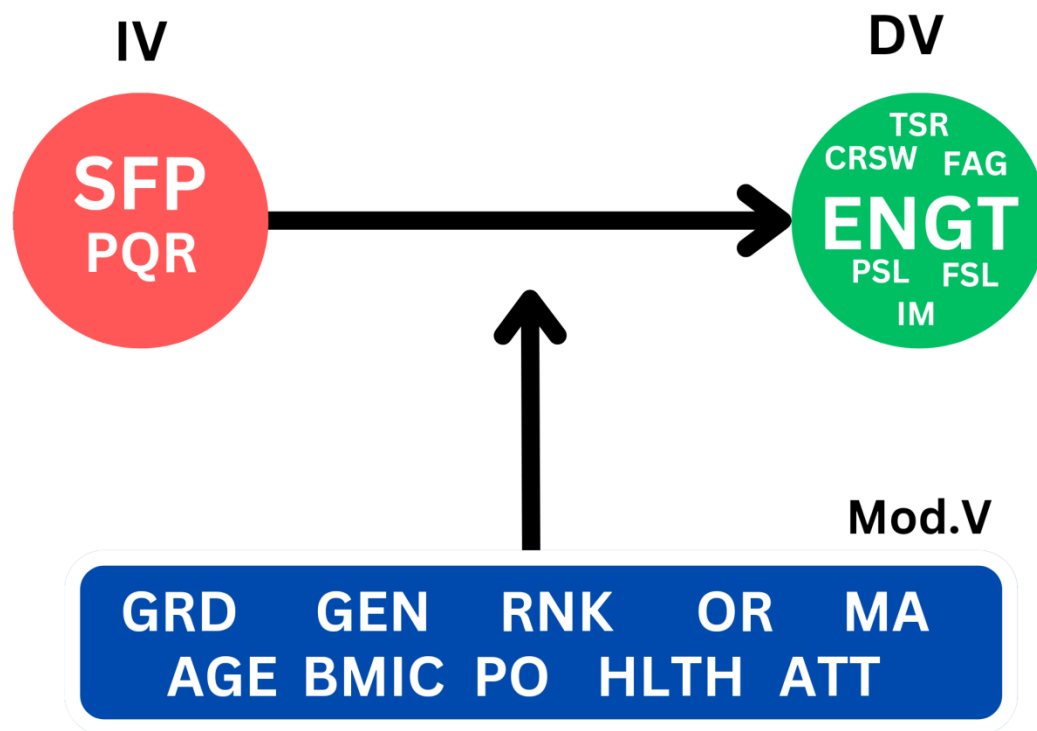


Figure 3: Conceptual Framework

KEY: **GRD:** Grade, **GEN:** Gender, **RNK:** Rank, **OR:** Other Responsibility, **MA:** Material Availability, **AGE:** Age, **BMIC:** BMI Classification, **PO:** Parental Occupation, **HLTH:** Health, **ATT:** Attendance

SFP: School Feeding Program, **PQR:** Program Quality Rating, **ENG:** Engagement, **TSR:** Teacher- Student Relationship, **PSL:** Peer Support for Learning, **FSL:** Family Support for Learning, **CRSW:** Control and Relevance of School Work, **FAG:** Future Aspirations and Goals, **IM:** Intrinsic Motivation.

2.10 Conclusion

In conclusion, the findings presented in this review of related literature section shed light on the current state of knowledge regarding school feeding program and related variables, which may indirectly or directly have certain type of relationship with the meal program. Through the analysis of various studies and sources, gold insights and noticeable trends have emerged.

The review indicates that school feeding has positive relationships with several variables which are believed to be beneficial to pupils. These findings provide valuable information for understanding out main variables, their relationship with each other and their relationships with other variables. Furthermore, the findings highlight the gaps and limitations that exist in the current pool of literature regarding the relationship between school feeding program and engagement, especially in Ethiopia. Moving forward, further research is needed to address these gaps and enhance our understanding of the variables in local context, additionally providing evidence-based conclusions on the relationship between meal program and learners' engagement. Overall, this literature review contributes to the scarce, but existing body of knowledge and serves as a foundation for the subsequent research in this field.

Chapter 3: Methodology

This section provides a detailed discussion of the research design, study setting, sampling procedures, data collection methods and instruments, data analysis techniques, and discussion of ethical considerations. The research design is outlined, encompassing the identification of moderating variables, sampling procedures, and the utilization of appropriate instruments. The study setting is described to provide an understanding of the context in which the research takes place, and the specific sampling procedures employed for both the quantitative and qualitative studies are explained. The data collection methods and instruments for both types of studies are discussed, ensuring a comprehensive approach to gathering relevant data. Additionally, the chosen data analysis techniques are elucidated to facilitate the interpretation of collected data. Ethical considerations are also addressed, highlighting the ethical principles and guidelines followed throughout the research process. This comprehensive methodology section ensures the transparency and rigor of the research methodology, laying a solid foundation for the subsequent analysis and findings.

3.1 Research Design

The present study uses a descriptive correlational design to investigate the correlation between student engagement levels and school feeding program in Addis Ababa. The problem statement centres on the literature gap regarding the correlation between school feeding and learners' engagement, due to limited or insufficient existence of literature on the topic. To address this issue, the study aims to describe the relationship between student engagement levels and the school feeding program. Specifically, the study employs a descriptive correlation design to identify any associations between the dependent variable: student engagement level and the independent variable: school feeding program and the program's quality rating. The extent of researcher interference in the study will be minimal or none and the study setting will be non-contrived.

3.1.1 Moderating Variables

In addition, the study explored the impact of several moderating variables, such as attendance, grade level, age, BMI Classification, gender, parent/guardians' occupation, other responsibilities, health, and availability of learning materials.

3.1.2 Sampling and Instruments

The present study implemented a rigorous sampling design, utilizing probability sampling techniques including stratified and systematic sampling to select schools, and simple random sampling to select students. The sample size was determined with a high level of confidence, utilizing a 95% confidence level, 5% margin for error, and a 99% response rate. The study employed various data collection methods including questionnaires and interview, using nominal, interval, and ratio scaling to ensure accurate and reliable measurement of the research variables.

3.1.3 Data Collection and Analysis

The present study adopts a one-shot or cross-sectional time horizon and employs data collection methods such as interviews, and questionnaires. The collected data is then categorized based on moderating variables including attendance, grade level, age, BMI, gender, parent/guardians' occupation, other responsibilities, health, and availability of learning materials to facilitate a comprehensive analysis. A variety of techniques including the use of histograms are utilized to analyse the data. To ensure the validity and reliability of the study, pre-published instruments are adopted as research instruments. Hypothesis testing is conducted to establish the relationship between student engagement levels and the school feeding program.

3.2 Study Setting and Sampling Procedures

3.2.1 Study Setting

The study was conducted in Addis Ketema sub-city pre-primary and primary government schools in Addis Ababa city and data was collected from February, 1 2023, to April 20 2023.

Addis Ketema Sub-city is one of the 11 sub-cities in Addis Ababa city. The district is located in the northwestern area of the city, not far from its centre. It borders with the districts of Gullele in the north, Arada in the east, Lideta in the south and Kolfe Keranio in the west. As of 2022, the district has a population of 359,735 (Brinkhoff, 2022).

3.2.2 Sampling for the Quantitative Study in Primary Schools

The questionnaire is administered to 6 grades from primary schools (grades 3-8). The researcher selected more 31.4% of the total school population and then stratified the selected schools based on school sizes, setting a stratification threshold. After selecting the schools, the researcher had to allocate the student sample size, calculated by Raosoft, to the selected

schools relative to their size. Then again the sample size allocated to each school was allocated to 5 grade levels. The sample size was calculated using 5% as Margin of Error, 95% as Confidence Level, and 90% response rate or 90% population proportion. A total of 11 schools and 138 students were selected for the quantitative study.

3.2.3 Sampling for the Qualitative Study in Grade 1 and 2

The interview is administered to Grade 1 and 2 homeroom teachers. The same schools used for quantitative were subject to a part of the qualitative study. Then 25% of the samples allocated to each school in the quantitative study were used to sample students from a couple grade levels, and a single section. The homeroom teachers of the selected teachers were then interviewed. A total of 43 students and 12 homeroom teachers were selected from 11 schools and 22 classes.

3.2.4 Sampling for the Qualitative Study in Pre-Primary Schools

The interview is administered to Pre-school teachers. Regarding school selection, 30% of KG1 and KG2 school population and 30% of 0-class school population were selected, resulting in 7 KG1 and KG2 schools and 3 0-class schools. After deciding how many schools were to be selected, the researcher used systematic sampling to decide which schools had to be selected. The reason for this is that there was not much difference in the student-population-based size of the schools. After the schools were selected, the student sample size was calculated using Raosoft online sample size calculator, with 95% confidence level, 5% margin of error, and 99% response distribution. The calculated sample size of 31 students was allocated to each school based on their student population. Classes were randomly selected, students randomly selected and their homeroom teachers were interviewed.

3.3 Data Collection Methods and Instruments

This subsection presents the methods employed in a descriptive correlational study conducted in Addis Ketema sub-city between February 1, 2023, and April 20, 2023. The study adopted a mixedmethod methodology approach, collecting data from 11 primary schools and 10 pre-primary schools. Qualitative and quantitative data were gathered from primary schools, while only qualitative data were obtained from pre-primary schools.

3.3.1 Data Collection Method and Instruments for the Quantitative

Quantitative data was collected from 11 schools, involving four volunteers in the process. The data collection instrument utilized was a pre-tested structured questionnaire, specifically the Student Engagement Instrument (SEI) developed by Appleton et al.

(2006). The Student Engagement Instrument (SEI), was designed to measure the less overt subtypes of student engagement: cognitive and psychological engagement (Appleton et al., 2006).

As defined by Check and Connect (2022), the Student Engagement Instrument (SEI) is a brief 35 item self-reporting survey measuring cognitive and affective engagement and is validated for students in 3rd grade through 12th grade; only leaving a couple items from the instrument to render it suitable for students in grades 3 to 5.

The instrument consisted of a couple of parts; the first segment included twelve questions used to collect background information of the respondents and their perception regarding the school feeding program. The second part was the SEI questionnaire, which is a 5-point Likert scale containing 35 items that measured six subscales, namely: Teacher-Student Relationship, Peer Support in Learning, Family Support in Learning, Control and Relevance of Schoolwork, Future Goals and Aspirations, and Intrinsic Motivation.

Being adapted for this particular research, the SEI questionnaire was translated into Amharic and tested for clarity, with random students evaluating its comprehensibility and reporting any identified ambiguities, also language experts were consulted to ensure an unbiased translation.

In addition to the items contained in the SEI questionnaire, the researcher added some questions to gather information on the demographic characteristics of the participants and on their behavioural and academic engagement, utilising self-report.

Due to time constraints, the researcher enlisted the assistance of volunteers to collect a portion of the quantitative data. The volunteers were provided with clear instructions on questionnaire administration and interacting with the participating pupils.

3.3.1.1 Reliability and Validity of the SEI Instrument

According to Fredricks and McColskey (2012), the reliability information of the SEI questionnaire is put as having a Cronbach's alpha internal consistency measuring of value .72–.92, which is indicative of great reliability, and as for the test-retest inter-rater, it is presented as having value of .60 –.62.

As to its validity, Appleton et al. (2006), concluded that the six-factor model of engagement (one used in this study) demonstrated satisfactory fit, based on various indicators such as the chi-square statistic ratio and changes in chi-square values.

Even though the SEI questionnaire has already been extensively validated and used in previous studies, conducting a pilot study was deemed necessary by the researcher because the questionnaire was interpreted from the original language (English) to local language (Amharic).

For the Pilot Study, 29 chosen pupils were selected from three selected schools; also they were given the opportunity to review and rate the clarity of the questions, to secure content validity. Most deemed it clear and understandable.

