IMPACT OF TEACHING METHODS ON STUDENTS' PERFOMANCE IN MATHEMATICS, WITHIN MUKONO DISTRICT, UGANDA

BY

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DECLARATION:

I **Ssekyanzi Yeko**, declare that this research project is my original work and has never been submitted to any university for any award. Where the works of others have been cited, acknowledgment has been made.

Signature……………………………………..

Ssekyanzi Yeko

Date…27th April, 2009……………………..

APPROVAL

I certify that the work submitted by this candidate was under my supervision as the University assigned supervisor.

Supervisor............................

Ssekajugo Derrick

Date 29/04/2020

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My gratitude goes to my supervisor Mr. Ssekajugo Derrick for the advice and guidance while I was writing this project and also for providing useful references in order to improve the quality of this project. On the same note, I would like to thank my dear parents Mr.Bitegese Emmanuel and Mrs.Kiwuka Joy, my brother Stephen Nyigira and my friend Ayebare Tumwebaze.

DEDICATION

I would like to dedicate this research to my parents; Mr.Bitegese Emmanuel and Mrs. Kiwuka Joy for the love and support accorded to me throughout my studies.

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ABSTRACT

The study on impact of teaching methods on students' performance in mathematics was conducted within Mukono District in Uganda. The general objective formulated so as to realize this study had been formulated as: this study is intended to determine the impact of teaching methods on performance of students in mathematics. In order to achieve the objectives of the study, research questions were formulated. In review of related literature, all other authors' works or contentions in relation to the problem under study were revisited and all this had to correlate with the objectives of the study. A descriptive design was employed since the whole study was about explaining a scenario or an event. A sample of 40 respondents which constituted 30 students and 10 teachers was used. Interview guides and questionnaires were employed in the process of data gathering after which data was analyzed and presented in percentages and frequency distribution tables.

The findings from the field revealed that effective teaching methods would encourage students to perceive mathematics positively. It was also revealed that mathematics was important in the technological field. A recommendation was made that there was need for student- centered teaching approaches so as to motivate students do well in mathematics.

CHAPTER ONE

INTRODUCTION

In this introductory chapter of the study, the researcher gave the context and theoretical background of mathematics learning difficulties. The researcher proceeded to give the statement of the problem, the objectives and the research questions that would guide the scope of the study. The researcher also explained the limitations and delimitations that affected the progress of the study.

1.0Background to the study

Considering the contributions of mathematics, science, and technology to today's world, one would have expected mounting interest in these disciplines, but the reverse seems to be the case. Indeed, there is declining enrolment in mathematics and science subjects among the youth, and poor performance in examinations, such as those taken in high school math and science courses (especially physics) by the brave few who enroll (Fieldman, K.A, 1999).

It is ironical that in our pro-science and technologically oriented world, the youth who would take charge of global affairs in the future - the running of industries and the means of production, research laboratories, space technology, and international politics - are shying away from the very subjects that should adequately prepare them for such roles.

Improvement of the quality of education in Uganda has been a key feature of reform proposals of the government. These educational reforms largely focus on basic education, which in Uganda covers both primary and secondary education. Attempts towards realizing these proposals have been made in many ways.

Free primary education is now being offered to ensure every child has an equal opportunity to the primary education. While the government is trying to ensure this, a lot of work is being done to improve the quality of the same education. Focus is on better student achievements in all the areas covered in the syllabus at all levels.

A lot of research has been done to find out ways of producing better quality education for the Ugandan children. For instance a lot of research has been done in the area of mathematics because poor performance in the subject at the end of secondary school has been an age long problem.

Studies done show that there is constant poor performance in the subject and that gender differences, in favour of boys, is a major issue that influences the poor performance in mathematics (Eshiwani, 1985; Mondoh, 2006; Samumkut, 1999; Mwangi, 1996; Boit, 1986; Irumbi, 2005; Njuguna, 2002; Katiambo, 2004).

