

## RELATIONSHIP BETWEEN FEEDING AND ACADEMIC PERFORMANCE OF STUDENTS IN KITIMBWA SUB COUNTY KAYUNGA DISTRICT: A CROSS-SECTIONAL STUDY.

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### Abstract

#### Background

This study aims to examine the relationship between feeding and academic performance of students in Kitimbwa Sub County Kayunga District.

#### Methodology

A cross-sectional survey design using both quantitative and qualitative methods was used to collect data from 202 students 30 teachers and 7 Headteachers. The qualitative study design investigated the possibility of the relationship between the independent and the dependent variables like feeding, sanitation, accommodation, and academic performance.

Data on living conditions was gathered using a questionnaire with a standard Likert-type scale with closed-ranking items. Structured interview guides were used to collect views from the non-students. Data from questionnaires was analyzed using both descriptive and inferential statistics of Analysis of Variance (ANOVA) and the t-test while interview data was analyzed using frequency analysis by counting the number of times of responses had by the respondents.

#### Results

The majority 115 (56.9%) were female while 87 (43.1%) were male. This meant that girl child education has been given due consideration since girls were more than the boys in the A" level section unlike before when boys dominated the whole system of education. The results of the analysis showed a highly significant effect of feeding on academic performance. This was given by the computed value of the F- ratio of 8.26 while the corresponding p-value of 0.00 was less than the level of significance alpha 0.05. In schools where feeding was perceived as being good, the performance of students was higher than those in schools where feeding was moderate and poor.

#### Conclusion

In schools where feeding was poor, even students' academic performance was poor compared to schools where feeding was moderate and good.

#### Recommendation

Secondary schools in Kitimbwa Sub County should use their land to establish agricultural and poultry farms to supplement the food provided to balance the diet.

*Keywords: Relationship, Feeding, Academic Performance, Students, Kitimbwa Sub County Kayunga District.*

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#### Background of the study

Feeding is very important in the life of learners since it affects students' thinking and intellectual development. It takes a central position in institutions that operate a residential program for students (Kabanza, 1997). Food therefore plays an important role in the learning process. Educational institutions in Uganda are required to ensure that students' food is well catered for to pursue their educational aspirations comfortably (Kajubi, 1992). Nyamwaya and Oduol (1994) in their study about Health Education assert that food is important for good health and proper growth and development of the body. They concluded that if people eat very little or the wrong foods they become weak, get sick easily, and could even die. To

them, a balanced meal should consist of different types of foods, energize and protect people from falling sick easily. According to nutrition experts and doctors (Senderowitz, 1995), a quality meal should provide energy and body-building materials for the body to maintain itself. Providing nutritious meals to students helps them achieve their objectives. United Nations' Children's Education Fund (UNICEF) (2006) reported that sanitation has not been taken as a priority and as a result, some schools have failed to take sanitation seriously with appalling results such that some students have expressed open dislike and dissatisfaction with the state of sanitary facilities in their school, hand washing facilities at lower priority level, lack of access to safe water and many other dislikes. The study

aims to examine the relationship between feeding and academic performance of students in Kitimbwa Sub County Kayunga District.

### Methodology Research Design

In this study, a cross-sectional survey design was used. Both quantitative and qualitative methods were used to collect data from selected schools which would form a representative sample. Amin (2005) argues that this design helps to gather opinions from a cross-section of the population. The design was used to obtain information about preferences, attitudes, practices, concerns, and opinions about students' living conditions and how they affect their academic performance. It was because of the above reasons that the design was found to be appropriate to investigate the effect of living conditions on students' academic performance in Kitimbwa Sub County Kayunga district. This method was also appropriate because it produces normative data required for quantitative analyses (Leedeey, 1989).

### Area and Population

The study was carried out in Kitimbwa Sub County situated in the Northern constituency of Kayunga District. The study focused mainly on Advanced level students, teachers, and head teachers to critically analyze the effect of living conditions in a school on students' academic performance. According to the Annual school survey that was conducted in May 2020, Kitimbwa Sub County has 21 secondary schools with a population of 8740 students 350 teachers, and 21 head teachers.

