

Contribution of School Feeding Program on Students' Academic Performance in Public Secondary Schools of Rwanda

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Abstract: The study assessed the contribution of school feeding program on students' academic performance in public secondary schools more especially in Kicukiro District. The specific of this study was to ascertain the relationship between school feeding and students' academic performance. This sample size of 288 participants was composed of students and teachers from public secondary schools. Both students and teachers were sampled by simple random sampling techniques, and then stratified sampling techniques were employed to select students from their schools and classes, where they are scattered. As showed by Karl Pearson coefficient on the relationship between school feeding and students' academic performance in secondary schools, there was high positive correlation equivalent to .57. Again, the R2 of .491 clearly demonstrated that the increase of provision of school quality lunch to students positively increase students' performance in their daily learning. Based on findings, the research recommend that parents should provide the contribution in implementation and smooth running of school feeding program. School leaders, local leaders, Ministry of Education and stakeholders should work hand in hand to provide all needed facilities and supports in order to smoothly implement school feeding program by providing school feeding funds and establishing related infrastructures in all schools like supporting schools to have well-equipped kitchens used for preparing lunch. Further study should be on impact of school feeding to primary education due to the fact that the Government of Rwanda through the Ministry of Education introduced the program to primary schools.

Keywords: Academic Performance, School Feeding.

1. INTRODUCTION

School Feeding is very essential the growth of the body of human being as well as cognitive development. Growth and cognitive development of children are resulted from biological metabolic activities; those metabolic activities need reliable food supply to take place (Akanbi, 2013). Various countries both developed and developing country introduced a mechanism to combat hunger as way of enhancing both school enrolment and performance, which mechanism is referred to as school feeding programs. School meals stimulate parents to take children to school instead of keeping them at home in different domestic activities such as looking after their young brothers and sisters (Akanbi, 2013).

African leaders-initiated school feeding as mechanism to attain MDGs and resolutions from many conferences aiming at addressing issues like peace, security, economy, political and governance, which will stimulate foreigners to invest in

Africa. They initiated shared vision and conviction through NEPAD which is detailed as New Partnership for African Development. NEPAD was seen as path which would lead to sustainable development and give African countries a stand to the world economy and politics. School feeding was linked to agricultural development and local farmers by purchasing and using food produced locally (Bundy *et al.*, 2009).

Locally, in Rwanda, in line with objectives of the Government of Rwanda, to build knowledge-based economy, the Ministry of Education developed school feeding policy aiming at producing potential citizens. School feeding program was introduced with primary role of ensuring food assistance tool that will promote health and nutrition status which in turn increase access to education (MINEDUC, 2019). In accordance to Rwanda context, supporting education and enhancing learning ability; and enhancing health of children with school age, and nutritional status of those children as well are among the main goals of school feeding policy. Addressing nutritional deficiency coupled with other factors, obviously lead increased enrolment, attendance, and cognition, and thus contribute to the achievement of learning outcomes. Parents, teachers as well as local community benefit from school feeding program, either directly or indirectly (MINEDUC, 2019). School feeding is referred to a huge promotion of local economies and an investment for human capital development as well as equity (Bundy *et al.*, 2009). School meals play significant role in reducing absenteeism and school drop-out and thus, increase both school enrolment and attendance. The two later, once combined with students' motivation, discipline and conducive learning environment results to increased academic performance and attainment of learning outcomes (MINEDUC, 2019).

1.1 Problem Statement

In accordance with the statistics of Ministry of Education, in Rwanda, in 2019, 86.6% of 114,424 students who sat for lower secondary exams passed the national exam. However, 15,304 students (which is 13.4%) failed the national exam. While, in Upper secondary school leaving examination, 90.6% passed national exams (MINEDUC, 2022). According to Niyonzima (2018), in the study conducted in Rulindo District, District of Rwanda, the Majority of the respondents were not sure at 54.07%, the findings shown about the level of students' academic performance were signs that SFP needs to be clear with its impact on students' academic performance. In 2022, Twahirwa & Dushimimana, viewed school feeding as shared efforts by all partners to attain students' performance. These partners should work closely in setting up good learning environment which motivate students to student confidently. The partners are all stakeholders, local communities and local leaders and parents, among others. The Government of Rwanda introduced school feeding as one among other factors which increase both students' performance and the enrolment numbers. Comprehensive School feeding policy is beyond what people think and invest money; it has a number of other variables that make it successful. Those variables include trained personnel, school garden, providing a balanced diet among others. School feeding have shown a great impact on education system of different countries worldwide, it is therefore imperative to be effectively monitored and controlled in accordance with set guidelines (Twahirwa, J., D. & Dushimimana, 2022). Basing on that background, the researcher was inspired to conduct the very research to assess the contribution of school feeding program on students' academic performance of public schools of Kicukiro District-Rwanda.