These studies point out that the girls underachieve in mathematics due to lack of self confidence and poor attitudes towards the subject. Gender differences in mathematics were found to be more persistent in upper grades than in lower grades (primary school) and that the girls in single sex schools performed better than those in mixed schools

1.2 Statement of the problem

Mathematics teaching as a subject has drawn a lot of controversy on the appropriate methods to be applied for student's better understanding. Yet no clear method can be plainly pointed as the most appropriate since there is a decline in enrolment from the youth. Hence the study investigated how the teaching methods affect a student's perception of mathematics.

1.3 Objectives of the Study

1.3.1General Objective

The study intended to investigate the impact of teaching methods on performance of students in mathematics.

1.3.2 Specific Objectives

The study was intended to:

1. Determine how teaching methods affect performance of students in mathematics.
2. To raise awareness of the importance of mathematics in the technological field
3. Ensure that teachers are able to use better teaching methods for their students

1.4Research Questions

1. How does teaching methods affect performance of students in mathematics?

1. Of what importance is mathematics in the field of technology?
2. Which teaching methods should be adopted by teachers to make the teaching of mathematics effective?

1.5 Scope of the Study

The research was carried out between February and April 2010. The study looked at the impact of teaching methods on performance o students in mathematics. The research was carried out in Mukono district.

1.6 Significance of the Study

The researcher was able to get first hand information on the effects of teaching methods on performance of science by students therefore; it is thought to be of great importance to the following parties:

The schools in Mukono district are expected to benefit from the research as it will help them to evaluate the appropriate teaching methods to apply for better performance of students.

The research will be of great help to give a kick start to other researchers who might wish to enhance the same study later.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter gave reference to what other scholars have written about mathematics as a subject and the effective teaching methods used in class. The materials used in the review included magazines and journals on teaching methods, newspapers articles and education related websites over the internet.

2.1 Overview of Education System in Uganda

Education in Uganda consists of one to three years of pre-primary education (ages 3-6), seven years of primary education (ages 6-14), four years of secondary education (ages 14-19), and three years of university education leading to a bachelors degree. In Uganda the curriculum is controlled by the Uganda Curriculum Development Centre, which draws its representation from a wide range of teachers and experts from universities. (MOE, 1976).The secondary school mathematics syllabus is very demanding on the majority of students, many of whom find certain topics extremely difficult to comprehend.

In the first year of secondary mathematics education, algebra content emphasizes coordinates and graphs and simplifying expressions. In the second year, students encounter linear equations; quadratic expressions and equations; linear inequalities; and basic statistics. In the third year of secondary mathematics education, students continue their work with quadratic expressions and equations and are introduced to binomial expansion, matrices, sequences and series, and probability.

In the fourth and final year of secondary mathematics education, students study matrix transformations, statistics involving variance and standard deviation, time series and trends, and indexed numbers including weighted averages. In addition to these topics, students in the fourth year also study linear programming, differentiation, and integration.

2.2 Mathematics as a Challenge

In Uganda about 10% of the children like and are willing to study math. The rest have to be persuaded or forced to study mathematics because it is compulsory. They have a completely negative attitude towards the subject (especially the girls), and therefore, teaching mathematics in Uganda has been, and still is, an uphill task. (Eshiwani, 1983)

The main reason for these problems is that up to the late 1970s, nobody chose to go to the university to study education as a profession. The good mathematics students studied engineering, medicine, accounting, or any other course but teaching.

Many of those who failed to meet the minimum requirements for their preferred careers became teachers. Such mathematics teachers tended to scare the learners to cover up their lack of content knowledge and their inadequate preparation to teach the lessons.

Children seem to find the learning of mathematics difficult and painful. It took a very bright and brave child to accept the pain and learn mathematics. It was even worse for girls as they often could not withstand the fear.

The situation got even worse in the 1980s as those educated in this manner became the educators. In addition, many students came to school having had horror stories about mathematics learning from their parents. These factors gave mathematics a monstrous face, and to date, we are still trying to change this image to one with a more friendly face.