Testing the reliability of the adapted questionnaire, the researcher utilised an online statistics calculator (DataTab), and found cronbach's Alpha of 0.84.

A Cronbach's alpha of 0.84 suggests a relatively high level of internal consistency among the items in the questionnaire, also note that it falls in the interval stated by Fredricks and McColskey (2012).

The Cronbach's Alpha of such value indicates that there is a strong relationship between the items, and that they are measuring the same construct consistently. In other words, the items are highly correlated with each other, and they are providing reliable and consistent measurements of the underlying construct.

A Cronbach's alpha of 0.84 is generally considered to be very good and indicates that the questionnaire or scale is reliable for measuring the construct of interest.

3.3.2 Data Collection Methods and Instruments for the Qualitative

Qualitative data collection involved conducting structured, open-ended and non-directive interviews with 38 homeroom teachers from the selected schools (11 primary and 10 pre-primary) for the qualitative study.

The interview consisted of a set of 22 questions, derived from the questionnaire which had already been translated into Amharic. The interviews were conducted face to face, using conversational Amharic language, with a duration ranging from 15 to 30 minutes.

Regarding conducting the interviews, the researcher visited two to three schools per day, conducting discussions with teachers and utilizing a mobile phone voice recorder to capture qualitative data; the volunteers did the same as well. The collected data was transcribed and summarized on the same day to prevent data accumulation and to facilitate organization. To prevent data manipulation by volunteer interviewers, data which was not recorded with a voice recorder was not accepted for analysis. A total of 38 teachers were interviewed regarding the engagement levels of 74 students from each type of school (Pre-Primary & Primary), and from different grade levels (KG1, KG2, 0-Level, Grade 1& Grade 2).

3.3.2.1 Reliability and Validity of the Structured Interview

The structured interview was carefully developed using the same questionnaire employed in the quantitative data collection process, thereby ensuring alignment with its established validity and reliability. This approach allowed for the inclusion of qualitative questions that sought the valuable insights and opinions of the interviewees, while still maintaining focus and relevance to the research objectives. By incorporating related qualitative elements within the interview, a comprehensive and well-rounded understanding of the subject matter was achieved.

3.4 Data Analysis Techniques

In order to analyze the collected data comprehensively, a combination of descriptive and inferential statistical methods were employed. The analysis was facilitated using statistical softwares like Analysis Toolpak, Online Statistics Calculators like DataTab.

For the quantitative data, descriptive statistics were used to summarize and describe the main characteristics of the variables under investigation. Measures such as mean, standard deviation, and frequency distributions were calculated to provide a clear understanding of the data. Additionally, inferential statistics were utilized to address the research questions. Techniques such as analysis of variance (ANOVA) were applied to assess the differences between multiple categories. These inferential statistical methods provided valuable insights into the quantitative data and helped draw meaningful conclusions. Furthermore, correlation analysis was employed to explore the relationships and associations between different variables.

On the other hand, the qualitative data underwent a different analysis approach. Content analysis was conducted to systematically categorize and interpret the qualitative information

gathered from interview. This involved a rigorous process of identifying themes, patterns, and coinciding or clashing ideas within the qualitative data.

Given the study adopts mixed methods methodology approach; data triangulation was employed to merge and synthesize the findings from both the quantitative and qualitative analyses. This technique involved comparing and contrasting the results obtained from different data sources and methods to provide a comprehensive understanding of the research phenomenon. By triangulating the data, the study aimed to enhance the validity and reliability of the findings, as well as gain a more holistic perspective on the research topic. The combination of these data analysis techniques facilitated a robust examination of the research questions and contributed to a more comprehensive understanding of the research problem at hand.

3.5 Philosophy and Assumptions of the Study

The philosophy underlying this study is pragmatic, which emphasizes the importance of using a mixed methods methodology approach to investigate complex phenomena in educational research. Pragmatism acknowledges that different research methods can be used to answer different research questions, and therefore seeks to integrate qualitative and quantitative methods in a way that complements and enhances the strengths of each approach. In this study, interviews, and surveys are used to gain a comprehensive understanding of student engagement across different grade levels and to identify potential factors that may impact student engagement.

Assumptions of the study include the adopted belief that student engagement is a multifaceted construct that encompasses behavioral, cognitive, psychological domains (Appleton, 2006). Additionally, it is assumed that teachers have valuable insights into student engagement and can provide valuable information through interviews. It is also assumed that students from grade 3 to 8 have the ability to self-report their engagement levels through survey questionnaires.

Overall, the pragmatic philosophy and assumptions of this study aim to provide a comprehensive understanding of student engagement across different grade levels, and to identify potential factors that may impact engagement in order to inform educational policies and practices that promote positive behavioral, cognitive, and psychological outcomes for students.

3.6 Ethical Considerations

The research involved data collection through interviews and questionnaires, taking into account various ethical considerations to ensure credibility. Participants were provided with clear and detailed explanations of their rights through informed consent. Confidentiality and anonymity were maintained by assigning unique identifiers to collected data and strictly protecting any identifiable information. Respect for participants' rights and dignity was prioritized throughout the data collection process, with the researcher and data collectors treating participants with respect, courtesy, and sensitivity. They actively listened, maintained a non-judgmental attitude, and created a safe environment for participants to freely express their opinions and experiences without coercion or manipulation.

Chapter 4: Data Analysis and Interpretations

The research findings are based on data collected from 138 students on a quantitative basis and from 38 homeroom teachers on a qualitative basis. The homeroom teachers were interviewed about particular students randomly picked from classes, and also about the school feeding program and how it may have influenced the student engagement level and other aspects as well. This section deals with analysis and interpretation of data gathered through different instruments, mainly questionnaire and structured interview.

4.1 Presentation, Analysis and Interpretation of Quantitative Data

The collected data underwent analysis in two different formats. The original dataset, consisting of numeric scores, was duplicated for analysis purposes. One dataset was analysed using the original numeric scores, while the other dataset was modified by converting the numeric scores to percentages. The modification was done by the researcher to facilitate the interpretation process. It is important for the reader to recognize that the measures of central tendency and measures of dispersion presented in the table depicting the analysis of data in percentages are derived from the modified dataset, which is different from the original dataset. Therefore, the values in the table presenting numeric values may not match directly with the values in the table presenting percentages.

4.1.1 Socio-Demographic Characteristics

Table 1: Gender

Gender	Count	%
Female	89	64.49%
Male	49	35.51%
	138	100.00%

Out of the total 138 students, 89 of them are female, accounting for approximately 64.49% of the sample. On the other hand, there are 49 male students, making up approximately 35.51% of the participants.

Table 2: Age Groups

Age Groups	Count	%
Age 9	23	16.67%
Age 10	21	15.22%
Age 11	21	15.22%
Age 12	23	16.67%
Age 13	21	15.22%
Age 14	24	17.39%
Age 15	2	1.45%
Age 16	1	0.72%
Age 18	1	0.72%
Age 19	1	0.72%
	138	100.00%

The largest age groups consist of students aged 9, 12, and 14, each comprising approximately 16.67%, 16.67%, and 17.39% of the sample, respectively. Age groups 10 and 13 each account for 15.22% of the participants, while age 11 follows closely behind with the same percentage. The remaining age groups (15, 16, 18, and 19) represent smaller portions of the sample, ranging from 0.72% to 1.45%.

Table 3: BMI Classification

BMI Classification Groups	Count	%
Normal	90	65.22%
Underweight	32	23.19%
Overweight	16	11.59%
	138	100.00%

The majority of the students, accounting for approximately 65.22% of the sample, fall under the "Normal" BMI classification. The "Underweight" category comprises 23.19% of the students, indicating a significant proportion of students with lower body weights. Additionally, the "Overweight" category represents 11.59% of the participants, suggesting a smaller but notable portion of students with higher body weights.

Table 4: Grade Levels

Grade Levels	Count	%
Grade 3	23	16.7%
Grade 4	23	16.7%
Grade 5	22	15.9%
Grade 6	24	17.4%
Grade 7	23	16.7%
Grade 8	23	16.7%
	138	100.0%

Among the participants, there is an equal number of students in Grade 3, Grade 4, Grade 7, and Grade 8, each accounting for approximately 16.7% of the total sample. Grade 6 has the highest representation with 17.4% of the students, while Grade 5 follows closely behind with 15.9%.

Table 5: Parental Occupation

Parental Occupation Groups	Count	%
Private	89	64.5%
Government	33	23.9%
Both	6	4.3%
Would Rather Not Say	10	7.2%
	138	100.0%

The majority of the students, approximately 64.5% of the sample, have parents in private occupations. Government occupations account for 23.9% of the parents, indicating a significant representation as well. A smaller proportion of students, around 4.3%, have parents who work in both private and government sectors. Additionally, 7.2% of the participants preferred not to disclose their parental occupation.

Table 6: Rank

Rank Groups	Count	%
1 to 5	73	52.9%
6 to 10	14	10.1%
11 to 15	24	17.4%
Would Rather Not Say	27	19.6%
	138	100.0%

Among the participants, the majority, accounting for approximately 52.9% of the sample, rank themselves within the top 5 positions (ranks 1 to 5). A smaller proportion of students, around 10.1%, rank themselves within positions 6 to 10. Another group of students, approximately 17.4%, rank themselves within positions 11 to 15. Additionally, 19.6% of the participants preferred not to disclose their rank.

Table 7: Other Responsibilities

Other Responsibilities	Count	%
Do have other responsibilities	99	71.7%
Sometimes have other responsibilities	35	25.4%
Do not have other responsibilities	4	2.9%

A significant proportion of students, approximately 71.7% of the sample, reported having other responsibilities. Another portion of students, approximately 25.4%, reported sometimes having other responsibilities. On the other hand, a small proportion of students, approximately 2.9%, reported not having any other responsibilities.

Table 8: Material Availability

Material Availability to Pupil	Count	%
Available to them	119	86.23%
Sometimes available to them	8	5.80%
Entirely not available to them	11	7.97%
	138	100.00%

The majority of students, accounting for approximately 86.23% of the sample, reported having materials available to them. This indicates that they have access to the required resources to support their learning and studies. A smaller proportion of students, around 5.80%, reported sometimes having access to materials, suggesting variability in availability. On the other hand, approximately 7.97% of the students reported that materials are entirely not available to them.

Table 9: Attendance

Attendance	Count	%
Attend 5 Days a Week	123	89.13%
Attend More than 5 Days a Week	15	10.87%
	138	100.00%

The majority of students, approximately 89.13% of the sample, reported attending school five days a week, which is considered full attendance for most grade levels. A smaller proportion of students, around 10.87%, reported attending school more than five days a week. It is noteworthy that the grade 8 students attend school six days a week, which explains the slight variation in attendance patterns.

4.1.2 Descriptive Statistics of Psychological Engagement

Research Question: Do students participating in the school feeding program have high overall internal engagement scores?

The psychological engagement of students was measured using the Student Engagement Instrument questionnaire. Three subscales, namely Teacher Student Relationship (TSR), Peer Support in Learning (PSL), and Family Support in Learning (FSL), were utilized.

Table 10: Descriptive Statistics of Psychological Engagement

Items		Mean	Median	Mode	Standard Deviation	Sample Variance	Range	Min	Max	Confidence Level (95.0%)
9	TSR (/45)	37.46	38	43	4.79	22.94	17	28	45	0.81
6	PSL (/30)	23.54	25	25	3.63	13.16	12	18	30	0.61
4	FSL (/20)	18.26	18	18	1.53	2.35	6	14	20	0.26
Total of 19 Items	Total (/95)	79.26								

For TSR, the mean score is 37.46 out of 45, indicating a relatively high level of teacher-student relationship engagement. The median score of 38 and the mode score of 43 suggest that the majority of students reported positive experiences with their teachers. The standard deviation of 4.79 reflects some variability in the responses, but the relatively low sample variance of 22.94 suggests that the data points are relatively close to the mean. The range of 17 points, from 28 to 45, demonstrates the variability in scores. The minimum score of 28 and maximum score of 45 represent the lower and upper boundaries of the observed scores, respectively. The confidence level of 95% (0.81) indicates that if the study were replicated, the true mean score for TSR would likely fall within ± 0.81 units of the calculated mean.