### Sample Size

The sample size comprised 202 students based on Krejcie and Morgan (1970) (See Appendix VIII) table as given by Amin (2005). The respondents selected were from 7 selected schools that were considered in the study.

### Sampling Technique

Stratified Random sampling techniques were used in the study to select students and teachers. This technique was chosen because it has a high degree of representativeness and offers accurate results. Random sampling was used in the study because all students had equal chances of being selected. Headteachers, wardens, and senior ladies were purposively selected since they are the ones with more information about students' living conditions.

### Data Collection Tools

#### Questionnaire

The questionnaire was composed of close-ended questions that sought to capture the opinions of the respondents on the possible association of variables under the study of students' living conditions. The

$$\alpha = \frac{K}{K-1} \left( 1 - \frac{\sum SD_i^2}{SD_t^2} \right)$$

Where  $\alpha$  = the alpha coefficient

questionnaires were useful instruments for the collection of data especially where there was a need to protect the privacy of the respondents. This was necessary because confidentiality on the side of participants in the questionnaire was vital in a way of encouraging and maintaining the response to the questions in the questionnaire without getting embarrassed or intimidated when issuing the instrument. The questions were close-ended type of questions to objectify and standardize the observation made by the researcher. The closed type of questionnaires was used because they are easy to fill by the respondent and take a short period. They also make the construction of frequency tables easy as Okurut (1986) observed that "a carefully structured question saves time, simplifies the task of categorizing, tabulating and summarizing the responses". The questionnaire also helped to collect data from a large sample within a short period.

### Interview Guide

An interview guide was designed by the researcher with open-ended items according to the main theme of the study. It was used to guide the researcher to remain focused on the objectives of the study and to get clarity about the different ideas on students' living conditions. The interview guide was the best method since it allows deeper probing and clarifies.

### Observation Guide

The observation guide helped the researcher to remain focused on the variables being studied. The researcher visited the schools and observed the conditions of various places like the kitchen, bathrooms, toilets, dormitories, and the compound. The researcher also observed the diet of students plus the timing and quality of food served.

### Validity of Instrument

The validity of the instrument was established using the content it entails. The researcher in consultation with her supervisor conducted a first session in which a critical assessment of each item was rated for relevancy. Adjustments to the questions were made until validity was achieved. Content validity was established through expert judges using the content validity index (CVI) given by the formula below (Amin, 2005).

$$CVI = \frac{\text{No of items declared valid}}{\text{Total no of items}}$$

The CVI was 0.88

### Reliability of Instrument

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

The formula was as follows:

$\sum SD_i^2$  = sum of the variance of individual items in the questionnaire

$SDt^2$  = variance of the entire questionnaire  
 K = number of items in the questionnaire

The reliability of the questionnaire was found to be 0.911 therefore warranting the study to proceed.

### Research Procedure

Data collection was conducted by the researcher himself and was carried out as follows. After securing an introductory letter from the Dean of, the School of Education Team University the researcher then sought permission from head teachers to administer the instruments in their respective schools, before setting out to collect data. The respondents were informed that the information gathered would serve to enrich matters for policymakers in the Ministry of Education and Sports, head teachers as well as other stakeholders. Before the distribution of the questionnaires, the researcher worked out a strategy with one of the teachers from each school to help in the distribution of questionnaires. The respondents were given two weeks to fill out the questionnaires at their own pace after which the researcher collected the questionnaires back and examined them to see if the students raised any important element. 240 questionnaires were distributed but only 220 were returned which is 83%. This percentage response was considered adequate for analysis and generalization. After collecting and reviewing the questionnaires for accuracy, interviews

were carried out for deeper probing. This exercise took two weeks because some of the officials did not honor the appointments so the researcher had to go back.