In the early eighties the government restructured the mathematics syllabus, which previously had options to take care of varied potentials in mathematics. Now there is a common syllabus for all.

Allowing different options of mathematics had a very negative effect on learners who ended up with the option considered to be for weak students, while encouraging arrogance in those who took the option for stronger students. This arrogance developed at an early stage in life and unfortunately spilled over into the teaching of mathematics by those students who ended up being mathematics teachers. (Eshiwani, 1983)

The common syllabus used now is appropriately designed to take care of students with different potential. While there are many textbooks, they have the same basic content. The Ugandan Institute of Education approves books, and teachers have a vote in approval. These steps have helped to improve the image of the subject. Many people now appreciate the value of mathematics.

Also, since March of 2001, the Ugandan government has banned corporal punishment in schools. This should go a long way toward making mathematics acceptable and, therefore, easy to teach. The good news is that in the year 2000, only 12% failed mathematics at the KSCE (secondary) level. Four years ago the failure rate was 38%. This is a great improvement. (MOEST, 2002)

2.3 How teaching methods affect performance

Different strategies have been used across our countries to motivate students to learn mathematics. High stakes national examinations that have serious consequences for students are one means. Sometimes in the past, punishment has been used. Making mathematics interesting, meaningful, and useful to students is seen as a way to motivate their learning. (Akpan, 1986)

An individual's perceived ability to do well in a subject is one variable that has received considerable attention in psychological literature considering American females. Within an African context, Lee and Lockheed (1990) conducted a study of 1,012 students enrolled in single-sex and mixed-sex secondary schools from ten Southern states in Nigeria. The authors found that perceived ability positively related to higher achievement in mathematics.

Similarly, in a study of secondary and college students selected from seven state secondary schools and one federal college in Nigeria, Aghenta (1989) found that "perceived difficulties of science occupations" was a significant factor in preventing girls from entering STM fields.

The attitude that one holds towards mathematics or science appears to be a powerful predictor of achievement in the respective fields. A prior positive attitude towards STM (Aghenta 1989), the development of a positive attitude towards STM by a teacher (Mordi 1991), or a strong positive attitude toward science (Akpan 1986)

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In her study of secondary students, Aghenta (1989) found that a poor attitude towards STM was a barrier to access of STM fields. Conversely, she found that a good or positive attitude was one of several factors that facilitated performance in STM.

2.4 Teaching methods and Perception of students

Eshiwani (1983) reported that girls in Uganda generally have negative attitudes towards math and these attitudes tend to depress their achievement. Generalizing from STM education to the broader context of women's education, a review of sector studies reveals a positive relationship between female education and several well-being indicators.

According to King, "All of the evidence from Third World countries shows a close link between women's education and social and economic development, and between the size of the education gender gap and national development" (1990:6).

The links are already well-established between women's education and fertility, child health and survival (US-AID 1982; Bourque and Warren 1990; King 1990); formal labor force participation (OE & OWD 1990); income and wage employment (King 1990); and women's empowerment into the rights and responsibilities of citizenship (**King 1990**). Furthermore, the links for education in the STM fields are presumed to be particularly strong for women.

Girls who become interested in, persist in studying, and then work in STM fields, significantly improve their life chances (e.g., standards of income, health, fertility, and Productivity), as well as those of their family (e.g., through increased resources, and by being available as a role model for younger female kin).

Several African authors suggest that overall attitudes are partially responsible for girls' low or poor participation in mathematics and science (Akinnuli 1982; Onobowale 1982; Oyedonkun 1983; Aghenta 1989; Bajah and Bozimo 1989; Osibodu 1989). Yet, these authors fail to identify the specific attitudinal components presumed to have an inhibitory or enhancing effect on actual behavior.

Attitudes and their respective components deserve closer examination. This research, will attempt to critically examine specific components of attitudes towards mathematics and their relationship to achievement.

Previous research has found that students who perceive the utility of studying mathematics will tend to perform better in the subject (McLeod 1989). Conversely, students who fail to see the practical or future utility in studying mathematics tend to enroll less often in higher-level math courses, perform less well in math courses, or find math less than interesting than other courses.