Moving on to PSL, the mean score is 23.54 out of 30, suggesting a moderate level of peer support in learning. The median and mode scores of 25 indicate that the most common response was positive peer support. The standard deviation of 3.63 signifies some variability in the data, while the sample variance of 13.16 indicates that the responses are relatively close to the mean. The range of 12 points, from 18 to 30, represents the spread of scores. The minimum score of 18 and maximum score of 30 demonstrate the lowest and highest scores

reported. The confidence level of 95% (0.61) suggests that the true mean score for PSL would likely fall within ± 0.61 units of the calculated mean if the study were replicated.

For FSL, the mean score is 18.26 out of 20, indicating a high level of family support in learning. The median score of 18 aligns with the mean, indicating a relatively balanced distribution. The mode score of 18 suggests that the most frequent response was positive family support. The standard deviation of 1.53 represents a small amount of variability among the responses, while the sample variance of 2.35 indicates the closeness of the data points to the mean. The range of 6 points, from 14 to 20, illustrates the variation in scores. The minimum score of 14 and maximum score of 20 represent the lowest and highest scores reported. The confidence level of 95% (0.26) suggests that the true mean score for FSL would likely fall within ± 0.26 units of the calculated mean if the study were repeated.

Table 11: Descriptive Statistics of Psychological Engagement in %

	Mean	Median	Mode	Standard Deviation(CV)	Sample Variance (CV)	Range	Min	Max	Confidence Level (95.0%)
TSR%	83%	84%	96%	13%	13%	38%	62%	100%	81%
PSL%	78%	83%	83%	15%	15%	40%	60%	100%	61%
FSL%	91%	90%	90%	8%	8%	30%	70%	100%	26%
Average Cog. Engt %	84.00 % (High)			36.00%	12%				

TSR% reflects the psychological engagement in the teacher-student relationship as a percentage. With a mean score of 83%, it indicates a high level of engagement between teachers and students. The median score of 84% and the mode score of 96% suggest that a majority of students reported positive experiences in their teacher-student relationships. The standard-deviation-based coefficient of variance of 13% indicates some variability in the data, while the sample-variance-based coefficient of variance of 13% signifies that the responses are relatively close to the mean. The range of 38%, from 62% to 100%, represents

the spread of scores. The minimum score of 62% and maximum score of 100% illustrate the lowest and highest scores reported. the confidence level of 95% (81%) indicates that if the study were replicated multiple times, we can be reasonably confident that the true mean TSR% in the population would fall within a range of $\pm 81\%$ around the calculated mean. In other words, there is a high likelihood that the true average engagement level in the teacher-student relationship, measured as TSR%, would be captured within this range. This provides researchers and readers with a measure of certainty in the estimate and suggests that the calculated mean is a representative estimate of the population.

Regarding PSL%, the mean score is 78%, indicating a moderate level of peer support in learning. The median and mode scores of 83% suggest that the majority of students reported positive peer support experiences. The standard deviation (CV) of 15% reflects some variability in the responses, while the sample variance (CV) of 15% indicates that the data points are relatively close to the mean. The range of 40%, from 60% to 100%, represents the variation in scores. The minimum score of 60% and maximum score of 100% demonstrate the lowest and highest scores reported. the confidence level of 95% (0.61) implies that if the study were repeated, the true mean PSL% in the population would likely fall within a range of ± 0.61 units around the calculated mean. This narrow interval suggests a high level of precision in the estimation of the mean peer support in learning. It provides a sense of confidence that the calculated mean is a reliable estimate of the population mean for PSL%.

Lastly, FSL% reflects the psychological engagement in family support in learning as a percentage. With a mean score of 91%, it indicates a high level of engagement with family support. The median score of 90% and the mode score of 90% suggest that the majority of students reported positive family support experiences. The standard deviation (CV) of 8% signifies relatively low variability in the data, while the sample variance (CV) of 8% indicates that the responses are close to the mean. The range of 30%, from 70% to 100%, represents the spread of scores. The minimum score of 70% and maximum score of 100% demonstrate the lowest and highest scores reported. the confidence level of 95% (0.26) indicates that if the study were replicated, the true mean FSL% in the population would likely fall within a range of ± 0.26 units around the calculated mean. This narrow interval reflects a high level of precision in estimating the mean family support in learning. It suggests that the calculated mean is a reliable estimate of the population mean for FSL%.

To summarize, the results indicate that students in schools with school feeding programs generally show high psychological engagement. The teacher-student relationship and family support in learning received high engagement scores, while peer support in learning showed a moderate level of engagement. These findings highlight the positive impact of school feeding programs on student engagement in various aspects of their educational experience.

4.1.2.1 Proportion of Subscales in Psychological Engagement

Psychological Engagement

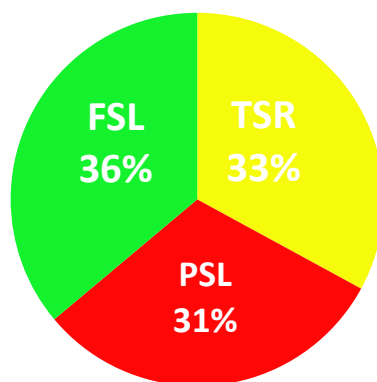


Figure 4: Pie chart of Psychological Engagement

The pie chart illustrates that the psychological engagement of students is influenced by three primary subscales: Teacher Student Relationship (TSR), Peer Support in Learning (PSL), and Family Support in Learning (FSL). Notably, all three subscales have a relatively equal impact on the overall psychological engagement, as their proportions do not vary significantly. Family Support in Learning constitutes the largest proportion at 36%, followed by Teacher Student Relationship at 33%, and Peer Support in Learning at 31%. These results indicate that although there are slight differences in contribution, all three subscales play a crucial role in shaping the students' overall psychological engagement. Therefore, one may conclude that students participating in the school feeding program have high psychological engagement scores.

4.1.3 Descriptive Statistics of Cognitive Engagement

Research Question: Do students participating in the school feeding program have high overall internal engagement scores?

The cognitive engagement of students was measured using the Student Engagement Instrument questionnaire. Three subscales, namely control and relevance of schoolwork (CRSW), future aspirations and goals (FAG), and intrinsic motivation (IM), were utilized.

Table 12: Descriptive Statistics of Cognitive Engagement

<i>Items</i>		Mean	Median	Mode	Standard Deviation	Sample Variance	Range	Min	Max	Confidence Level (95.0%)
9	CRSW (/45)	40.15	41	43	2.55	6.49	10	35	45	0.43
5	FAG (/25)	22.38	22	24	1.82	3.30	6	19	25	0.31
2	IM (/10)	8.91	10	10	1.46	2.14	8	2	10	0.25
Total of 16 Items	Total (/80)	71.44								

The table presents the scores for the CRSW, FAG, and IM subscales. The CRSW subscale, consisting of 9 items scored out of 45, yielded a mean score of 40.15, indicating a high level of control and relevance in schoolwork. The median score was 41, suggesting that most students scored around this value, and the mode was 43, representing the most frequently occurring score. With a standard deviation of 2.55, the scores were relatively close to the mean, indicating consistency. The sample variance of 6.49 provided insight into the spread of scores, with a higher value indicating greater variability. The range of scores was 35 to 45, with a minimum of 35 and a maximum of 45.

For the FAG subscale, which included 5 items scored out of 25, the mean score was 22.38, indicating a high level of future aspirations and goals. The median score was 22, and the mode was 24. The standard deviation of 1.82 suggested close proximity to the mean, while

the sample variance of 3.30 reflected variability in the scores. The range of scores was 19 to 25, with a minimum of 19 and a maximum of 25.

Regarding the IM subscale, comprising 2 items scored out of 10, the mean score was 8.91, indicating a high level of intrinsic motivation. The median and mode scores were both 10. The standard deviation of 1.46 indicated proximity to the mean, while the sample variance of 2.14 reflected variability in the scores. The range of scores was 2 to 10, with a minimum of 2 and a maximum of 10.

By summing up the scores from the three subscales, the total cognitive engagement level was derived, yielding a mean score of 71.44 out of 80, indicating a high overall cognitive engagement among the students.

The confidence levels provided a measure of certainty in the accuracy of the calculated statistics. For CRSW, the confidence level of 0.43 suggested a relatively narrow range around the mean score, indicating greater precision in estimating the true population mean. Similarly, for FAG and IM, the confidence levels of 0.31 and 0.25 respectively indicated precise estimations with high confidence.

Table 13: Descriptive Statistics of Cognitive Engagement in %

	Mean	Media n	Mod e	Standar d Deviation (CV)	Sample Variance (CV)	Rang e	Min	Max	Confidence Level(95.0 %)
CRSW %	89%	91%	96%	6%	6%	22%	78%	100%	43%
FAG%	90%	88%	96%	8%	8%	24%	76%	100%	31%
IM%	89%	100%	100 %	16%	16%	80%	20%	100%	25%
Average Cog. Engt %	89.30 % (High)			30.00%	10.00%				

In the above table, the percentages of the subscale scores are presented. The CRSW% was reported as 89%, signifying a high level of control and relevance in schoolwork. The FAG% was 90%, indicating a high level of future aspirations and goals. The IM% was also 89%,

suggesting a high level of intrinsic motivation. The average cognitive engagement percentage, calculated by averaging the three subscale percentages, was 89.33%, reflecting a high overall cognitive engagement level.

The coefficient of variation (CV) for CRSW% was reported as 6%, indicating relatively low variability in the cognitive engagement related to control and relevance of schoolwork. The FAG% subscale had a coefficient of variation (CV) of 8%, indicating less variability in the cognitive engagement related to future aspirations and goals. In contrast, the IM% subscale had a coefficient of variation (CV) of 16%, implying higher variability in the cognitive engagement related to intrinsic motivation.

In summary, the findings from the Likert scale scores and their corresponding percentages demonstrate a high level of cognitive engagement among students. They perceive control and relevance in their schoolwork, exhibit future aspirations and goals, and possess intrinsic motivation. These insights contribute to the research on student engagement, particularly in the context of school feeding programs.

4.1.3.1 Proportion of Subscales in Psychological Engagement

Cognitive Engagement

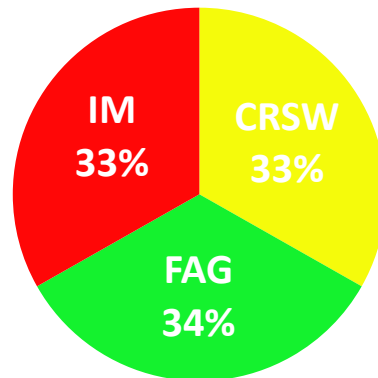


Figure 5: Pie Chart of Cognitive Engagement

The pie chart provides a visual representation of the factors influencing the psychological engagement of students, which include control and relevance of schoolwork (CRSW), future aspirations and goals (FAG), and intrinsic motivation (IM). Remarkably, all three subscales have a relatively equal impact on the overall psychological engagement, as their proportions exhibit minimal variation. Future aspirations and goals (FAG) emerge as the largest contributing factor, accounting for 34% of the overall psychological engagement, while both control and relevance of schoolwork (CRSW) and intrinsic motivation (IM) equally contribute 33% each. These findings underscore the significance of all three subscales in shaping students' psychological engagement, highlighting their collective role in fostering a positive and meaningful learning experience. Therefore, one may conclude that students participating in the school feeding program have high cognitive engagement.

4.1.4 Descriptive Statistics of Overall Internal Engagement

Research Question: Do students participating in the school feeding program have high overall internal engagement scores?