### Data Processing and Analysis

The questionnaires were edited for accuracy, consistency, and completeness of information before leaving the field. Thereafter coding and summarizing of data was done at the end of each working day. After the instruments were returned, they were checked for completeness and thereafter were coded and then entered in the Statistical Package for Social Scientists (SPSS). The information from questionnaires was presented in frequency tables. The first and second hypotheses were tested using Analysis of Variance (ANOVA) to establish whether there existed any significant difference in the students' living conditions among the schools while the third hypothesis was tested using the t-test. These methods are appropriate when the researcher has quantitative data and wants to compare the different groups of respondents on major variables

### Results

#### Background Information of Respondents Demographic Details of Respondents

The background information on students is given in Table 1 comprising of gender and class level.

**Table 1: Demographic Details of Respondents**

		Frequency	Percentage
Gender	Female	115	56.9%
	Male	87	43.1%
<b>Total</b>		<b>202</b>	<b>100.0%</b>
Level	Five	116	57.4%
	Six	86	42.6%
<b>Total</b>		<b>202</b>	<b>100.0%</b>

*Source: Survey data, 2023*

Table 1 suggests that the majority 115 (56.9%) were female while 87 (43.1%) were male. This meant that girl child education has been given due consideration since girls were more than the boys in the A" level section unlike before when boys dominated the whole system of education.

### Description of Respondents' Opinions about the Questionnaire Items and the Interview.

This section describes the opinions of respondents on the item of the questionnaire relating to the objectives of the

study. In the questionnaire, the respondents were asked to tick the option that best described their opinion on a four-point Likert scale ranging from Strongly Disagree (SD) to Strongly Agree (SA).

### Respondents' Opinion on Feeding

This was to examine the effect of feeding on students' academic performance. The variables considered that make up feeding were quality of food, balanced diet and the availability of drinking water and Table 2 shows their frequency and percentage.

**Table 2: Respondents' Opinion on Feeding of Students in Kitimbwa Sub County**

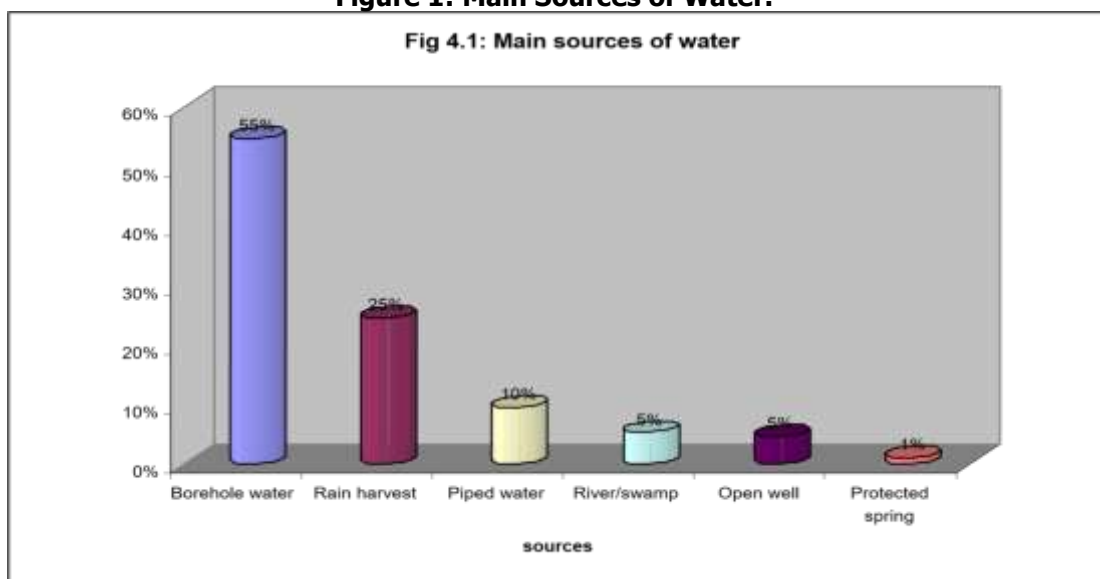
	Level of Agreement or Disagreement.	Frequency	Percentage
The food served at school is satisfactory.	SD	19	9.4%
	D	29	14.4%
	A	97	48.0%
	SA	57	28.%
The school provides us with a well-balanced diet.	SD	95	47.0%
	D	44	21.8%
	A	48	22.3%
	SA	18	8.9%
The school maintains cleanliness in areas where food is stored, prepared, and served.	SD	42	20.8%
	D	33	16.3%
	A	82	40.6%
	SA	45	22.3%
The school provides drinking water to students always.	SD	114	56.4%
	D	43	21.3%
	A	33	16.3%
	SA	12	5.9%