Stereotyping mathematics as a predominantly male domain is an important variable in Understanding the complexities of gender and mathematics achievement. In both Western and African samples, stereotyping mathematics may account for poor performance of girls (Fennema and Sherman 1977; Osibodu 1989).

Within the West African socio-cultural context, occupational decisions frequently separate along rigid stereotypical lines with specific jobs being perceived as more masculine or feminine.

These stereotypical attitudes likewise may affect students' perceptions of their ability to study certain subjects or pursue a certain career path.

Additionally, one might hypothesize that the longer girls stay in the educational pipeline, the more likely they are to challenge existing traditional ideas or beliefs based on the rigidity of gender. Likewise, the longer they stay in school, the more chances they have to be exposed to successful female role models in mathematics and other related subjects; these role models may positively affect the formation of students' attitudes.

An additional interpretation of this finding suggests that students with less stereotypic views of mathematics might possess a history of successes in mathematics that in turn influences their idea of appropriateness of the subject for them as a female.

It is possible that rural mothers perceive the value of education as higher than that of urban mothers, and thus, are more likely to encourage their daughters to achieve. The fact that their daughters have persisted to the secondary level of formal schooling suggests that there is family support for their continued education.

Along this line of reasoning, one might expect that girls would be more likely to be withdrawn from school in the rural area due to conditions such as: the high demand for their labor contribution, early or forced marriage, lack of family financial resources to support further education, and distance between home and school. These conditions are believed to be more pronounced in the rural area in contrast to that of the urban area; thus, those who do remain in school might have been more strongly encouraged to do so.

Educators and parents alike need to become active change agents in fostering positive attitudes in young girls and women in order to enhance their interest and achievement in mathematics.

"Because teachers are important role models and career counselors for students, the participation of women in the teaching profession can be a critical factor in challenging existing stereotypes and in promoting and supporting the expanded aspirations of female students" (Adams and Kruppenbach 1986)..

2.5 An Overview

The role of teachers cannot be overemphasized, particularly when "entry barriers against women serve as obstacles for education. Some of the barriers begin at the primary school level with teachers and textbooks projecting attitudes that discourage school attendance and performance of girls, or promoting stereotypes of girls not being as good as boys in technical subjects or mathematics" (King 1990).

The role that parents play should not be overlooked. Much of the socialization that shapes a child's life comes from the family, especially from mothers.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section entails the methods used to collect the data which was necessary to come up with the study. It specifically addresses the design, instruments, sample sized and analysis tools employed for this particular study.

3.1 Research Design

The study used Descriptive research design. This enhanced the researcher to obtain a better understanding of the problem of mathematics as a subject. The method chosen allowed a collection of comprehensive intensive data and provided an in-depth study on why past initiatives had not produced the desired results.

3.2 Research Population

The population of study was composed of teachers and students from the selected schools in Mukono district.

3.3 Study Sample

With regard to above the study employed stratified sampling,

Sampling as follows: -

- Students – 30 of the sample suffice.
- Teachers- 10 teachers in the targeted sample size.

3.5 Research Instruments

- **Questionnaire**

Primary data was collected by use of questionnaire and interviews, filled by relevant parties to obtain ideas on what constitutes teaching methodology. These were designed in both open and closed ended form. The method ensured high proportion of responses and higher returns rate.

- **Interview Method**

This entailed face-to-face interactions with the teachers in the mathematic department of each school. Secondary data was obtained from the ministry of education magazines annual report records and other researches done to give other information required in the research.

3.6 Research Procedure

The researcher had an introductory letter from the university to present to the area authority to obtain permission for study. This gave directive to the local administrators at grass root level for acceptance. On acceptance by the authorities the major task of collecting data begun.

3.7 Data Analysis and Interpretation

The information collected was analyzed and edited to create consistency and completeness. After collecting the questionnaires they were edited for completeness and consistency across the respondents and to locate omissions. Information obtained from the research study was presented and analyzed using bar charts, narratives, and statistical figures.

