
**THE INFLUNCE OF SCHOOL ENVIRONMENT ON STUDENTS' PERFORMANCE IN MATHEMATICS
IN SECONDARY SCHOOLS. A CASE STUDY OF MUKURA TOWN COUNCIL, NGORA DISTRICT.****1 Amusiat Denis, 2 Nakimbugwe Sophie****1, 2 Metropolitan International University****ABSTRACT**

This study was about the influence of school environment on students' performance in mathematics subject in Mukura secondary schools. The study was led by four research objectives which were to examine the influence of cultural backgrounds on students' performance in mathematics, to identify influence of teacher - students' relationship on student's performances in mathematics, determining the nature of school environment where teaching is practiced and to examine influence of school management system on teaching and learning process in mathematics. Relevant literatures were reviewed on theories and findings that emerged from different authors. The study involved 4 secondary schools, 11 mathematics teachers and 65 students and 20 parents. These was obtained through simple random sampling. Four head of school from four schools was purposely selected. Data collection was done by using questionnaires, interviews, focus group discussions, observations and documentary review. The findings indicated the challenges of teaching and learning of mathematics such as poor teaching environment, mathematics departments being not well-managed, inadequate self-practice and students' poor background in mathematics. The examination's findings shown that the regression model successfully forecasts the variable that was the dependent variable. The regression model's statistical significance was denoted by $F=124.231$ and $P=0.000$, both less than 0.05. The disparity between the regression's initial mean square value of 8.607 and the remainder's mean square value of 0.075 served as more evidence for this. Therefore, the researcher recommended teachers to make assessment on the background of their students to decide teaching methods that will help students perform better in mathematics. Moreover, students shall put self-efforts and practice in learning mathematics. Lastly, the researcher recommended future research on individual factors that affects students' learning of mathematics.

Key words: **school environment, students' performance, mathematics and secondary schools**

Background to the Problem

Mathematics is the science of reasoning and computations. It is the science or study of numbers, quantities or shapes. (Godfrey et al., 2023), defined mathematics as the language that helps us to describe ideas and relationships drawn from the environment. Mathematics enables one to make the invisible to be visible, thereby solving problems that was impossible otherwise. According to Lambdin (2009), mathematical demands on students increases as they progress through school; take up their adult lives at home and in the workplace (Isaac et al., 2023). In spite of being the core and compulsory subject, student's performance in Mathematics in Uganda has been low for number of years in Certificate of Secondary Education Examinations (Anthony, Kazaara, Kazaara, et al., 2023). According to (URT,

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2008) large number of students fail to pass mathematics exams with required grades as the report indicated that national form four examination results in 2004, 2005 and 2006 failures in Mathematics was, 70%, 77% and 76% respectively. Report by (Musaibah et al., 2023), identified general performance of the year 2009 that about 27.5% of the students scored division zero, in the year 2010 failure increased to 49.6%, in the year 2011 failure was 46.4% and 60.5% in the year 2012 (Mark et al., 2023). It was not indicated in the report that students performed better in mathematics. Students' failure according to (HakiElimu, 2013) was inadequate in-service training (Emmanuel et al., 2023), few qualified teachers to teach mathematics and poor working conditions. This was also associated with a lot of confusion caused by limited understanding of the requirements of the 2005 competence based curriculum and syllabi currently in use (Anthony, Kazaara, & Kazaara, 2023).

Problem statement

Effective and efficient teaching methods that were helpful to improve student's performance in mathematics most desired (Micheal et al., 2023). Teaching is effective and efficient when students are taught the right content, having enough learning materials and high ratio of teachers' time on the teaching activity (Anthony, Kazaara, Kazaara, et al., 2023). This requires a teacher to have passion in sharing knowledge with students while motivated with school management system. And for effective and efficient teaching (Jauharah, 2023), learner centered methods that require teachers to actively involve students in the teaching and learning process must be applied. However enough effort was put to improve students' performance in mathematics through programmers like (Mark et al., 2023), updating teachings syllabus with all the guides to teachers on the competence based teaching practice (URT, 2010). The number of mathematics teachers was increased compared to before and were provided with frequent seminars and workshops that emphasized on the application of competence based teaching methods. Despite all the efforts (Mkumbo, 2013) the rate of students' performance was 16.09% in the year 2010, 14.55% in the year 2011, 12.14% in the year 2012 and 18% in the year 2013 (Micheal et al., 2023). Performance in the year 2013 was a bit exceptional due to the change in national examination grading systems for CSEE, but still performance was low.

Objectives of the Study

1. To examine the influence of school environment on students' performance in Mathematics in Mukura town council, Ngora District
2. To assess the influence of teacher- student's relationship on students' performance in mathematics in Mukura town council, in Ngora District
3. To identify the nature of school environment where teaching is practices in relation to student's performance in mathematics in mukura Town council, Ngora District.

Methodology

Research design

Creswell, (2003) & Kerlinger (1978) defined research design as the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and control variance. Here the researcher employed cross-sectional survey. Cross-sectional survey is done where a researcher uses different categories of people. Therefore, the researcher surveyed secondary schools in Ngora district whereby mathematics teachers, students, academic masters and head of schools were involved so as to systematically describe a situation of poor performance in mathematics subject.

Study Population

The target population of the sample was the large group of people, which has one or more characteristics in common on which the research study focused (Kothari 2004). The population targeted in this study was teachers, students and educational Administrators of mukura town council, Ngora districts

Table 1. Showing sample size of respondents.

SCHOOL	HEADTEACHERS	TEACHERS	PARENTS	STUDENTS	TOTAL
Mukura Memorial SS	1	2	5	5	13
Kings of kings mukura	1	2	4	10	17
Union vision Christian SS	1	3	7	30	41
Newton high school	1	4	4	20	29

Sample size

The sample size was 100 respondents in total, 65 students, 4 head teachers, 11 teachers and 20 parents.

