

**STUDENTS' ATTITUDES AND PERFORMANCE IN MATHEMATICS IN
SECONDARY SCHOOLS IN KASUBI PARISH IN KAMPALA CITY**

BY

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BSE/31861/102/DU

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR
OF SCIENCE WITH EDUCATION OF KAMPALA
INTERNATIONAL UNIVERSITY**

AUGUST 2013

DECLARATION

I Okello Julius declare that this dissertation is my original work and has never been submitted for the award of a degree, diploma or any other academic qualification in any other university, college or institution before.

Signature:  Date: 31ST / 08 / 2013

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APPROVAL

This dissertation entitled 'students attitudes and performance in Mathematics in Kasubi secondary schools in Kampala city' was done under my supervision and has been submitted to the college of College Education, Open, Distance and e-Learning at Kampala International University for examination with my approval as the supervisor.

Signature:  Date: 2nd/09/2013

KAMULEGEYA SIRAJE

DEDICATION

I am glad to dedicate this work to my parents; Okiror Simon and Apiot Margaret; and to my girl friend Among Josephine

ACKNOWLEDGEMENT

I thank and appreciate all the people who have made this study a reality most especially my research supervisor. I am also grateful to the academic staff of the CEODL of Kampala International University and the respondents who participated in this study. Thanks also go to my parents, teachers throughout my education, the management of Strive High School and to Mzhee Muyizi Joseph all who have supported throughout my education.

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DEFINITIONS OF TERMS

Attitude: A complex mental state involving emotional responses, beliefs and dispositions to behave in certain ways towards something.

Gender ability beliefs: Beliefs that one sex is inherently better at something than the other for example a traditionally held gender belief regarding mathematics that, boys are good at mathematics than girls. (Belock et al 2010)

Math anxiety: A negative emotional response to mathematics or the prospects of doing Mathematics described as fear of mathematics that hinders one's ability to manipulate and solve mathematics problems with in a variety of everyday life and academic contexts. (Belock et al 2010, Greshman 2009)

Math self esteem: An emotional response of trust in ones ability to learn and perform tasks in mathematics. (Isiksal et al 2009)

Math achievement: Level of attainment in any or all Mathematical skills, usually estimated by performance on a test, number of math content hours or GPA.

Mathematics methods course: A class designed to introduce content and methods for effective teaching Mathematics.

ABSTRACT

Students' attitude towards Mathematics has been a factor that is known to influence students' performance in Mathematics. The purpose of this study is to find out the students' attitude and its impact on performance in mathematics in secondary schools in Kasubi parish in Kampala city. A sample of 40 respondents was used including 30 students and 10 teachers. This sample was arrived at by using purposive sampling since the study took the form of cross sectional research design. Students were administered with a questionnaire to find out their attitudes towards mathematics while an interview was used for teachers. The students answered questions regarding perceived future usefulness of mathematics, math anxiety, gender difference and mathematics and environment and attitudes. The interview required answers to questions on how to improve on students' attitude towards mathematics, teacher perceptions towards mathematics, and the influence of female mathematics teacher on the performance of students among others.

The study found out that both boys and girls have the same attitude towards mathematics but the difference arises only due to stereotypes that mathematics is a male domain dominated subject; it is also found that good achievement in mathematics develops positive attitudes towards mathematics; students believe that mathematics is useful in life however, there are some who study it because it is in the curriculum but don't see its usefulness. In general, the study established these students' attitudes: positively; mathematics is important because of its everyday use in life and other fields, students associate math with ease and pleasure and negatively; mathematics is difficult, math is a subject that makes students uncomfortable and restless and that math is an unchangeable subject that is associated with innate ability to do it well otherwise lack of that ability makes one a poor mathematician. The study also reveals that positive teacher attitudes towards mathematics build up positive attitudes in students.