*Key; SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Disagree*  
*Source: Survey data, 2023.*

Table 2, it was analyzed that schools do not provide nutritious meals or a variety of foods to students and this was indicated by 95 (47.0%) students who disagreed with the statement that the school provides a variety of foods to students. It should also be noted that food served to students is not satisfactory and this means students may go back to class when they are hungry. This point of view indicates a balanced diet for students plays a great role in facilitating their growth and learning 60.0[15%] and this boosts their thinking hence improving their academic performance.

The findings also revealed that the main source of water for schools in Kitimbwa Sub County was borehole indicated by 111.0 (55%) and maybe this is the reason why schools do not boil water since borehole water is purified through the process of percolation. It was also discovered that 114 (56.4%) students agreed that they are not provided with drinking water which may cause sickness to students' health. The students continued taking unboiled water in many schools since different schools had different sources of water.

**Figure 1: Main Sources of Water.**



*Source: Survey data, 2023*

Figures 1 reveal the source of water in Kitimbwa and are rated according to the main source commonly used. Figure 1 suggests that borehole water was the most common source of water used in schools with a percentage of 55. Rain harvest is also another source for most schools and this was evidenced by the presence of tanks located near buildings such that in case it rains, then it can be channeled to the tanks. It was also found that protected springs are rare in Kitimbwa Sub County and are rarely used since their percentage was only 5.

Results from the interviews carried out also showed that students were not given a balanced diet as the school did not have a timetable for eating particular foods on particular days. Students in some schools where feeding was very poor revealed that they do not receive vegetables or fruits and it is once in a while that the school menu is changed. The teachers also agreed that there is a problem with the lack of access to safe drinking water since the school cannot boil water enough to serve all students and this observation was evidenced as there were no containers or anything to show that the school boils and provides drinking water.

**Hypothesis 1: there is no significant relationship between the Feeding of students and Academic Performance in Kitimbwa Sub County.**

The null hypothesis stated “Feeding of students does not affect academic performance of students in Kitimbwa Sub County. To test this hypothesis, a Likert type of questionnaire was administered to students in which they were asked to provide their opinions on the different items relating to the independent variable and the dependent variable. The null hypothesis was tested using ANOVA to establish whether feeding has a significant effect on students’ academic performance. The findings revealed that in some schools, students do not receive a balanced diet, drinking water to students and the time between meals is long. All this contributes to the poor academic performance of students. The results were found to be statistically significant and therefore the null hypothesis was rejected. This was interpreted to mean that feeding students affect their academic performance at an advanced level.

**Table 3: The relationship between feeding and students' academic performance in UACE exams**

	N	Mean	Std. Deviation	F	p-value
Poor	80	8.4375	5.52060	8.26	.00
Moderate	8	9.8750	5.81715		
Good	62	12.4032	6.07186		
Total	150	10.1533	6.04428		

*Survey data, 2023*

The results obtained in the table revealed that students from schools where feeding was regarded as poor had an average of 8.43 points, where feeding was moderate the average points were 9.87 and where feeding was good the average points were 12.4 meaning that different levels of feeding bring about different levels of academic performance. The computed value of the F-ratio was 8.26 with a p-value of .00 which is less than the level of significance (0.005) implying that feeding has a significant effect on students’ academic performance.