CHAPTER FOUR

DATA PRESENTATION ANALYSIS AND INTERPRETATION

4.0 Introduction

In this chapter an attempt was made to interpret and explain the findings. Information obtained enabled the researcher to relate to the specific objectives and give a clear picture of the results.

Response Rate

Table 1: on response rate of the targeted sample

Planned no of response	40	100%
Actual response	25	62.5%
Non Response	15	37.5%

Source: Primary 2010

4.2.1 Bio-Data Analysis of Teachers

Age of respondents

According to study, 14% of the teachers who responded are below 30 years of age. This implies that they form the minority within the teaching staff. 43% of the respondents are between 31-35 years of age.29% of the respondents are between 36-45 years. 14% also of the respondents are above 46 years. This shows that the respondents cut across all the age groups.

Table 2: Distributions of staff by age

Categories	Number	Percentage
Below 30 years	1	14%
Between 31-35 years	3	43%
Between 36-45 years	2	29%
Above 46 years	1	14%
Total	7	**100%**

Source: Primary 2010

Distribution of staff by gender

Majority of respondents represented by males with 56% this shows more than half of the respondents are men while female respondents were 44%.

Table 3: Distributions of Staff by Gender

Category	Number	Percentage
Male	4	56%
Female	3	44%

Source: Primary 2010

Staff experience

From the research findings we can establish that 14% of the teachers have been teachers for less than 2 years, 43% of the teachers have been in the profession for 3-5 years, and 29% have worked for 6-10 years.14% have been in the profession for 11-15 years.

This shows that most of the teachers in school can boost the morale of the students in mathematics learning as they are young. Hence the information obtained was highly credible.

Table 4: Length of Staff Experience

Categories	Number	Percentage
0-2 years	1	14%
3-5 years	3	43%
6-10 years	2	29%
11-15 years	1	14%
Total	7	**100%**

Source: Primary 2010

4.2.2 Bio-Data Analysis of Students

Out of the 30 target students, only 18 responded. The researcher deemed this as adequate and sufficient for the purpose of data analysis since it represented 80%.

Table 5: level of Education of the Respondents

Category	Frequency	Frequency (%)
Form one	0	0
Form two	5	28%
Form three	7	39%
Form four	6	33%
Total	**18**	**100**

Source: Primary 2010

From the table above it can be seen that most of the respondents were from the upper classes.

Age of respondents

According to study, 11% of the students who responded are below 15 years of age. 28 % of the respondents are between 15-16 years of age.39% of the respondents are between 16-17 years. 22% also of the respondents are above 17 years. This shows that the age of the respondents is representative of all age groups at secondary school level.

Table 6: Distributions of students by age

Categories	**Number**	**Percentage**
Below 15 years	2	11%
Between 15-16 years	5	28%
Between 16-17 years	7	39%
Above 17 years	4	22%
Total	**18**	**100%**

Source: Primary 2010

Gender

Majority of respondents represented by female students with 56% this shows more than half of the respondents are girls while male students were 44%.

Table 7 :Distribution of Respondents by Gender

Category	Number	Percentage
Female	10	56%
Male	8	44%
TOTAL	**18**	**100%**

Source: Primary 2010

4.3.0 Teachers Analysis

4.3.1 Response on how teaching methods affect performance in mathematics.

Out of 7 respondents representing 60 percent said that teaching methods had impact on mathematics' performance. While, 40 percent said that performance was not affected by the teaching methods employed.

Table 8: Response on how teaching methods affect performance in mathematics.

8 RESPONSE	FREQUENCY	PERCENTAGE
Yes	4	57
No	3	43
Total	7	**100**

Source: Primary 2010

4.3.2 Responses on how effective are teaching methods on students' perception of mathematics.

Majority of response represented by 86 percent indicated that effective teaching methodology will encourage students to perceive the subject positively. While 14 percent of the teachers sample size indicated that effective teaching methods will not affect students' perception towards mathematics.