The study has recommended the following in order to build positive attitudes in students; parents, teachers and other stake holders should take up positive attitudes in

the subject, school teachers should provide more opportunities for students to work on non routine and challenging tasks, also teachers should provide intrinsic motivation to students, teachers should create situations that promote pleasure and competence which will promote positive attitudes towards mathematics; efforts should be made to ensure that gender does not hinder learning and/or performance, teachers, parents and siblings should encourage both male and female students to equally embrace mathematics.

The study concludes that although students have both negative and positive attitudes towards mathematics, most of them know that Mathematics is important and seem to be willing to learn and perform well in it that's they have more positive attitudes towards mathematics. However, teachers must be aware that there are certain aspects of students that need to be improved in particular students should be given more opportunities to work on non routine and challenging mathematics problems so as to maximize their higher order thinking skills.

CHAPTER ONE

BACKGROUND TO STUDY

1.1 Introduction

The knowledge of Mathematics is an essential tool in our society (Baroody 1987). It is a tool that can be used in our daily life to overcome the difficulties faced (Bishop 1996). Due to this, Mathematics has been considered as one of the most important core subject in a school curriculum. Also that is why in Ugandan curriculum; Mathematics is a compulsory subject in primary level, Ordinary level and with curriculum changes by the ministry of education Uganda (2012) the introduction of subsidiary Mathematics for students who do not do Mathematics as one of the subject combinations at A-level reveals the importance of Mathematics in our society. More Mathematics lessons are likely to be taught in schools and in colleges throughout the world than any other subject (Orton and Frobisher 2004).

However, the standard tests and evaluations reveal that students do not perform to the expected level. The students' under achievement in Mathematics is not just a concern in particular countries, but has become a global concern over the years (Pisa 2003). Not leaving out Uganda, performance of mathematics by students in Kasubi Parish secondary school has remained low throughout with performance showing better results in Arts subjects and poor results in Mathematics and Mathematics requiring subject like physics. It is because of this poor performance in Mathematics by students in Kasubi secondary school that has interested the researcher to explore "students' attitudes towards Mathematics" as one of the factors that affects performance in any subject including mathematics.

Several studies and researches have been done in many countries to find out the factors that influence the students' performance in mathematics. Among these factors, "students' attitudes towards mathematics" is one important factor that has been

constantly studied. Often the studies on the relationship between students' attitudes and students' academic performance shows a positive relationship (Mohd, Mahmmod and Ismail 2011; Bramlett and Hervon 2009; Nicolaidu and Phillippou 2003; Papanatasion 2000; and Ma and Xu 1997). Hence students' attitude towards Mathematics is a major factor that might influence the performance of students. Due to these, several studies have been conducted in different countries in order to find out the students' attitude towards Mathematics (Tahar Ismailamani and Adnan 2010; Tezer and Karasel 2010; Maat and Zakaria 2010; Tapia and Marsh 2004; Fennema and Sherman 1976) and hence the use of the data to suggest the low performance of students in Mathematics and the factors affecting it, the aim of this study is to find out the secondary school students' attitudes towards Mathematics in selected secondary schools in Kasubi Parish. The research will focus on attitudes towards Mathematics and also finding the significant difference between students' attitudes with regard to their gender.

1.2 Problem Statement

Mathematics is a very important subject that is applied in every body's daily life. It is due to its crucial role that more mathematics lessons tend to be taught in schools and colleges. This justifies its compulsion in the study by all students who go through basic and secondary education (O' level). Mathematics is therefore a core subject in Uganda. However, it is unfortunate therefore that in contemporary times many students struggle with Mathematics and perform abysmally low in their final examinations. In Uganda, students' performance in Mathematics has not been encouraging of late, Kasubi parish in particular not in exception. It is reported that candidates exhibit poor understanding of mathematical concepts and are unable to form appropriate mathematical models which could be tackled with requisite skills (UNEB 2010). It has also been realized that many students have developed negative attitude towards the study of mathematics as a result of mass failure of students in the subject.

1.3 Purpose of the study

The purpose of this study was to find out the students' attitude and its relationship with performance of students in Mathematics in secondary schools in Kasubi parish in Kampala city.