Table 14: Descriptive Statistics of Overall Internal Engagement

	Engagement Score Out of 175	Engagement Score in %
Mean	150.70	86.12%
Standard Error	0.99	0.57%
Median	149	85.14%
Mode	167	95.43%
Standard Deviation	11.68	6.67%
Sample Variance	136.43	0.45%
Range	46	26.29%
Minimum	127	72.57%
Maximum	173	98.86%
Sum	20797	11884.00%
Count	138	138
Largest(1)	173	98.86%
Smallest(1)	127	72.57%
Confidence Level(95.0%)	1.97	1.12%

The analysis of reveals valuable insights into the engagement levels of students participating in the school feeding program. The mean engagement score indicates an overall high level of student engagement, with an average score of 150.70 out of 175 (86.12% in percentage terms). This suggests that students, on average, exhibit a strong degree of involvement and active participation within the program.

The relatively low standard error (0.99 or 0.57% in percentage terms) signifies a stable estimate of the mean engagement score, indicating consistency and reliability in the data. Moreover, the median score of 149 (85.14%) demonstrates that half of the students have engagement scores below this value, while the other half has scores above it.

The mode of 167 (95.43%), reveals that a significant proportion of students attain this particular engagement score, implying a notable concentration around this value.

Furthermore, the moderate standard deviation of 11.68 (6.67% in percentage terms) indicates a moderate degree of variability in engagement scores among the students.

The sample variance of 136.43 (0.45% in percentage terms), highlights relatively low variability, suggesting that engagement scores are generally consistent across the student population.

Presented below, is a histogram illustrating the distribution of overall engagement scores among students in the study.

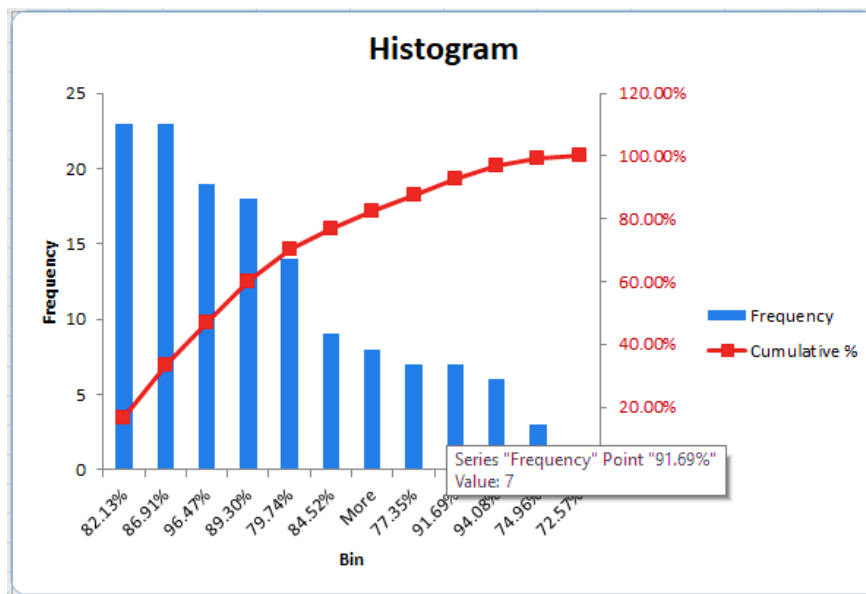


Figure 6: Histogram of Overall Engagement

The histogram provides a visual representation of the frequency of engagement scores within different score ranges. It offers insights into the pattern and spread of the engagement levels observed in the sample.

The x-axis represents the engagement score in % bins, while the y-axis indicates the frequency or number of students falling within each bin. The height of each bar corresponds to the number of students in that particular engagement scores range. By examining the histogram, we can observe the shape of the distribution and identify any notable patterns or trends in the data.

In summary, the findings from the descriptive statistics indicate that students participating in the school feeding program generally exhibit a high level of engagement. However, it is important to consider the slight variability and distribution characteristics observed in the engagement scores. These insights provide a foundation for further exploration and analysis

to understand the factors influencing student engagement in the context of the school feeding program.

4.1.4.1 Proportion of Subscales in Internal Engagement

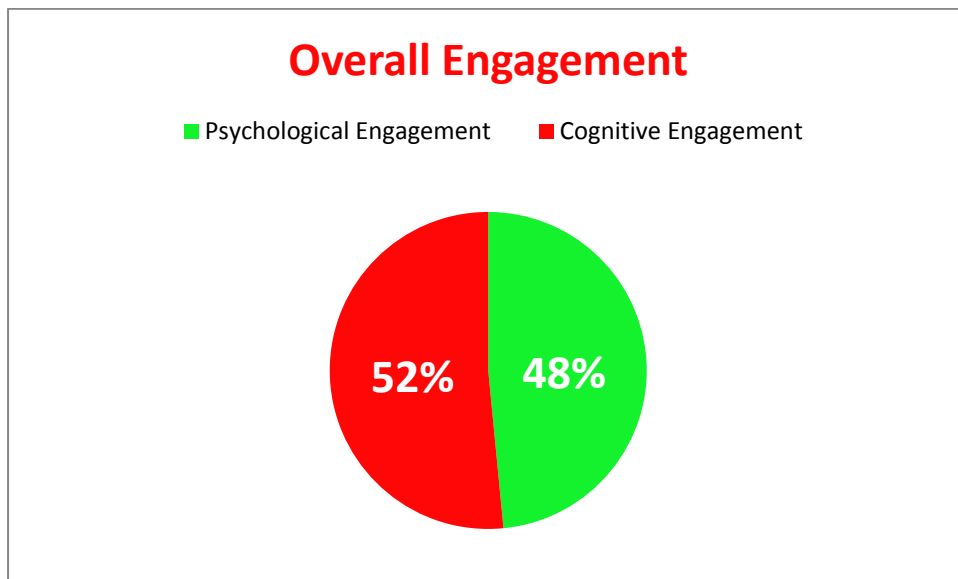


Figure 7: Pie Chart of Overall Engagement

The pie chart presents a visual depiction of the components of overall internal engagement, specifically psychological and cognitive engagements. Psychological engagement constitutes the majority share, accounting for 52% of the overall engagement, while cognitive engagement represents 48%, indicating a relatively lower impact. It is worth noting that both subscales have a comparable influence on the overall psychological engagement, as their proportions exhibit minimal variation. These findings emphasize the significance of both psychological and cognitive engagement in shaping students' overall engagement, underscoring their crucial roles in fostering a positive and meaningful learning experience. Therefore, one may conclude that students participating in the school feeding program have high overall engagement.

4.1.4.3 Mean Scores of Pupils on SEI

Table 15: Mean Scores of Pupils on SEI

	<i>Mean Score Range</i>	<i>Bracket Notation</i>	<i>Number of Pupils</i>
<i>Not Engaged</i>	<i>Less than or Equal to 1.5</i>	<i>[0, 1.5]</i>	<i>0</i>
<i>Barely Engaged</i>	<i>Less than or Equal to 2.5</i>	<i>(1.5, 2.5]</i>	<i>0</i>
<i>Moderately Engaged</i>	<i>Less than or Equal to 3.5</i>	<i>(2.5, 3.5]</i>	<i>0</i>
<i>Highly Engaged</i>	<i>Less than or Equal to 4.5</i>	<i>(3.5, 4.5]</i>	<i>100</i>
<i>Extremely Engaged</i>	<i>Less than or Equal to 5</i>	<i>(4.5, 5]</i>	<i>38</i>
<i>Total</i>			<i>138</i>

The average score was computed using the number of items in the SEI. We may infer from the table that most students' score falls under the category 'Highly Engaged', the remaining falling into the 'Extremely Engaged' category.

4.1.5 Correlation between PQR and Engagement Subscales

Research Question: Do students participating in the school feeding program have high overall internal engagement scores?

Before we provide the correlation results got from analysis of collected data, let us present an adopted guideline for interpreting the level of engagement based on correlation coefficients, the following thresholds will be used:

Table 16: Correlation Result Interpretation Basis

Correlation Range	In %	Interpretation
< 0.20	<20%	Slight or negligible
0.20 - 0.39	20% - 39%	Low, definite but small
0.40 - 0.69	40%-69%	Moderate, substantial
0.70 - 0.89	70%-89%	High, marked
0.90 - 1.00	90%-100%	Very high, very dependable

(Source: *Correlation Analysis*, 2020)

Table 17: Default Correlation between PQR and Engagement Subscales

<i>Default Correlation</i>							
	<i>Psychological Engagement</i>			<i>Cognitive Engagement</i>			<i>SFP</i>
	<i>TSR</i>	<i>PSL</i>	<i>FSL</i>	<i>CRSW</i>	<i>FAG</i>	<i>IM</i>	<i>PQR</i>
TSR	1						
PSL	0.326364	1					
FSL	0.475052	0.525486	1				
CRSW	0.429546	0.636255	0.376129	1			
FAG	0.417919	0.480037	0.434857	0.488365	1		
IM	0.578715	0.247331	0.361831	0.222929	0.392128	1	
PQR	0.537906	0.684817	0.551198	0.531737	0.616118	0.545058	1

We may conclude from this that there is a substantial, moderate positive correlation between School Feeding Program Quality Rating (PQR) and engagement sub-scales TSR, PSL, FSL, CRSW, FAG, IM in pre-primary and primary government schools in Addis Ketema sub-city.

4.1.6 Correlation between PQR and Engagement Subtypes

Research Question: Do students participating in the school feeding program have high overall internal engagement scores?

Table 18: Default Correlation between PQR and Engagement Sub-types

<i>Default Correlation</i>			
	<i>Cognitive Engagement</i>	<i>Psychological Engagement</i>	<i>PQR</i>
Cognitive Engagement	1		
Psychological Engagement	0.753084	1	
PQR	0.727932	0.746337	1

We may conclude from this that there is a marked, high positive correlation between School Feeding Program Quality Rating (PQR) and learners' engagement subtypes (psychological and cognitive) in pre-primary and primary government schools in Addis Ketema sub-city.

4.1.7 Correlation between PQR and Overall Internal Engagement

Research Question: Do students participating in the school feeding program have high overall internal engagement scores?

Table 19: Correlation between PQR and Overall Internal Engagement

	PQR	Overall Engagement
PQR	1	
Overall Engagement	0.7859	1
+/-	+	

We may conclude from this that there is significant positive correlation between School Feeding Program Quality Rating (PQR) and overall engagement in pre-primary and primary government schools in Addis Ketema sub-city.

4.1.8 ANOVA Analysis on Moderating Variables

Research Question: What moderating factors impact the relationship between the School Feeding Program and learners' internal engagement in pre-primary and primary government schools located in Addis Ketema sub-city?

4.1.8.1 Engagement and Gender

The analysis examined the relationship between engagement and gender among the students. An analysis of variance (ANOVA) was conducted to explore any significant differences in engagement scores based on gender.

Table 20: Summary of Engagement based on Gender

SUMMARY					
Gender	Count	%	Sum	Average	Variance
Female	89	64.49%	13532	152.04	168.98
Male	49	35.51%	7265	148.27	70.20
	138	100.00%			

The data showed that there were 89 female students, accounting for 64.49% of the sample, with a total engagement score sum of 13,532 and an average score of 152.04. On the other hand, there were 49 male students, representing 35.51% of the sample, with a total engagement score sum of 7,265 and an average score of 148.27.

Table 21: Gender Based ANOVA

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	451.447595	1	451.45	3.37	0.07	3.91
Within Groups	18239.3712	136	134.11			
Total	18690.8188	137				

The ANOVA results indicated that the variation in engagement scores between the two gender groups was not statistically significant ($F(1, 136) = 3.37$, $p = 0.07$). The p-value of 0.07 suggests that there is a 7% chance of obtaining such results by random chance alone. Therefore, we do not have enough evidence to conclude that there is a significant difference in engagement scores based on gender. In summary, the analysis did not find a significant difference in engagement scores between male and female students. Both genders demonstrated relatively similar levels of engagement in the school feeding program.