**Discussion**

The results of the study indicated a highly significant effect of feeding on academic performance. This was given by the computed value of the F- ratio of 8.26 while the corresponding p-value of 0.00 was less than the level of significance alpha 0.05. In schools where feeding was perceived as being good, the performance of students was

higher than those in schools where feeding was moderate and poor.

These results are in line with Kabanza (1997) who greatly recommended to institutional authorities that since food plays an important role in the learning process, the nutrient value of foods should be considered during food selection to avoid nutritional deficiencies. The findings are further supported by a study conducted by Nyamwaya and Oduol (1994) who in their study about Health Education found out that food is important for good health and proper growth and development of the body. This explains why the Education white paper of 1992 strongly recommended educational institutions to ensure that students’ feeding is well catered for to pursue their educational aspirations comfortably (Kajubi, 1992).

Teachers’ opinions on feeding and academic performance concurred with Turner’s (1962) idea that a balanced diet is vital in enhancing students’ proper growth and learning. This was supported by many teachers during the interview



who strongly recommended a balanced diet for students at school. Still in an interview with some school administrators, the findings indicated that owing to financial resource constraints, schools mainly provide posho, beans, rice, sweet potatoes and cassava while meat is served once or a few times in the term to students. Further, the results also revealed that schools rarely provide fruits, vegetables, eggs, fish, and pumpkin yet such foods help in boosting the brain and immunity of students.

The findings on feeding in schools greatly revealed that students are not well fed as to the recommended standards of nutritionists given by Kabanza (1997) in the manual for teachers which indicates that a student is supposed to eat protein foods with calcium, vitamin A, B1, B2, B3 and vitamin C. The results indicate that in most of the schools where this study was conducted, there is food deficiency among students a factor likely to affect their academic performance. Whyte (1988) rightly asserts that food deficiency in quality especially among the youth (students) may be reflected in disease explosion.

The findings therefore infer that although a balanced diet is vital in ensuring young people's proper growth and learning, several schools cannot afford to meet this requirement without increasing school fees. Undeniably, although Awake (1985) recommends that students need more varieties of proteins to use their creative potential to the full, in the case of secondary schools in Kitimbwa Sub County, the high competition in tuition fees where each school sets minimum possible charges to attract as many students as possible, school administrators find it difficult to raise school fees to provide a good balanced diet to students hence end up providing them with what is within their means. Results from the descriptive statistics confirmed the above assertion where a large percentage of students reported that they were not provided with a variety of foods as shown by 47.0% who strongly disagreed that schools do provide a variety of foods. This meant that schools did not give a balanced and nutritious diet to students.

In addition to feeding, the study also found out that in many schools, drinking water is scarcely provided. In particular, 56.5% of the students who participated in this

study affirmed that schools do not provide drinking water while only 5.9% replied in the affirmative. From the researcher's observation, there were no boilers, cans, or drums for drinking water in most of the schools. These revelations were contrary to what the medical guide recommends that drinking two glasses of water a day is necessary for proper functioning of the brain. In the end, the performance of students who do not have access to clean water is likely to suffer detrimental impacts. As the medical guide (2002) indicates, if the brain and body are denied proper drinking water, students become dehydrated which implies that they will spend more time in sick bays and absenteeism from class is likely to affect their academic performance.

### Conclusion

In schools where feeding was poor, even students' academic performance was poor compared to schools where feeding was moderate and good.

### Recommendation

Secondary schools in Kitimbwa Sub County should use their land to establish agricultural and poultry farms to supplement the food provided to balance the diet.

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### List of Abbreviations

ANOVA:	Analysis of Variance
DES:	Directorate of Education Services
ESA:	Education Standards Agency
FAO:	Food Agricultural and Organization
MISR:	Team Institute of Social Research
MoES:	Ministry of Education and Sports
PLE:	Primary Living Examinations
SPSS:	Statistical Package for Social Scientists
UACE:	Uganda Advanced Certificate Examination
UNEB:	Uganda National Examinations Board

UNICEF: United Nations International Children's Education Fund  
USE: Universal Secondary Education

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### Conflict of interest

The author had no conflict of interest.

### Author Biography

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