1.4 Objectives of the study

The study was guided by the following specific objectives:

1. To find out the attitudes of students towards Mathematics.
2. To determine how students attitudes influence their performance in Mathematics.
3. To examine how the students' attitudes towards Mathematics and their performance in mathematics can be improved up on.

1.5 Research questions

To achieve the above research objectives the study was guided by the following research questions:

1. What are the students' attitudes towards Mathematics?
2. How do students' attitudes influence their performance in Mathematics?
3. How can the performance of students in Mathematics be improved upon?

1.6 Scope of the Study

The study on students' attitudes and performance in Mathematics in Kasubi parish was conducted in four months using a cross sectional research design and a non random sampling technique that is to say purposive sampling technique was used. The study involved a sample of 40 respondents; 30 students and 10 teachers, of the students 15 were males and 15 were females, and on the side of teachers; 5 were males and 5 were females; 7 were teachers of Mathematics and 3 were teachers of other subjects. Data was collected using self administered questionnaire and interviews. The study sought data on: the attitudes of students towards Mathematics; how students' attitudes

influence performance in Mathematics; and how students' attitudes towards Mathematics can be improved upon.

1.7 Significance of the Study

So far the researches conducted in and around Uganda have suggested little about the impact of students' attitudes on the performance in Mathematics. Some of the studies have defined performance as a function of very many factors rather only students' attitudes for example a study by Jane Gichane (2008) on "Factors affecting girls' performance in Mathematics" is a topic of very many variables and is limited to only a girl student, however these factors tend to affect both girls and boys. Also investigating several factors at the same time may not provide the explanation of each to the performance in Mathematics. Thus there is need to investigate these factors one by one and so in this research students' attitudes is aimed at providing a deep explanation to the performance of students in Mathematics. It is also hoped that the study will be of great importance to educationists, administrators and other stake holders. The study will help the administrators at the ministry of education and sports Uganda to organize projects that will improve on students' performance in Mathematics for example secondary school Science and Mathematics Teachers (SESSEMAT) and other in service courses for mathematics teachers. The study will also enable districts education officials, head teachers, and other stake holder to hold seminars and workshops regularly so that they will sensitize and educate students on the importance of Mathematics in daily life and at various levels of education. It will enable teachers to break the negative attitudes towards Mathematics that students have and that tend to affect their performance.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter mainly reviews literature related to students' attitudes towards Mathematics. The literature focuses on the attitudes of students towards Mathematics, the influence of students' attitudes on their performance in Mathematics and how students' attitudes towards Mathematics can be improved upon.

2.1 Students attitudes towards Mathematics

Attitude is a central part of a human identity. Everyday people love, hate, like, dislike, favor, oppose, agree, disagree, argue, persuade, etcetera. All these are evaluative responses to an object. Hence attitudes can be defined as "a summary of evaluation of an object of thought." (Bohner and Wanke 2002)

According to Rubinstein (1986), attitudes are inclinations and predispositions that guide individuals' behavior and persuade him or her to an action that can be evaluated as either positive or negative. He further suggests that attitudes develop and change with time. According to the multicomponent model of attitudes by (Eagly and Chaiken 1993) attitudes are influenced by three components and they are; cognitive (that is beliefs, thoughts and attributes), affective (that is feelings, emotions) and behavioral information (that is the past events and experiences). When reviewing literature on students' attitudes towards Mathematics, it reveals that several factors play a vital role in influencing students' attitudes. These factors can be categorized into three groups. Firstly, factors associated with the students themselves; some of these factors include students' Mathematical achievement score (Kogce et al 2009) anxiety towards Mathematics students self efficiency and self concept, extrinsic motivation (Tahar et al 2010) and experiences at high school (Klein 2004). Secondly the factors associated with school, teacher and teaching. Some of these factors that influence students attitudes are; teaching materials used by teachers, teacher's classroom management teachers

content knowledge, personality of the teacher, teaching topics or subject matter enriched with real life examples, other students opinions about Mathematics courses.(Yilmaz, Altun and Alkun 2010), teaching methods and reinforcement (Papanastasiou 2000) privately received tuition on coaching (Kogce et al 2009) , teachers' beliefs towards Mathematics, and generally the teachers' attitudes towards Mathematics (Ford 1994, Karp 1991). Thirdly, factors from the home environment and society also affect students' attitudes towards Mathematics factors such as educational background of the parents, occupation of the parents and parental expectations. These factors according to (Kogce et al 2009 and Tobia 1993) play a crucial role in influencing students' attitudes towards Mathematics.