4.1.8.2 Engagement and Age

The data presented in the table provides information on the distribution of students across different age groups and their corresponding levels of engagement.

Table 22: Summary of Engagement Based on Age

SUMMARY					
<i>Age Groups</i>	<i>Count</i>	<i>%</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Age 9	23	16.67%	3624	157.6	92.1
Age 10	21	15.22%	3203	152.5	214.5
Age 11	21	15.22%	3197	152.2	166.6
Age 12	23	16.67%	3612	157.0	66.5
Age 13	21	15.22%	3080	146.7	44.0
Age 14	24	17.39%	3381	140.9	49.8
Age 15	2	1.45%	281	140.5	0.5
Age 16	1	0.72%	133	133	0
Age 18	1	0.72%	135	135	0
Age 19	1	0.72%	151	151	0
	138	100.00%			

The table shows that the largest age group among the surveyed students is 14 years old, comprising 17.39% of the total sample. On the other hand, the smallest age groups are 15, 16, 18, and 19 years old, each accounting for less than 1% of the sample.

In terms of student engagement, the average engagement scores vary across the age groups. The highest average engagement score is observed among 9-year-old students, with a value of 157.6. This is followed by 12-year-olds with an average score of 157.0. The lowest average engagement score is found among 16-year-olds, with a score of 133.

Table 23: Age Based ANOVA

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	5555.37	9	617.26	6.01	0.000001	1.95
Within Groups	13135.45	128	102.62			
Total	18690.82	137				

To determine if there is a significant relationship between age groups and student engagement, an analysis of variance (ANOVA) was conducted. The results indicate that there is a significant difference in engagement levels between the age groups ($F = 6.01$, $p < 0.000001$). This suggests that age plays a moderating role in student engagement.

Overall, the findings suggest that student engagement levels vary across different age groups, with younger students (9 and 12 years old) demonstrating higher levels of engagement compared to older students (16 years old). These results highlight the importance of considering age as a factor when examining student engagement in educational settings.

4.1.8.3 Engagement and BMI Classification

The data presented in the table provides information on the distribution of students across different BMI classification groups and their corresponding levels of engagement.

Table 24: Summary of Engagement based on BMI Classification

SUMMARY					
BMI Classification Groups	Count	%	Sum	Average	Variance
Normal	90	65.22%	14161	157.34	72.84
Underweight	32	23.19%	4406	137.69	19.96
Overweight	16	11.59%	2230	139.38	9.72
	138	100.00%			

Normal BMI: There were 90 students (65.22% of the total) with a total engagement score of 14161. The average engagement score for this group was 157.34, with a variance of 72.84.

Underweight BMI: There were 32 students (23.19% of the total) with a total engagement score of 4406. The average engagement score for this group was 137.69, with a variance of 19.96.

Overweight BMI: There were 16 students (11.59% of the total) with a total engagement score of 2230. The average engagement score for this group was 139.38, with a variance of 9.72.

Table 25: BMI Classification Based ANOVA

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	11443.87162	2	5721.93581	106.59	2E-28	3.06
Within Groups	7246.947222	135	53.6810905			
Total	18690.81884	137				

The ANOVA test was performed to determine if there were significant differences in engagement scores among the BMI classification groups. The results of the ANOVA test showed a significant difference between the groups, with a computed F-value of 106.59 and a p-value of 2E-28 (very close to zero). This indicates that the engagement scores varied

significantly based on BMI classification, and that pupil's within the 'Normal' BMI classification category have higher engagement scores than those within the 'overweight' and 'underweight' category.

Therefore, we can conclude that there is a statistically significant relationship between BMI classification and student engagement, and therefore there is a need for considering BMI Classification as a factor when examining student engagement in educational settings

4.1.8.4 Engagement and Grade Level

The data presented in the table provides information on the distribution of students across different grade levels and their corresponding levels of engagement.

Table 26: Summary of Engagement Based on Grade Level

SUMMARY					
Grade Levels	Count		Sum	Average	Variance
Grade 3	23	16.7%	3624	157.57	92.08
Grade 4	23	16.7%	3521	153.09	198.45
Grade 5	22	15.9%	3385	153.86	189.46
Grade 6	24	17.4%	3728	155.33	47.54
Grade 7	23	16.7%	3353	145.78	32.81
Grade 8	23	16.7%	3186	138.52	26.72
	138	100.0%			

There were 23 students (16.7% of the total) in Grade 3, with a total engagement score of 3624. The average engagement score for this grade level was 157.57, with a variance of 92.08. There were 23 students (16.7% of the total) in Grade 4, with a total engagement score of 3521. The average engagement score for this grade level was 153.09, with a variance of 198.45. There were 22 students (15.9% of the total) in Grade 5, with a total engagement score of 3385. The average engagement score for this grade level was 153.86, with a variance of 189.46. There were 24 students (17.4% of the total) in Grade 6, with a total engagement score of 3728. The average engagement score for this grade level was 155.33, with a variance of 47.54. There were 23 students (16.7% of the total) in Grade 7, with a total engagement score of 3353. The average engagement score for this grade level was 145.78, with a variance of 32.81. There were 23 students (16.7% of the total) in Grade 8, with a total engagement score of 3186. The average engagement score for this grade level was 138.52, with a variance of 26.72.

Table 27: Grade Level Based ANOVA

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	5917.76	5	1183.55	12.23	0.000000001	2.28
Within Groups	12773.05	132	96.77			
Total	18690.82	137				

The ANOVA results indicate that there is a significant difference in engagement scores between the grade levels. The F-statistic is 12.23, and the p-value is very small (close to zero), indicating a highly significant relationship between grade level and engagement scores.

In summary, the analysis reveals that there are significant differences in engagement scores across different grade levels. Students in lower grade levels tend to have higher engagement scores. The findings suggest that grade level has an impact on student engagement in the school setting.

4.1.8.5 Engagement and Parental Occupation

The data presented in the table provides information on the distribution of students across different parental occupation groups and their corresponding levels of engagement.

Table 28: Summary of Engagement based on Parental Occupation

SUMMARY					
<i>Parental Occupation Groups</i>	<i>Count</i>	<i>%</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Private	89	64.5%	13229	148.64	149.39
Government	33	23.9%	5067	153.55	106.26
Both	6	4.3%	889	148.17	1.37
Would Rather Not Say	10	7.2%	1612	161.20	39.07
	138	100.0%			

There were 89 students (64.5% of the total) with parents in private occupations. The total engagement score for this group was 13229, indicating the level of involvement and dedication of students with parents in private occupations. The average engagement score for these students was 148.64, suggesting their consistent participation and attentiveness. The variance of 149.39 indicates a certain degree of variability in engagement levels within this group. Thirty-three students (23.9% of the total) had parents in government occupations. These students achieved a total engagement score of 5067, reflecting their active engagement

in academic activities. The average engagement score for this group was 153.55, suggesting their sustained interest and involvement in their studies. The variance of 106.26 suggests a certain level of variability in engagement levels within this group. Six students (4.3% of the total) had parents working in both private and government sectors. Despite the relatively small number, these students achieved a total engagement score of 889, showcasing their dedication to academic pursuits. The average engagement score for this group was 148.17, indicating their active participation and academic performance. The variance of 1.37 suggests a lower level of variability in engagement levels within this group. Ten students (7.2% of the total) preferred not to disclose their parents' occupation. Nevertheless, these students achieved a total engagement score of 1612, indicating their commitment to academic endeavours. The average engagement score for this group was 161.20, suggesting their active involvement and dedication to learning. The variance of 39.07 suggests a certain degree of variability in engagement levels within this group.

Table 29: Parental Occupation Based ANOVA

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1785.709	3	595.24	4.72	0.004	2.67
Within Groups	16905.11	134	126.16			
Total	18690.82	137				

The analysis of variance (ANOVA) results revealed a significant difference in student engagement across various parental occupational categories ($F = 4.72$, $p = 0.004$). These findings indicate that parental occupation plays a noteworthy role in shaping student engagement levels. Notably, students who did not want to disclose their parents' occupation displayed higher average engagement scores, followed by those whose parents work in government organizations. It is plausible that the financial stability offered by government organizations to household providers may contribute to this observed trend. The sense of security and well-being provided by such stable employment situations could create a conducive environment for student engagement.

Conversely, students whose parents work in both private and governmental organizations exhibited the lowest average engagement scores, marginally surpassed by those whose

parents work exclusively in the private sector. While the exact reasons for this outcome require further investigation, it is possible that the dual occupational commitments of parents in both private and governmental sectors contribute to increased demands and limited availability for parental support. Balancing responsibilities from different job roles may inadvertently affect parental involvement in their children's academic pursuits, potentially impacting student engagement levels.

Let the reader note that that these interpretations are speculative, and additional research is necessary to gain a deeper understanding of the factors underlying student engagement within various parental occupational categories. Nonetheless, the observed differences highlight the potential influence of parental occupation on student engagement, offering valuable insights for further exploration and potential interventions to enhance student engagement across diverse familial backgrounds.

4.1.8.6 Engagement and Rank

The data presented in the table provides information on the distribution of students across different rank groups and their corresponding levels of engagement.

Table 30: Summary of Engagement based on Rank

SUMMARY					
Rank Groups	<i>Count</i>	<i>%</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
1 to 5	73	52.9%	10858	148.74	145.70
6 to 10	14	10.1%	2213	158.07	120.07
11 to 15	24	17.4%	3594	149.75	133.07
Would Rather Not Say	27	19.6%	4132	153.04	91.11
	138	100.0%			

There were 73 students (52.9% of the total) in the rank group of 1 to 5. These students achieved a total engagement score of 10858, reflecting their high level of engagement. The average engagement score for this group was 148.74, indicating their consistent involvement and performance. The variance of 145.70 suggests a certain degree of variability in engagement levels within this group. Fourteen students (10.1% of the total) fell into the rank group of 6 to 10. These students achieved a total engagement score of 2213, showcasing their active participation and performance. The average engagement score for this group was 158.07, suggesting their sustained interest and dedication to their studies. The variance of 120.07 suggests a certain level of variability in engagement levels within this group. Twenty-four students (17.4% of the total) were in the rank group of 11 to 15. These students achieved

a total engagement score of 3594, indicating their commitment to academic pursuits. The average engagement score for this group was 149.75, suggesting their active involvement and academic performance. The variance of 133.07 suggests a certain degree of variability in engagement levels within this group.

Table 31: Rank Based ANOVA

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1210.373	3	403.46	3.09	0.029	2.67
Within Groups	17480.45	134	130.45			
Total	18690.82	137				

The analysis reveals a significant difference in student engagement across different rank groups, as indicated by the ANOVA results ($F = 3.09$, $p = 0.029$). These findings suggest a noteworthy association between students' rank and their engagement levels. Notably, students within the rank levels 6 to 10 demonstrate significantly higher average engagement scores.

One potential explanation for this pattern could be attributed to variations in confidence levels among students. It is plausible that students, who rank at the top, possessing high intelligence, may exhibit lower levels of engagement due to overconfidence in their abilities. Conversely, students with lower intelligence may display lower engagement levels, possibly stemming from reduced confidence in their academic capabilities.

However, it is important to note that the justifications provided for these patterns should be interpreted with caution. The notion that highly intelligent students exhibit lower engagement and students with lower intelligence display diminished engagement might not hold true in all cases. Individual differences, personal motivations, and other factors can significantly influence student engagement levels.

Nonetheless, it is interesting to observe that students falling within the rank levels of 6 to 10, representing the middle range, demonstrate higher levels of engagement. It is plausible to suggest that these students, aware of their position between the extremes, may be motivated to exert greater effort and demonstrate increased engagement in their pursuit of higher achievements.