Table 9: Responses as to whether effective teaching methods affect students' perception of mathematics.

RESPONSE	FREQUENCY	PERCENTAGE
NO	6	86
YES	1	14
Total	7	**100**

Source: Primary 2010

4.3.3 Response on whether mathematics is important in the technological field

Out of 7 in the sample target respondents, 71 percent said that mathematics is important for one to venture in the technological field while, 29 percent said it's not vital.

Table 10: Responses as to whether mathematics is important in the technological field.

8 RESPONSE	FREQUENCY	PERCENTAGE
Yes	5	71
No	2	29
Total	7	**100**

Source: Primary 2010

4.4.0 Students Analysis

4.4.1 Response on whether teaching methods affect students' performance in mathematics

Majority of response represented by 76 percent indicated that most students will perform well in the subject where the teaching methods are effective. While 24 percent indicated that they do not mind the teaching methodology employed.

Table 11: Response as to whether teaching methods affect students' performance in mathematics.

RESPONSE	FREQUENCY	PERCENTAGE
NO	13	72
YES	5	28
Total	**18**	**100**

Source: Primary 2010

4.4.2 Responses on how effective are teaching methods on students' perception of mathematics.

Out of the 18 respondents 67 percent said that effective teaching methods contributed to their perception towards the subject. While 33 percent said that they were not concerned with the teaching methodology used at school.

Table 12: Responses on to how effective are teaching methods on students' perception towards mathematics.

RESPONSE	FREQUENCY	PERCENTAGE
Yes	12	67
No	6	33
Total	**18**	**100**

Source: Primary 2010

4.4.3 Response on whether mathematics is important in the technological field.

Majority of response represented by 86 percent indicated that mathematics as a subject is important in the technological field. While 14 percent did not see it as vital in the technological field.

Table 13: Response as to whether teachers act as role models to students.

RESPONSE	FREQUENCY	PERCENTAGE
NO	15	83
YES	3	17
Total	**18**	**100**

Source: Primary 2010

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

In this chapter an attempt was made to discuss the findings and come up with conclusions and the recommendations there to.

5.1 Discussion and Conclusions

This study aimed to determine the factors that impact on the mathematics achievement of student's in mathematics.

One of the findings of the present study relates to the method of teaching normally employed in the mathematics classrooms at secondary level in Uganda. The method was teacher-centered, and student's were passive and on the receiving end, learning algorithms to apply to solve mathematical problems. This phenomenon reflected the lessons described by Nunes and Bryant (Nunes&Bryant, 1997), and the descriptions of secondary classes in Mauritius (Kember, D&Wong, A, 2000).

It seems that insufficient opportunities are provided to be involved in their own learning, and empasises the algorithmic procedures used for solving mathematics problems. It seems that the examination-driven curriculum in Uganda leads to a more teacher-centered curriculum.

Teachers were to be playing a fundamental role in influencing students learning of mathematics, as noted by Mcleod, D.B (1989).They also helped student's to develop a positive attitude towards mathematics and motivate them towards the subject. The respect student's have for their teachers could be noted during the classroom observations and interviews. This supports the finding of Aldridge, Fraser and huang (Aldridge, Fraser, &Huang, 1999) concerning the respect student's had for their teacher in Taiwan.

It was also found that teachers were seen to be strict, and that student's appreciated the strictness, claiming that this helped them to have a disciplined class in which to learn mathematics. Evidence of this can be found in the transcripts of student's interviews.

Teachers were found to be acting as role models, were possessing sound leadership skills and were of helpful nature. However, there were teachers who had a gender bias in their own perception. as described by Fieldman (Fieldman,1999),they tended to describe male student's as able in mathematics and female student's as being uncertain and not possessing enough faith in their own ability.

These findings were common for average and low performing girls-findings which are in agreement with those of Tiedemann(2000).cases where negative massages were sent to girls about their performance in mathematics by teachers were noted in the present study also.