1.2 Objective

- i. To ascertain the relationship between school feeding program and students' academic performance.

1.3 Significance of the Study

The very research will prove valuable contribution due to the following reasons: The study will provide adequate information on the contribution of school feeding program on academic performance of students studying in public secondary schools. More specifically, it will provide information on how school feeding program contribute to performance of students studying in schools of Kicukiro District. Moreover, the findings of this research will give a significant support to the district to put a foresight at the school feeding practices to improve learning academic performance and learning outcomes in general. In addition, the findings of this research will give information to both schools and parents on how to better implement school feeding program as one way of improving academic performances of students. The findings will also inform the Ministry of Education and their stakeholders the outcomes of program on academic performance and will also be consulted by other researchers who will conduct investigation on the related matters. The research is the partial requirement for an award of Masters of Education at Mount Kenya University.

Therefore, the findings of this research will give facts in a deeper sense, to Kicukiro District, City of Kigali and Ministry of Education as well as all education stakeholders' area of emphasis and improvement in the programs.

1.4 Limitations and Delimitations

Due to limited finance and limited time for this study, the research was conducted in public secondary school of Kicukiro District, City of Kigali, Rwanda. And the findings were not generalized in all locality implementing school feeding program. However, the findings highlighted key issues and recommendations that may facilitate other places implementing school feeding program to improve.

1.4.1 Geographical Scope

Concerning geographical scope, the research was limited to public secondary schools of Kicukiro District. Kicukiro District is located in City of Kigali, in its South-East part, Kicukiro is among three Districts of the City of Kigali, the Capital City of the country of thousand hills, Rwanda. The District is composed of ten (10) Sectors: Gahanga, Gatenga, Gikondo, Kagarama, Kanombe, Kicukiro, Kigarama, Masaka, Niboye and Nyarugunga Kicukiro District constitute 41 cells, and 333 villages. The District lays on surface of 1166,7 square kilometers and hosts 491,731 inhabitants (census of 2022). The Study considered only respondents from Public secondary schools of Kigarama Sector of Kicukiro District.

2. REVIEW OF RELATED LITERATURE

In this section, the researcher presented the major concepts related to school feeding program and assess its contribution to academic performance of students. There were two issues that were concern in this section. First, we put more emphasis on practices of school feeding and how they lead to academic performance improvements. Secondary, we discussed on academic performance of students.

2.1 School feeding Program and Students' attendance

The regularly provision of food for children to attend school, acts as strong incentives for their regular attendance. In many countries, culturally disadvantaged children, mostly girls benefit from school feeding program compare to their male counterpart, who are mostly favored to attend school, while the females are hardship situations (Del Rosso, 1999). The program, help parents to earn money through spending less for food and save the remaining. The study of Del Rosso, In Jamaica, found out that primary school student's attendance was significantly increased due to the breakfast given to those children (Del Rosso, 1999).

In Malawi, the World Food Program conducted the pilot study over three months and found out providing school meal caused both school attendance and enrolment to increase. The school enrolment was increased by five percent while attendance was improved up to thirty-six percent (WFP, 1996). Locally, in Rwanda, the study of Niyizimigambi and Kamuhanda (2021) revealed that school feeding practices in secondary schools gave equal chance and right to education to all students. Its effects are not limited to the above-mentioned fruits but also the program increased attendance in schools (Niyizimigambi & Kamuhanda, 2021).

2.2 School Feeding Program reduces school drop out

The main target of the program is to support socio-economically disadvantage school children not only educational benefits but also health benefits. Those benefits are many and they include but not limited to reducing both school dropout and absenteeism, short term hunger alleviation and increasing school (Tsion, A., D. *et al.* 2021).

Besides, the poverty and keeping children for domestic works, Education for All (EFA) (2002) revealed other major reasons that lead to drop out, providing children with the poor quality of education is among them. Pupil's attendance and performance are also affected by long distances walked by the kid to and from school. According to UNICEF (2007), other factors kept many girls out of schools; they include household chores like fetching from long distances.