In summary, there is a noticeable association between students' rank and their engagement levels. Different rank categories exhibit variations in engagement scores. However, it is crucial to acknowledge that the justifications provided should be considered as speculative explanations and further research is needed to gain a comprehensive understanding of the factors influencing student engagement across different rank groups.

4.1.8.7 Engagement and Other Responsibilities

The data presented in the table provides information on the distribution of students across different groups based on their parents' occupation and their corresponding levels of engagement

Table 32: Summary of Engagement based on Other Responsibilities and ANOVA

SUMMARY					
Groups	Count	%	Sum	Average	Variance
Yes, I have other responsibilities	99	71.7%	14825	149.75	155.60
Sometimes, I have other responsibilities	35	25.4%	5339	152.54	88.20
No, I don't have other responsibilities	4	2.9%	633	158.25	2.25
	138	100.0%			

There is noticeable variation in the average student engagement scores among different groups based on their other responsibilities. Students without any additional responsibilities display a relatively higher average engagement score (158.25), followed by those who occasionally have responsibilities (152.54). Conversely, students with regular other responsibilities demonstrate a relatively lower average engagement score (149.75).

Table 33: Other Responsibility Based ANOVA

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	436.6963	2	218.35	1.61	0.20	3.06
Within Groups	18254.12	135	135.22			
Total	18690.82	137				

Despite these observed differences, the ANOVA results do not indicate a significant disparity in student engagement based on their other responsibilities ($F = 1.61$, $p = 0.20$). The calculated p-value of 0.20 suggests that there is insufficient evidence to assert that other responsibilities have a significant impact on student engagement.

In conclusion, the analysis reveals no significant association between other responsibilities and student engagement. Students with varying levels of other responsibilities exhibit similar engagement levels. While there are discernible variations between groups, the statistical analysis indicates that these differences are not statistically significant. Therefore, based on the available data and statistical findings, there is no compelling evidence to support the notion that other responsibilities have a substantial influence on student engagement.

It is important to acknowledge that these findings are based on the analyzed data set and the statistical tests conducted. It is possible that other factors or contextual variables not considered in this analysis may play a role in influencing student engagement. Further research with a larger and more diverse sample, incorporating additional factors, may provide a more comprehensive understanding of the relationship between students' other responsibilities and their engagement in learning.

4.1.8.8 Engagement and Health

The data presented in the table provides information on the distribution of students across different groups based on their health status and their corresponding levels of engagement.

Table 34: Summary of Engagement based on Health

SUMMARY					
<i>Groups</i>	<i>Count</i>	<i>%</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Yes, I have Health Problems	9	6.5%	1321	146.78	4.19
Sometimes, I have Health Problems	16	11.6%	2501	156.31	66.36
No, I don't have health Problems	113	81.9%	16975	150.22	151.73
	138	100.0%			

The average student engagement scores vary across the different health groups, with the highest average observed in the group categorized as "Sometimes, I have health problem" (156.31). Conversely, students in the "Yes, I have health problems" group have the lowest average engagement score (146.78), with their scores being surpassed by the mean engagement score of those in the "Sometimes I have health problems" group (156.31).

Table 35: Health Based ANOVA

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	668.3568	2	334.18	2.50	0.09	3.06
Within Groups	18022.46	135	133.50			
Total	18690.82	137				

The ANOVA results indicate a moderately significant difference in student engagement based on their health status ($F = 2.50$, $p = 0.09$). The p-value of 0.09 suggests a borderline significance, indicating a potential but not definitive association between health problems and

student engagement. However, further investigation is required to establish a more conclusive understanding of this relationship.

In conclusion, while the analysis reveals variations in student engagement scores among different health groups and the statistical analysis does not provide strong evidence to establish a significant association. Additional research with a larger sample size or more specific measurements related to health could contribute to a clearer understanding of the relationship between health problems and student engagement.

4.1.8.9 Engagement and Material Availability

The data presented in the table provides information on the distribution of students across different groups based on their reports on material availability and their corresponding levels of engagement.

Table 36: Summary of Engagement based on Material Availability

SUMMARY					
Groups	Count	%	Sum	Average	Variance
Yes, Learning Material is Available	119	86.23%	17857	150.1	142.8
Sometimes Available	8	5.80%	1184	148	37.1
No, Learning Material is Not Available	11	7.97%	1756	159.6	60.1
	138	100.00%			

There were 119 students (86.23% of the total) who reported having access to learning material. The total engagement score for this group was 17857, indicating their ample availability of resources. The average engagement score for these students was 150.1, suggesting their consistent involvement and active learning. The variance of 142.8 indicates a certain level of variability in engagement levels within this group. Eight students (5.80% of the total) reported that learning material was sometimes available to them. These students achieved a total engagement score of 1184, indicating periodic access to resources. The average engagement score for this group was 148, reflecting their intermittent involvement in

academic activities. The variance of 37.1 suggests a relatively lower variability in engagement levels within this group. Eleven students (7.97% of the total) reported that learning material was not available to them. Despite the lack of resources, these students achieved a total engagement score of 1756, showcasing their determination to learn despite challenges. The average engagement score for this group was 159.6, indicating their active participation in academic activities. The variance of 60.1 suggests a certain degree of variability in engagement levels within this group.

Table 37: Material Availability Based ANOVA

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	985.6852	2	492.8	3.8	0.03	3.1
Within Groups	17705.13	135	131.1			
Total	18690.82	137				

The average student engagement scores vary across the groups based on material availability, with the highest average observed in the "No" group. The ANOVA results indicate a statistically significant difference in student engagement based on material availability ($F = 3.8$, $p = 0.03$).

The p-value of 0.03 provides evidence to support a significant association between material availability and student engagement.

In conclusion, the analysis suggests a meaningful relationship between material availability and student engagement. Students who reported limited or no access to materials demonstrated higher average engagement scores compared to those who reported having materials available. One speculative interpretation of these findings is that students who hold higher expectations regarding material provisions may exert greater effort to compensate for perceived deficiencies. When students anticipate or perceive a lack of resources or support, they may be motivated to invest additional effort in order to bridge the gap between their expectations and the actual circumstances. This perception of scarcity or inadequacy can serve as a driving force for increased engagement and dedication in their academic pursuits.

4.1.9 Engagement and Attendance

Research Question: Do students participating in the school feeding program have high attendance (Behavioral Engagement) rate?

Despite the researcher's initial plan to conduct ANOVA analysis by grouping the attendance data into categories ("Attending Daily," "Attending sometimes," and "Attending Barely") expecting variations in engagement levels among these groups, it was not possible to conduct an ANOVA analysis, because all 138 students in the study had a 100% attendance rate, attending school every day.

To facilitate analysis, the researcher converted the collected data from a ratio format to a percentage format. This conversion was necessary as grade 8 students could attend school for six days a week, while students below grade 8 attended for a maximum of five days a week. By setting the threshold at five days, grade 8 students who attended either five or six times a week were recorded as having a 100% attendance rate.

According to Reschly and Christenson (2012), attendance is considered a behavioural engagement indicator. Since all 138 students in the study had a 100% attendance rate, it can be inferred that their behavioural engagement in terms of attendance is at 100%. This suggests that the students are fully engaged in attending school on a daily basis. While this information alone does not establish a direct relationship between engagement and attendance, it does indicate that students participating in school feeding programs have high attendance rates.

In summary, due to the absence of variation in attendance scores among the 138 students, all of whom had a 100% attendance rate, it can be concluded that their behavioural engagement in terms of attendance is at 100%. This finding highlights the high attendance rates among students involved in school feeding programs.

Now, that we have reached a conclusion that there are high attendance rates among students involved in school feeding programs, let us compute the correlation between overall engagement and attendance.

	<i>Overall Engagement</i>	<i>Attendance</i>
Overall Engagement	1	
Attendance	0	1
Interpretation	No Relationship	

Table 38: Correlation between Attendance and Engagement

The interpretation of this table indicates that there is no relationship between overall engagement and attendance among the participants.

4.2 Presentation, Analysis and Interpretations of Qualitative Data

Based on the interviews conducted with 38 teacher regarding 74 students all gathered from pre-primary and primary government schools in Addis Ketema, from different grade levels (KG1, KG2,0-Level,Grade 1 & Grade 2), several key findings emerged regarding the student's engagement level and the relationship between the school feeding program (SFP) and student engagement. Before we proceed to the findings let us peek at the demographic characteristics of interviewed teachers and students who were subjects of the interview.

Table 39: Demographic Characteristic of Students and Teachers

	Teachers	%	Students	%
GENDER				
Female	30	79%	42	57%
Male	8	21%	32	43%
Total	38	100%	74	100%
GRADE LEVEL				%
Pre-primary (Kg1, Kg2, Kg3, or 0-level)	26	68%	31	42%
Primary (Grade 1 and 2)	12	32%	43	58%
Total	38	100%	74	100%

In terms of gender, there are 30 female teacher interviewees, accounting for 79% of the total, and 8 male teacher interviewees, representing 21% of the total. Among the sampled students, there are 42 female students, constituting 57% of the total, and 32 male students, making up 43% of the total. Regarding grade level, 26 teachers (68% of the total) are from pre-primary levels such as Kg1, Kg2, Kg3, or 0-level. In terms of students sampled, there are 31 students (42% of the total) in pre-primary grades. Additionally, there are 12 teachers (32% of the

total) from primary grades 1 and 2. In terms of students sampled, there are 43 students (58% of the total) in primary grades.

Table 40: Demographic characteristics of Teachers

BY SUBJECT	Teachers	%
English Teachers	11	29%
Amharic Teachers	10	26%
Math Teachers	13	34%
Environmental Science Teachers	2	5%
Sport Teachers	2	5%
Total	38	100%

Among the 38 total teachers, 11 are English teachers, representing 29% of the total. Amharic teachers account for 10 teachers, making up 26% of the total. Math teachers have the highest representation with 13 teachers, comprising 34% of the total. Environmental Science and Sport teachers each have 2 teachers, representing 5% each.

Table 41: Demographic characteristics of Teachers

TIME SCOPE OF TEACHING		
Taught Since Before the SFP Started	33	87%
Started Teaching After SFP Started	5	13%
Total	38	100%

Out of the total 38 teachers, 33 of them have been teaching since before the SFP (Start of the School Funding Program), accounting for 87% of the teachers. On the other hand, 5 teachers started teaching after the SFP began, representing 13% of the total.

The findings from the qualitative data provide insights into various aspects of student engagement and its association with the SFP:

Research Questions: “Do students participating in the school feeding program have high overall internal engagement scores?”, and “What moderating factors impact the relationship between the School Feeding Program and learners' internal engagement in pre-primary and primary government schools located in Addis Ketema sub-city?”

1. **Participation Status:** Among the 74 students included in the study, 47 students were classified as average participators, 15 as active participators, and 12 as less participating. Notably, sport teachers reported higher student participation levels compared to math teachers, while English and Amharic teachers reported average participation levels.
2. **Attention Status:** Teachers were asked about the attention status of students during class (Control and Relevance of School Work - CRSW). Approximately 58 students were reported to be highly attentive, while the remaining students were classified as moderately attentive. Overall, the students displayed good attention levels.
3. **Peer Relationships:** The majority of students (72) were reported to have positive relationships with their peers, indicating healthy social interactions. However, a small number (2) of students were described as being somewhat socially isolated or loners.
4. **Teacher-Student Relationships:** Teachers described the overall relationship between students and teachers (Teacher-Student Relationship - TSR) as being close and interactive, except for the aforementioned 2 students who exhibited a more reserved and silent demeanour.
5. **Future Aspirations:** When asked about their career aspirations, a significant proportion of students (42) expressed a desire to become doctors, while 15 aimed to become pilots. Additionally, 7 students aspired to be footballers, and 3 expressed interest in careers such as police officers and fire-fighters.
6. **Intrinsic Motivation:** Teachers noted that students generally required motivation and encouragement to engage in their studies, particularly considering their young age. However, some students exhibited self-driven interest, particularly during sports-related activities.
7. **Timely Completion of Work:** Most students were reported to consistently complete their homework and classwork on time (CRSW). However, the 2 loner students occasionally displayed negligence in these tasks.
8. **Adherence to School Rules:** While the majority of students adhered to school rules, a small portion, mainly male students, exhibited rebellious behavior and were less compliant.