Interestingly, parental interest and involvement in their children education is high in Uganda. The contributions of parents towards the children learning in mathematics as discussed. It was found that students are conscious of their parental aspirations and this plays an important role in their motivation towards education.

It should also be noted that parents support towards education in Uganda is no longer gender-biased now-as it used to be. Parents believe in the power of education and the success of their children depends to a great extent on their educational; success. However, the way of attributing success and failure in mathematics to boys and girls still followed the pattern as described by Rodin, M & Rodin,B (2004) where the success of boys was attributed to talent, while the success of girls was due to more effort.

Peers were found to be influential in a child's learning of mathematics and, in some cases, in decisions to proceed further with other mathematical courses and the learning of mathematics in general. This agrees to the findings of Opdenakker&Van Damme (2001), Ellis.I (eds.) (2003).

Peer influence is not restricted to the classroom only or to school mates, but from a much larger group through private tuition. The practice of private tuition allows student's of different regions, colleges, cultures and social classes to be together and consequently to form a larger peer group. This study was restricted to the peer influence within the classroom towards the teaching and learning of mathematics.

A correlation coefficient of 0.336 between attitude towards mathematics and performance in the mathematics test was noted in this study. However no gender difference in attitude towards mathematics was observed. A positive attitude towards mathematics and interest in the subject tends to motivate students into putting more effort into the subject, and consequently enhanced their mathematics.

Achievements, concerning success or failure in mathematics, it was found that students attributed success primarily to efforts-evidence coming from the transcripts of pupils interviews as discussed. These findings agreed with the findings of Mooney and Thornton (1999) but no apparent gender differences were noted – contracting the outcomes reports by Ernest (1994) and leder, Forgasz and Swolar (1996).It can be deduced that Uganda girls are different to Australian and English girls in this respect.

Prior ability in mathematics was found to play an important in the mathematics achievements of students as claimed by O'Connor and Miranda (2002).This is so because of the hierarchical nature of the subject-mathematical concepts build on prior ones. This finding proved to be important as the way mathematics is being taught at upper and lower secondary levels should be taken into account. There are cases of schools in Uganda where inexperienced teachers are being sent to lower secondary classes and the more qualified and experienced ones deal only with upper classes. The mathematical concepts have to be learnt properly right from lower classes to ensure a solid base for the students to assist them in their learning of mathematics at each successive level.

A summary of these factors that impact on the mathematics performance of Students' in Uganda as identified through the present study.

Another factor, language, was found to also play a major role in the teaching and learning of mathematics. It was revealed in this study that students were having problems tackling word problems or problems related to application to real life situations. Similar outcomes were highlighted in a study conducted by zevenbergen (2001).indeed, there is considerable debate related to the issue of language and education in Uganda

This study has also found out that student's perceived mathematics to be a masculine pursuit and that they have a stereotyped image of mathematicians and mathematics. the drawings pupils made for a mathematician correspond to studies conducted by sumida (2002).from some of the drawings it could be deduced that the students thought that mathematics was much beyond their ability, as the mathematicians was shown with great intellectual powers. Teachers need to determine their student's perception towards the subject as negative perceptions may influence the student's involvement and subsequent achievement in that subject.

5.2 Recommendations

The most direct impact of this study will hopefully be in the classroom and will help teachers to use the findings, in particular;

- using student-centered teaching approaches
- using meaningful activities in their classrooms
- promoting conceptual understanding in mathematics
- emphasizing process rather than product during problem-solving sessions
- Promoting collaborative learning in mathematics classes.
- Helping pupils to develop a positive attitude towards mathematics.
- Motivating students in their learning of mathematics.
- Enhancing the mathematics achievement of all students.
- Promoting equity in education.

Teachers will have evidence on how different strategies can be incorporated with success into their regular classroom transactions and within their schedule of work. One teacher, who as a respondent of the study, stated that using cooperative learning and pupil-centered methods would be very time consuming and that teachers would face difficulties in completing syllabus. As argued in the previous chapters, one of the main worries of

Teachers And Parents Is That Syllabus Should Be thoroughly Completed. All That Is Required Is Readjustment.