According Niyizimigambi and Kamuhanda (2021), in their study conducted in secondary schools of Nyanza District, in Southern Province of Country of thousand hills (Rwanda), pointed out that school feeding program raised up promotion rate at over 90%. It also decreased dropout rates, mainly school dropout caused by hunger was decreased by school feeding (Niyizimigambi & Kamuhanda, 2021).

2.3 The relationship between school feeding program and students' academic performance

School feeding was introduced in schools across the globe as remedy to difficulties that was deterring the precession education sector worldwide. Some families pass the whole night without meal for their children and go to school with empty stomach, when they do not have lunch, these may result into malnutrition and thus affect their cognitive abilities (Arnault *et al*, 2009). Introduction of school feeding increased school enrollment at a considerable level and decreased the number of drop out by increasing the number students who return to schools. Since the implementation of the program, schools started recording a high number of students who attend class regularly and students were motivated for studying (Ahmed, 2004). There after Government of Rwanda consider the fact of providing lunch at school, as key factor that may increase the number of students at school and combat short term hunger in families which will increase academic performance of learners (Twahirwa, J., D. & Dushimimana, 2022).

The Country of thousand hills (Rwanda) is put more emphasis on implementing the program as strategy to bring back dropped out students and reduce stunting in millions of children. Absenteeism will be reduced by implementing the program in different schools across the country. The Government is mobilizing parents to supplement the government budget allocated to the implementation of the program (Twahirwa, J., D. & Dushimimana, 2022).

The findings of the study conduct by (Twahirwa, J., D. & Dushimimana, 2022) showed that feeding program with well-trained personnel has great influence on good scores of learners studying in basic education both 9 & 12 YBE (Twahirwa, J., D. & Dushimimana, 2022).

According to Niyonzima (2018), in his study related to school feeding in 12YBE found out a correlation between the program and students 'results, where SFP played a big role in completion of homework, exercises, classroom participation and improved grades. Moreover, the impact is extended to the daily attendance, zero rate of drop out, healthy strong students and good result outcome (Niyonzima, 2018).

2.4 Theory of human needs (Maslow's pyramid of needs)

The most popular known theory of human needs of Abraham Maslow ranked them in five levels. In 1943, Abraham Maslow, University professor of psychology, carried out a study on motivation, and human needs, he built up a human need's theory, and revealed that people's motivation is categorized in five levels. Hierarchy of Maslow of human needs is the following: Physiological, belonging, esteem and self-actualization needs. It has played an essential role in human motivation arena. According to the human need's theory, the development of human needs has five levels, when the first level of human need is satisfied the next level follows (Nyameh, 2013).

3. RESEARCH METHODOLOGY

3.1 Research Design

The main purpose of this research was to find out the contribution of school feeding on students' academic performance in public secondary schools of Kicukiro District. There were two main research strategies: qualitative and quantitative which determined the cause and effects and relationship between independent and dependent variables. The research adopted descriptive research design and correlation research design. Therefore, to portray the individual groups of students and teachers, the researcher used descriptive design. Individuals or groups of learners and teachers were portrayed by completing questionnaires, statements of participants by providing the answers for their opinions, attitudes, beliefs and understandings on the contribution of school feeding on students' academic performance in public secondary schools of Kicukiro District, Kigali-Rwanda.

3.2 Sample Size

The number of respondents was selected using the formula of Robert and Morgan (1970). It determines the representative of a given population, the sample size. According to the calculation using Robert and Morgan's formula, the size of the sample for this study this study was 288.

3.3 Sampling technique

The head teachers and sector educational Inspector was selected through purposive sampling because they are knowledgeable to the program of school feeding and they are in the technical assistance team. For each stratum, simple

random sampling technique was used as probability sampling where the researcher gave an equal chance of selecting each member of the population since every member gave relevant information. The two sampling techniques were mostly used to select the respondents from the schools including students, teachers, educational inspectors and head teachers of Kicukiro District.

3.4 Research Instruments

Collecting data from teachers and students, the researcher used questionnaires, as instruments for data collection. In collecting data in the study with large number of respondents, a convenient tool is the questionnaire. Questionnaires facilitated easy and quick collection of information in a very short time. When using questionnaires, the respondents answered asked questions with confidentiality and they had no reason to be dishonest. The respondents were requested to rate their level of agreement and disagreement with specific statements, the rating scale was from 1 which was strongly disagree to 5 which was strongly agree. The questionnaires contained personal information and relevant questions for the study.