9. **Parental Involvement:** The level of parental involvement and concern for their child's education (Family Support for Learning - FSL) was reported to be limited, particularly among students from low-income backgrounds. Only three female students were identified as having actively involved parents in their educational journey.
10. **Interactions with Peers:** Students generally displayed positive interactions with their peers (Peer Support for Learning - PSL), except for the small number (2) of loner students who had limited peer connections.
11. **Availability of Learning Materials:** The majority of students consistently brought all necessary learning materials to class, which were provided by the school. However, in cases where materials were lost, some students faced challenges in affording replacements.
12. **Academic Performance:** Among the 74 students, 63 were categorized as average students, 4 as less competent, and 7 as top-performing students. Females on average outperformed males academically, and one of the loner students also performed well.
13. **Health Status:** All students were reported to be in good health, with no known health problems.
14. **Change in Behavior Before and After SFP:** Only the 33 teachers who were present before the SFP answered this question. They reported that students used to sleep in class and fall ill due to hunger, but after the implementation of the SFP, students became more attentive, cheerful, and confident. They felt equal to their peers and no longer inferior due to lack of food.
15. **Program Impact:** After the SFP started, teachers observed that most students became more attentive and even those who were less participative showed increased focus. Students were less likely to skip afternoon classes, and overall attendance improved. The nutritional value of the food provided through the program contributed to improved immune systems, reducing the likelihood of illness and absenteeism. Additionally, the program led to increased enrolment rates and decreased dropout rates as parents sent their children to school to access the meals.

16. **Relationship between Feeding Program and Engagement:** Teachers expressed a unanimous belief that there is a positive relationship between the school feeding program and student engagement; although they acknowledged that other factors may also play a role.
17. **Program Satisfaction:** When asked to rate the school meal program on a scale of 100%, 87% of the teachers rated it 100%, indicating a high level of satisfaction, while the remaining 13% rated it 75%.
18. **Program Improvement:** Teachers recommended continuing and extending the program to secondary schools, recognizing its positive impact on student engagement and overall well-being.

Chapter 5: Summary, Conclusion, Implication and Recommendation

This section discusses the major findings, conclusion, implications and recommendations of the study.

5.1 Major Findings

In the study, the researcher aimed to examine the relationship between the school feeding program and student engagement in pre-primary and primary government schools in Addis Ketema sub-city. The findings were derived from both quantitative and qualitative data.

Regarding the quantitative analysis, after administering the SEI questionnaire to the participants, the researcher answered the basic questions based on the results. Firstly, it was found that students participating in the school feeding program had high scores in psychological engagement, cognitive engagement, and overall engagement. Additionally, there was a significant positive correlation between the School Feeding Program Quality Rating (PQR) and various aspects of engagement, such as TSR, PSL, FSL, CRSW, FAG, and IM.

Regarding moderation, the relationship between the school feeding program and learners' engagement was found to be moderated by factors like age, BMI classification, grade level, parental occupation, rank, and material availability while there were no observed significant moderating relationships between some thought-to-be moderating variables like Gender, Other Responsibilities, and Health with learners' engagement. Furthermore, it was noted that students participating in the program did demonstrate a high attendance rate, but no conclusion could be derived as to whether attendance level affects engagement level or not because the study found that all students' attendance was positive straight and without variation.

On the other hand, qualitative data was gathered through interviews with 38 teachers who provided insights on 74 students. These students represented a mix of grade levels, including KG1, KG2, 0-Level, Grade 1, and Grade 2. The interviews revealed several key findings related to student engagement and the impact of the school feeding program. Teachers reported that most students displayed good attention levels and had positive relationships with their peers. The overall teacher-student relationship was described as close and interactive, with a few students exhibiting a more reserved demeanour. As for future

aspirations, students expressed a wide range of career interests, including aspirations to become doctors, pilots, footballers, police officers, and fire-fighters.

Teachers emphasized the need for motivation and encouragement to engage students in their studies, although some students displayed intrinsic motivation, particularly during sports-related activities. Most students were reported to complete their homework and classwork on time, and adherence to school rules was generally high, although there were some instances of rebellious behaviour. Parental involvement was limited, particularly because students come from low-income backgrounds.

In terms of the impact of the school feeding program, teachers reported positive changes in student behaviour and engagement after its implementation. Students became more attentive, cheerful, and confident, and they no longer felt inferior due to lack of food. The program had a noticeable effect on attendance, with students being less likely to skip afternoon classes. The nutritional value of the provided meals contributed to improved immune systems, resulting in reduced illness and absenteeism. Furthermore, the program was associated with increased enrolment rates and decreased dropout rates, as parents sent their children to school to access the meals.

Teachers dearly believed that there was a positive relationship between the school feeding program and student engagement, although they acknowledged the potential influence of other factors. The majority of teachers expressed a high level of satisfaction with the program and recommended its continuation and expansion to secondary schools.

Overall, the findings from both the quantitative and qualitative analyses supported the positive impact of the school feeding program on student engagement, attendance, and overall well-being.

5.2 Conclusions

This research study aimed to investigate the correlation between the School Feeding Program (SFP) and learners' engagement in pre-primary and primary schools located in Addis Ketema sub-city. By examining the relationship between the variables and exploring potential moderating factors, this study contributes to the limited body of knowledge on the impact of school feeding programs on student engagement.

As the researcher, I feel pleased with the results as they align with my expectations and observations during the study. Students participating in the program demonstrated higher

levels of psychological and cognitive engagement, resulting in cumulative high-level overall engagement. These findings are consistent with the research conducted by Ngussa (2020), Gebreamlak (2018), Poppe et al. (2017), Haile (2019), and Kidanemariam (2019), who also observed positive effects of school feeding programs on student engagement.

I am particularly pleased to note that the quality of the meal program positively influenced students' engagement levels, as supported by Ngussa (2020) and other authors. Additionally, the findings indicate that students participating in the school feeding program have increased attendance rates, consistent with the studies conducted by Gebreamlak (2018), Feyissa (2018), Nikiema (2019), Haile (2019), Desalegn et al. (2021, 2022), W/Mariam (2021), and Sulle (2022).

The qualitative findings revealed various factors that influence student engagement, including attention status, peer relationships, teacher-student relationships, future aspirations, intrinsic motivation, timely completion of work, adherence to school rules, and the availability of learning materials. While the level of parental involvement was noted to be less than what was required by pupils, it was still expected to have an effect on student engagement. The academic status of students and the health status were also found to impact student engagement. These insights highlight the multifaceted nature of the relationship between the School Feeding Program and learners' engagement.

However, it is important to acknowledge the limitations of this study. The sample size calculation assumed a high response rate, which may have affected the adequacy of the sample size if the actual response rate was lower. Additionally, the involvement of data collectors other than the researcher introduces the possibility of inadvertent negligence, despite their proper training. The lack of control over confounding variables further limits the study's ability to determine the isolated impact of the School Feeding Program on student engagement. Furthermore, some self-reported measures in the quantitative instrument may not be as reliable as data derived from direct measurement, compromising accuracy due to time and budget constraints.

To address these limitations, future research should consider using more accurate approaches for sample size calculation, controlling for confounding variables, and utilizing scientific instruments to measure variables that yield more accurate results when measured directly. Conducting further studies on the relationship between school feeding programs and student

engagement, with a focus on identifying potential mediating variables, will contribute to a more comprehensive understanding of this topic.

In conclusion, this research study contributes to the understanding of the relationship between the School Feeding Program and learners' engagement. As the researcher, I feel optimistic about the findings and their implications. The results underscore the importance of school feeding programs in promoting student engagement and provide valuable insights for further research and program development. By acknowledging the limitations and building upon these findings, future studies can continue to advance our understanding of the complex dynamics between school feeding programs and student engagement, ultimately leading to improved educational outcomes for all learners.

5.3 Implications of the Study

The implications of this research are significant for educational policymakers, school administrators, and stakeholders involved in school feeding programs. The findings highlight the positive impact of the School Feeding Program on learners' engagement, emphasizing the importance of sustaining and expanding these programs to improve student outcomes and well-being. Moreover, the identified factors influencing student engagement provide valuable insights for designing comprehensive interventions that address the holistic needs of students.

5.4 Recommendations for Further Research

Based on the limitations of the study and the gaps in existing research, such recommendations are presented for future studies: Firstly, researchers should consider using more accurate approaches for calculating sample size and representing population proportions, because overrepresentation could be a problem. Also, doing so would enhance the reliability and representativeness of the findings. Secondly, further research should explore the relationship between school feeding programs and student engagement, considering the potential moderating variables identified in this study. Additionally, longitudinal studies can be conducted to examine the long-term effects of the program on student engagement. Finally, qualitative research can delve deeper into the experiences and perspectives of students and parents regarding the school feeding program.

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Appendices

Appendix A: Questionnaire for Students

Addis Ababa University

College of Education and Behavioral Studies

Department of Educational Planning and Management

General Instruction

Answer the following questions truthfully. If you have any questions, feel free to ask before you answer.

Item Number: _____

Qn.1 Grade			Qn.2 Age	Qn.3 Weight	Qn.4 Height	Qn.5 Gender		Qn.6 Parent Occupation
3 to 5	6 to 8	9 to 12				M	F	

7. What is your usual ranking in class?

A. 1 to 5 B. 6 to 10 C. 11 to 15 D. Would Rather not Say

		Yes	Maybe Sometimes	No, Never
Qn.8	Do you help your parents in housework?			
Qn.9	Do you have any health problems that may interfere with your learning?			
Qn.10	Do you have access to the necessary school materials needed to attend class?			

Qn.11

On Average, how many days per week do you attend school? _____

25%= Bad 50%= Average 75%= Very Good 100%= Excellent

Qn.12	Rate the School Feeding Program in Percent	25%	50%	75%	100%
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No.	Questions	1	2	3	4	5
1.	Learning is fun because I get better at something.					
2.	Adults at my school listen to the students.					
3.	After finishing my schoolwork I check it over to see if it's correct.					
4.	At my school, teachers care about students.					
5.	Going to school after high school is important.					
6.	I am hopeful about my future.					
7.	I enjoy talking to the students here.					
8.	I enjoy talking to the teachers here.					
9.	I feel like I have a say about what happens to me at school.					
10.	I feel safe at school.					
11.	I have some friends at school.					
12.	I plan to continue my education following high school.					
13.	I'll learn, but only if my family/guardian(s) give me a reward. (Reversed)					
14.	I'll learn, but only if the teacher gives me a reward. (Reversed)					
15.	Most of what is important to know you learn in school.					
16.	Most teachers at my school are interested in me as a person, not just as a student.					
17.	My education will create many future opportunities for me.					
18.	My family/guardian(s) are there for me when I need them.					
19.	My family/guardian(s) want me to keep trying when things are tough at school.					
20.	My teachers are there for me when I need them.					
21.	Other students at school care about me.					
22.	Other students here like me the way I am.					
23.	Overall, adults at my school treat students fairly.					
24.	Overall, my teachers are open and honest with me.					
25.	School is important for achieving my future goals.					
26.	Students at my school are there for me when I need them.					
27.	Students here respect what I have to say.					
28.	The grades in my classes do a good job of measuring what I'm able to do.					
29.	The school rules are fair.					
30.	The tests in my classes do a good job of measuring what I'm able to do.					
31.	What I'm learning in my classes will be important in my future.					
32.	When I do schoolwork I check to see whether I understand what I'm doing.					
33.	When I do well in school it's because I work hard.					
34.	When I have problems at school my family/guardian(s) are willing to help me.					
35.	When something good happens at school, my family/guardian(s) want to know about it.					