5.3 General Observation and Deduction

Due to funding and logistic limitations, this project was conducted as a pilot study that utilized a small sample size, relatively short time duration, and a convenience sampling technique. It is suggested that a follow-up study should be carried out over a longer time span (about 15 weeks of instruction), and that the study should use a much larger sample size, and if possible, adopt randomization procedures in sample composition.

A sufficiently large sample would make it possible to include a sizeable number of male and female participants in the study such that more hypotheses could be built into the research design. For example, it would be interesting to investigate both the possible effect of gender on mathematics performance, and a possible interaction effect between treatment (curriculum type) and gender.

Areas for Further Research

Further studies on gender and mathematics at secondary level should be conducted in relation to single sex and co-educational schools. An investigation of the attitudes towards mathematics and the performance of boys and girls in single sex schools, as compared to those in co-education schools, could prove to be important.

This study has just touched upon relationship between culture and performance in mathematics. Uganda is a multicultural country with a blend of different cultures and an in-depth study wherein the issue of gender and mathematics in relation to ethnicity would be valued

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APPENDIX I

RESEARCH BUDGET

		Ushs
1.	STATIONARY	**50,000**
2.	TYPING AND PRINTING	**50,000**
3.	TRANSPORT	**75,000**
4.	MEALS	**75,000**
5.	PHOTOCOPY	**25,000**
6.	INTERNET AND AIRTIME	**75,000**
7.	MISCELLANEOUS	**75,000**

APPENDIX III

TEACHERS' QUESTIONNAIRE

Dear Respondent,

My name is Ssekyanzi Yeko, a student from Kampala international University Institute of Open and Distance Learning wishing to collect data in relation to teaching methods on mathematics in Uganda, I request for your cooperation and I promise not to take much of your time. You may not have to reveal your name for reasons of confidentiality

Tick Where Appropriate

PART ONE; BIO-DATA FOR RESPONDENTS

A) SEX

☐ Male

☐ Female

B) AGE

Age bracket	Tick where appropriate
12-16 years	
18-25 years	
26-30 years	
31-35 years	
36-40 years	
41-45 years	
46 years and above	

C) Education level

Please indicate your educational level

Educational/professional level	Tick where appropriate
Primary education	
Secondary education	
Tertiary/college level	
University level	

I. What is your mathematics teaching experience?

1 year or less	
2 years	
3 years	
4 years or more	

2. How often do you assess your students?

Weekly	
Monthly	
After every topic	
Termly	

3. Do your students often come for your assistance?

1 Rarely	
2. always	
3.often	
4.not at all	

4. How would you rate the conditions of each of the following facilities in your school and/or in your class?

FACILITY	Not available	inadequate	Adequate	Under utilized	Available
Math's course books					
Math's supplementary books					
Geometrical sets					
Classrooms					
Desks					

5) Is mathematics teaching interesting at your school? If yes give reasons.

....

....

....

6) Do you believe that the mode of teaching mathematics affects performance at your school?

....

....

....

7) Which mathematics teaching methods do you employ at your school?

....

....

....

8) what problems do learners of mathematics encounter from the above mentioned methods?

....

....

………………………………………………………………………………………………

9)what in your opinion is the impact of teaching methods on pupil's learning of mathematics?

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

Thank You

APPENDIX IV

STUDENTS QUESTIONNAIRE

Dear Respondent,

My name is Ssekyanzi Yeko, a student from Kampala international University Institute of Open and Distance Learning wishing to collect data in relation to teaching methods on mathematics in Uganda, I request for your cooperation and I promise not to take much of your time. You may not have to reveal your name for reasons of confidentiality

<u>TICK WHERE APPROPRIATE</u>

i) Is mathematics teaching interesting at your school?...

....

ii) Do you believe that the mode of teaching mathematics affects students' performance at your school?

....

iii) How effective are teaching methods on students' perception toward mathematics?

....

vi) Is mathematics important in the technological field?

....

....

Thank You