While collecting data from Head teachers and Sector Education Inspector, guided interview was used. The questions to be asked in guided interview were listed. As it is essential to obtain the same information on the same material, the researcher had to prepare interview before the course.

4. RESEARCH RESULTS

4.0 Introduction

Chapter four contains the distribution of respondents per different categories and their responses. It presents findings of the research, interpretations as well as analyses based on data from the respondents. It is followed by both the main themes and objectives of the study. In the context of the study, each finding is described and interpreted based on the research objectives and research questions. Tables are used to present and summarize the findings. The presentation of research findings, the researcher puts forward recommendations as well as suggestion for further study.

4.1 Distribution of the respondents

Respondents were sampled in the public secondary schools of Kigarama Sector from that population of 288 respondents were sampled, they include 267 students, 17 teachers, 3 head teachers and one sector education inspector.

4.2 Responses returned

Considering the number of respondents, 288 students and 17 teachers responded, while three head teachers and one sector education inspector were interviewed. They responded at rate of one hundred per cent (100%).

4.2.1 The relationship between school feeding program and students' academic performance

As to whether students exhibit high performance in terminal exams because they take lunch at school, 232 of 288 equivalent to 81% responded either strongly agree or agree and 56 of 288 equivalent to 19% responded either strongly disagree, disagree or neutral. It means that the feeding students (providing lunch to day students) increases academic of students. Beside the program they may be other factors that may affect academic performance. The following table shows frequencies of students' responses according to each scale.

Table 1: Students' responses on relationship between school feeding program and students 'academic performance

The relationship	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Standard Deviation
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	
I exhibit high performance due to lunch at school	11	4%	14	5%	31	11%	134	47%	98	34%	0.22
School feeding program increased my performance in my class	7	2%	13	5%	22	8%	119	41%	127	44%	0.37

Source: Field Data (2023).

Considering the response of teachers on whether students exhibit high performance in terminal exams because they take lunch at school, 16 of 17 equivalent to 94% responded either strongly agree or agree, which means that they accepted that students perform well in terminal exams because they take lunch at school. One of 17 equivalent to 4% responded on neutral scale.

During the interview with educational leaders; school head teachers and educational inspector, they all accepted that students exhibit high performance in terminal exams as result of taking lunch at school. The table below shows the frequencies of teachers' responses.

Table 2: Teachers' responses on relationship between school feeding program and students' academic performance.

The relationship between school feeding program and students' performance	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Standard Deviation	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Students of my school exhibit high performance due to lunch	0	0%	0	0%	1	6%	10	59%	6	35%	0.51	
School feeding programs increased the student performance	0	0%	0	0%	2	12%	8	47%	7	41%	0.22	
School feeding program increased grades in National Exams	0	0%	0	0%	0	0%	11	65%	6	35%	0.39	

Source: Field Data (2023).

As to whether school feeding program increased students' performance in their classes, 246 of 288 equivalent to 85% responded either strongly agree or agree, which means that they have accepted that school feeding increased their performance in class. However, 42 of 288 equivalent to 15% responded either strongly disagree, disagree or neutral, which means that they do not agree with the fact that school feeding increased their daily class performance.

Teachers' responses, on whether School feeding programs increased the student performance in their school, 15 of 17 equivalent to 88% responded either strongly agree or agree, which means that they affirm that school feeding increased the student performance in their school. However, 2 of 17 equivalent to 12% did not either accept or disagree, they ticked neutral. Concerning on whether school feeding program increased grades scored by students in National Exams, all teachers, 17 of 17 (100%) responded either strongly agree or agree, which means that they accepted that school feeding increased grades scored by students in national exams.

According to Niyonzima (2018), in his study titled School Feeding Program and Students academic Performance in Twelve years Basic Education found out the relationship between the program of school feeding and students' performance where SFP played a big role in completion of homework, exercises, classroom participation and improved grades. Therefore, there is also correlation between the program of school feeding and academic performance of students, academic performance is that positive impact of school feeding on students. In addition, the impact is extended to the daily attendance, zero rate of drop out, healthy strong students and good result outcome.

Table 3: Karl Pearson Correlation

Correlations			
Variables		School feeding program	Academic performance
School feeding program	Pearson Correlation	1	.57
	Significance. (2-tails)		.02
	N	288	288
Academic performance	Pearson Correlation	.57	1
	Sig. (2-tails)	.02	
	N	288	288
Correlation is significant at the 0.02 level (2-tails).			