2.1.1 Attitudes and school grades

Nicollaidu and Phillipou (2003) showed that negative attitudes are the result of frequent and repeated failures or problems when dealing with Mathematical tasks and these negative attitudes may become relatively predominant. According to these authors children first go to school they usually have a positive attitude towards Mathematics, however as they progress their attitudes become less positive and frequently become negative at high school. Kogce et al (2009) found that significant differences between younger and older students' attitudes towards Mathematics with the 8th grades having lower attitudes than the 6th grade. There are a number of factors which can explain why attitudes towards Mathematics become more negative with school grade such as pressure to perform well, over demanding tasks, uninteresting lessons and less than positive attitudes on the side of a teacher.

2.1.2 Gender and attitudes towards Mathematics

Gender differences are a recurrent theme throughout the literature in academic studies in general and Mathematics study in particular. Mathematics is often considered as a primary domain in which boys are higher achievers both in terms of attitude and self concept. Contrary to this, findings show that Mathematics school achievement and grades do not differ between boys and girls. This similarity in performance between

males and females is clear in a meta analysis conducted by Linderberg (1993) with data from 242 representing 1286 people indicating no gender differences $d=0.05$ and nearly equal male and female variances. There are however noticeable difference in the beliefs held by boys and girls, research has shown consistently that girls have low self concept than boys. Results concerning gender differences in attitudes are less consistent than those in self concept. Some studies have reported significant difference when we compare boys and girls attitudes towards Mathematics. A Meta analysis conducted by Etsey (1994) concluded that gender differences in students' attitudes towards Mathematics do exist but are small the results indicate that males have more positive attitudes than females.

2.1.3 Achievement in Mathematics and attitudes

Several researches have been conducted to try to reach the understanding of the relationship between students' towards Mathematics and academic achievement. Along this line are the results obtained by Nicollaidu and Pillipou (2003) which reveal significant correlations between attitudes and performance, students having positive attitudes achieved better. Mato (2001) in a study with secondary school students also showed that those with better academic performance have more attitudes regarding Mathematics than those with poor academic performance. Never the less, Georgin et al (1989) showed that high achievement could serve to predict a positive attitude towards Mathematics but such an attitude could not predict a stronger achievement. However these authors emphasize the role of teachers and school in changing attitudes, stating that Mathematics achievement can be improved for example by using better methods of teaching, more motivated teachers or better course books which has the improvement of attitudes towards Mathematics.

2.1.4 Mathematics learning environment and attitudes

Several aspects of the school context such as teacher support, student to student interaction and student behavior expectation of the teacher are significantly related to students' attitudes towards Mathematics. Akey (2002) concluded that the class

environment where teachers who students see as supportive promote students feelings of the control and confidence in their ability to succeed. The way students perceive teacher characteristics affects their attitudes towards Mathematics. Students with a higher perception of the learning environment and a more positive perception of their teacher have a positive attitude towards Mathematics. Also, students have positive attitudes towards Mathematics when their teacher is perceived to be highly supportive.

Teacher believes about Mathematics

Beliefs about mathematics affect teachers' attitudes towards mathematics. Teachers' beliefs about math utility, whether effective math instruction requires instrumental or relational understanding and the difficulty or ease of mathematics have been shown to impact students mathematics achievement. Teachers' math efficiency and gender ability beliefs have also been found to impact students' outcomes. Teachers' beliefs about the utility of mathematics are often found to correlate with either a more positive or negative attitude towards the subject (Phillipou and Christou 1998). For example a teacher who believes that math has a little use in everyday life would have a more negative attitude about the subject. Math utility beliefs affect teacher motivation to teach and learn mathematics and as a result students' motivation to perform well in the subject.