Appendix B: The Amharic Version of the Questionnaire (Translated)

አዲስ አበባ ዩኒቨርሲቲ

በተማሪዎች የሚሞላ መጠይቅ፡

ውድ ምላሽ ሰጪ ተማሪዎች፤

ከታች ለተዘረዘሩት ጥያቄዎች ትክክለኛና እውነተኛ መልስ ስጡ። ያልገባችሁን ማንኛውንም ጥያቄ ከመመለሳችሁ በፊት እንዲብራራላችሁ ጠይቁ።

መጠይቅ ቁጥር: _____

መጠይቅህ

ጥያቄ1			ጥያቄ2	ጥያቄ3	ጥያቄ4	ጥያቄ5		ጥያቄ6
ክፍል			እድሜ	የሰውነት ክብደት	ርዝመት	ፆታ		የወላጅ/አሳዳጊ ስራ
ከ3-5	ከ6-8	ከ9-12				ወንድ	ሴት	

7. በዙጋኔስትተኛነውምትወጣው/ጨው?

ሀ.1-5

ለ. 6-10

ሐ.11-15

መ.ድምፀተአቅቦ

		አዎ	አንደንዴ	አይ
ጥያቄ8	ቤተሰቦችህን/ሽን በቤት ውስጥ ስራ ታግዛለህ/ሽ?			
ጥያቄ9	በትምህርትህ/ሽ ጣልቃ ሊገባ የሚችል የጤና ችግር አለብህ/ሽ?			
ጥያቄ10	በክፍል ውስጥ ተገኝቶ ለመማር የሚያስፈልጉህ/ሽ የትምህርት መሳሪያዎች ተሟልተውልህ/ሽ?			

11. በአማካይበሳምንትስንትቀንወደትምህርትቤትትመጣለህ? _____

25%=መጥፎ

50%=ምንም አይልም

75%=በጣም ጥሩ

100%=እጅግ በጣም ጥሩ

ጥያቄ12	የምገባ ፕሮግራሙን ገምግመህ/ሽ ከ100 ምን ያህል ጥሩ እንደሆነ ግለፅ/ጪ	25%	50%	75%	100%

መጠይቅ ለ

መመሪያ: ከታች ለተዘረዘሩትን ከ1-35 ያሉ ጥያቄዎች ከ1-5 በተለየሙት ረድፎች ውስጥ ምልክት በማድረግ መልሱ። ከ1-5 ያሉት ቁጥሮች ትርጉም እንደሚከተለው ነው፡

1-በፍፁም አልስማማም

2-አልስማማም

3-ድምፅ ተዐቅቦ

4-እስማማለሁ

5-በጣም እስማማለሁ

ቁጥር	ጥያቄ	1	2	3	4	5
1	መማር እወዳለሁ ምክንያቱም ስማር በሆነ ነገር ላይ የተሻልኩ እሆናለሁ።					
2	በትምህርትቤቴ ያሉ አዋቂዎች ተማሪዎችን ያዳምጣሉ።					
3	የትምህርት ቤት ስራዬን ከጨረስኩ በኋላ ልክ መሆኑን ለማረጋገጥ ደግሜ አየዋለሁ።					
4	በትምህርት ቤቴ መምህራን ስለተማሪዎች ያስባሉ።					
5	ከሁለተኛ ደረጃ ትምህርት ቤት በኋላም ትምህርት ቤት መሄድ አስፈላጊ ነው።					
6	ስለወደፊቴ ተስፋ አለኝ።					
7	እዚህ ያሉ ተማሪዎችን ማውራት እወዳለሁ።					
8	እዚህ ያሉ መምህራንን ማውራት እወዳለሁ።					
9	በትምህርት ቤት ስለሚፈጠርብኝ ነገር አስተያየት መስጠት እንደምችል ይሰማኛል።					
10	ትምህርት ቤት ስሆን ደህንነት ይሰማኛል።					
11	በትምህርት ቤት አንዳንድ ጓደኞች አሉኝ።					
12	ከሁለተኛ ደረጃ ትምህርት በኋላ ትምህርቴን ለመቀጠል አስባለሁ።					
13	እማራለሁ ፣ ግን ቤተሰቦቼ ወይ አሳዳጊዎቼ ከሸለሙኝ ብቻ ነው።					
14	እማራለሁ ፣ ግን መምህራኖቼ ከሸለሙኝ ብቻ ነው።					
15	አብዛኛው ልታውቀው/ቂው አስፈላጊ የሆነን ነገር በትምህርት ቤት ትማራለህ/ሽ።					
16	አብዛኞቹ በትምህርት ቤቴ ያሉ መምህራን እንደተማሪ ብቻ ሳይሆን እንደሰው ስለኔ ለማወቅ ፍላጎት አላቸው።					
17	መማሪ ወደፊት ብዙ ዕድሎችን ይፈጥርልኛል።					
18	ቤተሰቦቼ/አሳዳጊዎቼ በምፈልጋቸው ጊዜ ከጎኔ ናቸው።					
19	በትምህርት ቤት ውስጥ ነገሮች ሲከሰቱኝ ቤተሰቦቼ/አሳዳጊዎቼ ጥረቴን እንድቀጥል ይፈልጋሉ።					
20	መምህራኖቼ በምፈልጋቸው ሰዐት ከጎኔ አሉ።					
21	ሌሎች ተማሪዎች ስለኔ ያስባሉ።					

22	ሌሎች ተማሪዎች የሆንኩትን ሆኜ ይወዱኛል።					
23	በአጠቃላይ ፣ በትምህርት ቤቱ ያሉ አዋቂዎች ተማሪዎችን በፍትህዊ መልኩ ያስተናግዳሉ።					
24	በአጠቃላይ ፣ መምህራኖቹ ለኔ ግልፅና እውነተኛ ናቸው።					
25	የወደፊት ህልሜን ለማሳካት ትምህርት ቤት አስፈላጊ ነው።					
26	በትምህርት ቤቱ ያሉ ተማሪዎች በሚያስፈልጉኝ ጊዜ ከጎኔ ናቸው።					
27	እዚህ ተማሪዎች ለምናገረው ነገር ክብር አላቸው።					
28	በክፍል ውስጥ ያሉ ውጤቶች መስራት የምችለውን ከመለካት አንፃር ውጤታማ ናቸው።					
29	የትምህርት ቤቱ ህጎች ፍትህዊ ናቸው።					
30	በክፍል ውስጥ ያሉ ፈተናዎች መስራት የምችለውን ከመለካት አንፃር ውጤታማ ናቸው።					
31	በክፍል የምማረው ለወደፊቱ ይጠቅመኛል።					
32	የትምህርት ቤት ስራ ስለራ የምሰራው ገብቶኝ እንደሆነ አረጋግጣለሁ።					
33	በትምህርት ቤት ጥሩ ውጤት ካለኝ ጠንክራ ስለሰራሁ ነው።					
34	በትምህርት ቤት ችግር ሲገጥመኝ ቤተሰቦቼ/አሳዳጊዎቼ እኔን ለመርዳት ፈቃደኞች ናቸው።					
35	በትምህርት ቤት ጥሩ ነገር ሲፈጠር ቤተሰቦቼ ስለሉ ማወቅ ይፈልጋሉ።					

Appendix C: Interview Questions for Teachers

Addis Ababa University

College of Education and Behavioral Studies

Department of Educational Planning and Management

Student Grade Level: _____

Teachers' Gender: _____

1. What subject do you teach?
2. Did you start teaching here before or after the school feeding program started?
3. For how long have you taught Student _____?
4. What is student _____'s participation like in class?
5. Is student _____'s attentive in class?
6. What is student _____'s relationship with his/her peers like?
7. What is student _____'s relationship with his/her teachers like?
8. Has student _____ ever told you what he/she wants to be in the future? If so, what does he/she want to be?
9. Does student _____ learn out of intrinsic motivation or does he/she need external push?
10. Does student _____ do his/her classwork and homework well?
11. Does student _____ obey the school rules?
12. Do you think student _____'s parents follow up his/her learning?
13. What is other students' relationship with student _____ like?
14. Does student _____ bring all the necessary learning materials when he/she comes to school?
15. What is student _____'s academic performance like?
16. What is student _____'s health status like?
17. Have you noticed any changes in student _____'s behaviour before and after the school feeding started?
18. Are there any changes you suspect the program has brought on student _____?
19. Do you think there is a relationship between the feeding program and students' engagement?
20. If you had to rate the program from hundred, what would you rate it?
 - A. 25%
 - B. 50%
 - C. 75%
 - D. 100%
21. Are there any improvements you suggest o be made on the program?
22. Anything you may want to add?

Date of Interview: _____

Appendix D: Interview Questions for Teachers (Translated)

አዲስ አበባ ዩኒቨርሲቲ

የመምህራን ቃለመጠይቅ

የተማሪ ክፍል ደረጃ: _____

የመምህር ያታ: _____

1. ምን አስተማሪ ነዎት?
2. እዚህ ትምህርት ቤት ማስተማር የጀመሩት የምገባ ፕሮግራሙ ከመጀመሩ በፊት ነው በኋላ?
3. ተማሪ _____ን ለስንት ጊዜ አስተምረውታል?
4. ተማሪ _____ ክፍል ውስጥ ያለው ተሳትፎ ምን ይመስላል?
5. ተማሪ _____ እርስዎ ክፍል ውስጥ በሚያስተምሩበት ጊዜ ያለው ትኩረት ምን ይመስላል?
6. ተማሪ _____ ከተማሪዎች ጋር ያለው ግንኙነት ምን ይመስላል?
7. ተማሪ _____ ከመምህራን ጋር ያለው ግንኙነት ምን ይመስላል?
8. ተማሪ _____ ወደፊት መሆን ስለሚፈልገው ነገር ነግሮት ያውቃል? ከሆነ ምን መሆን ነው የሚፈልገው?
9. ተማሪ _____ የሚማረው በራስ ተነሳሽነት ነው ወይንስ ለመማር የተለየ ግፊት ይፈልጋል?
10. ተማሪ _____ የቤትና የክፍል ስራውን በደንብ ይሰራል?
11. ተማሪ _____ ለትምህርት ቤቱ ህጎች ተገዢ ነው?
12. የተማሪ _____ ወላጆች በትምህርቱ ላይ ክትትል ያደርጋሉ ብለው ያስባሉ?
13. ሌሎች ተማሪዎች ከ _____ ጋር ያላቸው አቀራረብ ምን ይመስላል?
14. ተማሪ _____ ወደክፍል ሲመጣ ለትምህርት የሚያስፈልጉት የትምህርት መሳሪያዎች ይዞ ይመጣል?
15. ተማሪ _____ በትምህርቱ ያለው ውጤት ምን ይመስላል?
16. የተማሪ _____ የጤና ሁኔታ ምን ይመስላል?
17. የምገባ ፕሮግራሙ ከመጀመሩ በፊትና በኋላ በ _____ ባህሪ ላይ ያስተዋሉት ለውጥ ይኖር ይሆን?
18. የምገባ ፕሮግራሙ በተማሪ _____ ላይ አምጥቷል የሚሉት ለውጥ አለ?
19. በምገባ ፕሮግራሙና ተማሪዎች ለትምህርት ባላቸው መነሳሳት መሃል ያለ ግንኙነት አለ ብለው ያስባሉ?
20. የምገባ ፕሮግራሙን በፕሮሰንት መገምገም ቢኖርብዎት ከመቶ ስንት ይሰጡታል?
ሀ. 25 ለ. 50 ሐ. 75 መ. 100
21. በምገባ ፕሮግራሙ ላይ መደረግ አለበት የሚሉት መሻሻል ካለ?
22. ሌላ የሚጨምሩት ካለ?