As to whether there was a relationship between school feeding program and students' academic performance in secondary schools of Kicukiro District, the table 4.8 shows that there was high positive correlation equivalent to .57. This means that

when school feeding program practices is effectively implemented increase the performance of students in the schools of Kicukiro District. Therefore, when Karl Pearson coefficient lies between 0 and .5 there is low positive correlations while when it lies between .5 and 1, there is high positive Karl Pearson correction.

According to the research carried out by Ssenyonga (2019) showed, a close relationship between the nature of implementation of feeding at school and learners' academic performance. The school meals had several positive effects on the improvement of the academic performance of students. The findings of the very research that indicated that students exhibit high performance in terminal exams are in line the research carried out by Ssenyonga, school feeding program positively affect students' performance. Thus, sustaining school feeding program implies the direct involvement of all parents in contributing towards feeding their own children at school, which greatly helps to improve the academic performance of students.

Table 4: Regression Coefficients between Students School feeding programs and student performance in schools

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.521 ^a	.491	.487	.0095

a. Predictors: (Constant), students of my school exhibit high performance in terminal exams because they take lunch at school, school feeding programs increased student performance in my school, school feeding program increased grades scored by students in National Exams.

Results on the regression coefficients between taking lunch at school and increasing performance are shown where the R^2 of .491 clearly demonstrated that the increase of provision of school quality lunch to students positively affect students' performance in their daily learning. This implies that the more the school mobilizes the stakeholders and beneficiaries for contributing to school feeding programmes the more the students increase their grades.

The other studies showed that predicting students' performance with empty stomach is a nightmare; when they do not have lunch, these may result into malnutrition and thus affect their cognitive abilities (Arnault *et al*, 2009). Introduction of school feeding increased school enrollment at a considerable level and decreased the number of drop out by increasing the number students who return to schools. Thereafter, the Government of Rwanda consider the fact of providing lunch at school, as key factor that may increase the number of students at school and combat short term hunger in families which will increase academic performance of learners (Twahirwa, J., D. & Dushimimana, 2022).

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

5.1.1 The relationship between school feeding and academic performance

The research found out that students exhibit high performance in terminal exams because they take lunch at school, school feeding programs increased the student performance in schools and school feeding program increased grades scored by students in National Exams. School meal, lunch increases academic performance in class, in terminal exams like end of term examinations as well as end of the academic year exams as well as national examinations. The relationship between school feeding and academic performance of public secondary schools in Kicukiro-Rwanda is that fact the program increases grades scored by students in different exams and tests. Thus, school feeding program increase students' academic performance in public secondary schools in Rwanda. There is a clear contribution of the program on students 'academic performance in public secondary schools, in the way that the program is used to solve other factors that may hinder students to attend class regularly or distract them while they are studying and learning. These contribute in increasing their grades and scores in different tests and exams.

5.2 Recommendations

The researcher, based on drawn conclusions, provide the following recommendations to parents, school leaders, local authorities and government of Rwanda:

The parents should be responsible in supporting learning of their children by providing all needed materials and should provide the contribution in implementation and smooth running of school feeding program, they should pay school

feeding fees. They have also responsibilities to participate in management of school feeding through school feeding committee, school general assembly and school general assembly committee.

School leaders, head teachers and deputy headaches, school accountants, among others, should provide quality lunch to students. They should also provide school lunch on time as way reducing the wastage of time and proper management of school feeding program. They have duties to work with stakeholders to have well-equipped kitchen used for preparing lunch. They also have to work with parents, school general assembly committee and school feeding committee to mobilize all parents to provide their contribution so that the program run smoothly. School leaders have to work with parents, teachers and other stakeholders to identify other factors that may negatively affect learning outcomes and academic performance of students, and find out strategies to mitigate them for effective teaching and learning processes.

Local authorities, City of Kigali and Districts should work with schools, and other stakeholders to mobilize all parents to pay their contribution fees for meals of their children. They should also work with other stakeholders to establish well-equipped kitchen and other facilities needed for effective implementation of school feeding program. They also have duties to work with schools and parents to diagnose and mitigate others hindrances that may decrease academic performance of students.

Government of Rwanda and Ministry of Education should provide all needed facilities and supports in order to smoothly implement school feeding program by providing school feeding funds and establishing related infrastructures in all schools like supporting schools to have well-equipped kitchens used for preparing lunch.

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