Data Collection Instruments

The researcher applied both primary and secondary data collection instruments for this study. Primary data was collected through interview, observation, focus group discussion and questionnaire while secondary data was through documentary review. Most of the secondary data was obtained from relevant documents such as school academic files, school performance results and CSEE results.

Questionnaires

Questionnaire was chosen as one of the tool to be used in this study which was answered by teachers and administrators. It was chosen because of the nature of this study so as to get opinions and views of the respondents. Respondents replied on their own free will without any influence from another person; they were easy to be administered within a short time and from the relatively larger groups of people who were scattered geographically. Moreover its results could easily be tabulated and interpreted (Calderon & Gonzales, 1993). The questionnaires used will be found in the appendices in this study.

Data Analysis

According to Kothari (2004), data analysis is a process of editing, coding, classification and tabulation of collected data. The process involves operations which are performed with the purpose of summarizing and organizing the collected data from the field. Since the study involves both qualitative and quantitative data, the data analysis process was done by the two ways. First the researcher applied Statistical Packages for Social Sciences (SPSS) for quantitative data (Nelson et al., 2022). This is the software which is used to analyse information that is quantitative in nature. In this study, data collected using questionnaire will be analyzed using SPSS software.

RESULTS

The study was done in Ngora district. The research involved 4 secondary schools among 14 secondary schools. The respondents of the study consisted of 11 mathematics teachers who were chosen through simple random sampling, 20 academic masters and 4 head of schools who were purposively selected. The other respondents were 65 students who were selected using simple random sampling technique as well. Questionnaires were used in determining the teacher participants' instructional strategy preferences and extent of use on various instructional strategies as well as

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the students' instructional strategy preferences and perceived extent of use. Students' performance was found to be related with the teacher participants' instructional strategy preference specifically on demonstration, problem-solving, project and inquiry approach. When teaching methods does not make students understand the lesson they end up failing. Results of the study also revealed that there was a significant difference between the teacher participants' preference of instructional strategy and the student performance in mathematics. Though teachers claimed to apply participatory and student centred methods, it was not there in actual practice. Teachers were exposed to number of workshops and attended many seminars, yet they didn't bring any changes in students' performance in mathematics. The researcher found that if each student could have his/her own books, other supplementary learning materials and practical learning they could perform to great grades in mathematics.

Teacher- student's relationship and students' performance

Table 1: Model summary for Teacher- student's relationship and students' performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.732	.577	.553	.27449
a. Predictors: (Constant), Teacher- student's relationship				

Source; Primary data, 2022

Keeping others constant, a one percent increase in Teacher- student's relationship would on average lead to 0.732 increase in students' performance. The R-squared value (0.577) is greater than the adjusted R-squared value (0.553) because it takes into consideration the degrees of freedom.

Table 2: ANOVA values for Teacher- student's relationship and students' performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.607	1	8.607	124.231	.000 ^b
	Residual	8.363	99	.075		
	Total	16.970	100			
a. Dependent Variable: students' performance						
b. Predictors: (Constant), Teacher- student's relationship						

Source; Primary Data, 2022

The examination's findings, which are shown in the table above, show that the regression model successfully forecasts the variable that is the dependent variable. The regression model's statistical significance is denoted by

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$F=124.231$ and $P=0.000$, both less than 0.05. The disparity between the regression's initial mean square value of 8.607 and the remainder's mean square value of 0.075 serves as more evidence for this. This demonstrates the relationship between students' performance and Teacher- student's relationship.

School environment and students' performance

Table 3: Coefficients of **School environment and students' performance**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.662	.219		7.130	.000
	School environment	.629	.059	.712	11.688	.000
a. Dependent Variable: students' performance						

Source; Primary Data, 2022

Table 2 above includes T-values and Beta. The t-values look for deviations from zero in the coefficient. To reject this, a t-value greater than 1.96 must be used (with a 95% level of confidence). The t-value of School environment decreases is 11.688, which is greater than 1.96. This implies that School environment have an impact on students' performance. Consideration is given to a substantial constituent (Sig = 0.000). Furthermore, an improvement of 0.712 units in School environment causes an increase of one unit in students' performance (Nelson et al., 2023).

Conclusions

Majority of the mathematics teachers in selected secondary schools in Ngora region mostly were female. As to educational attainment and length of teaching experience, highest educational attainments of majority of the teachers were bachelor degrees with a very good experienced in teaching mathematics. Student centred methods, discussion, demonstration; problem solving, project, inquiry approach; cooperative and use of audio-visual instructional strategies were highly preferred by the teacher participants. But this was hindered by the background of the students, nature of school environments, students' self-effort and family economic status of the students. It ends up teachers applying teacher centred method due to that students have a poor background in mathematics.

Recommendations

The researcher recommends mathematics teachers to consider students cultural and learning backgrounds in choosing instructional strategies. It is suggested that they align teaching methods with the assessed learning needs

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and capabilities of students. Teachers may attempt to find a balance of teaching strategies rather than teaching student hence few understand the subject and at last many fail the subject. They may be able to realize the importance of recognizing learning styles, identify students' differences, and adjust the teaching methods accordingly. By doing that, teachers would be able to deliver content clearly, making every student understand mathematics, motivate students leading better performance in mathematics subject. Lastly, it is also suggested for the teachers to learn to formulate their way of teaching especially if their school do not have available facilities to support their teaching activity. They may learn to develop their profession and innovativeness in teaching in order to maximize the use of available resources of the school to improve students' performance in mathematics subject.

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