2.2 The influence of students' attitudes in their performance in Mathematics

McClead (1992) said that attitudes towards Mathematics in related to students' successes in Mathematics in the classroom. Conversely students' achievement can influence a students' attitude as well. In addition, according to research by Hammours (1999) on attitudinal and motivational variables and their relations to Mathematical successes, he states that "Attitude itself can affect level of energy input, time on tasks and engagement in an activity". From this we can say that the better students' attitude towards Mathematics may be the more successful and the higher the performance level will be for that student in Mathematics.

Another potential influence of students' attitudes towards Mathematics is the fit between one's personality and the perceived characteristics of a successful Mathematician. Students' comparison between themselves and the attributes of a successful Mathematician has a great influence on their performance in mathematics. (Brush and Boshwell 1979) saw that students see Mathematicians as rational, wise, responsible, cautious, and stable but lacking in sensitivity also that Mathematicians have the same attributes that are stereotypically masculine but not stereotypically feminine ones (Ben 1974).

Peterson and Fennema (1985) explored the link between differential treatment in the classroom and how girls and boys approach their academic tasks. They included that the effect of classroom practices was far more nuanced than previously suspected. Not only do attitudes of teachers, but also the organization of the learning tended to favor boys. One striking example given is that; the widely used competitive approach to learning which tends to favor boys while girls thrive in a cooperative work. Such organization and treatments of students in class triggers different attitudes of students towards Mathematics that eventually influence their performance in the subject.

2.3 Improving the attitudes of students towards Mathematics

With the conflicting evidence with regards to whether a teacher of the same sex provides a level of mentorship and improves learning prospects for female students as compared to male students especially in developing countries like, female teachers can operate as role models and help motivate girls to perform better (Fuller et al 1994, E. Lee and Lock heed 1998). In some instances however, female students may reinforce gender stereotypes. In their research Monsch and Llyod (1998) found that male teachers in Kenya actually preferred teaching boys and considered that Mathematics was more important for boys than girls. In Tanzania Peasgood (1997) reported that teachers had lower expectations about potential of girls than boys and actually assigned domestic tasks to girls while they were at school.

It is the role of teachers to improve the attitudes of students towards Mathematics. As pointed out by Mato (2002) that, students who perform better in the subject also have positive attitudes towards the subject. Goergin et al therefore emphasized that teachers should use better teaching methods, more motivated teachers and better course text books in order to improve students' attitudes and performance in Mathematics.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter on research methodology covers research design, area and population of study, sample selection and size, the instruments, sources of data, data analysis and presentations it also gives the possible limitations of the study.

3.1 Research design

A cross section design was used to collect the views of students about their attitudes towards Mathematics as in regard to students' Mathematics anxiety, their perceived usefulness of Mathematics, their perception of Mathematics as either a male or female domain and the teacher's perception on Mathematics.

3.2 Description of the area of study

The study on "students' attitudes and performance in Mathematics in Kasubi parish in Kampala city" will be conducted in Kasubi parish located in Rubaga North division in Kampala city. This is a home to many educational institutions including primary and nursery schools, secondary schools and other tertiary institutions. Kasubi parish is one of the most populated areas in Kampala city providing residence to many students and teachers. It is because of this density in student population that the researcher was able to identify that the performance in Mathematics in Kasubi is not up to the expectation and has caused the researcher to explore one of the factors "students' attitudes" that might be responsible for the variability in performance of students in Mathematics.

3.3 The sampling technique and the sample size

A non probability sampling technique that involved purposive sampling was used. Purposive sampling involves selecting respondents who have the required information. The researcher uses his judgment regarding the participants from whom information

will be collected. The researcher usually selects a sample based on his experience of the knowledge of the group to be sampled and have the information he requires. In this research, purposive sampling was chosen because it is a technique that enabled the researcher to get the respondents who had the required information in order to achieve the objectives of study. In this case the respondents were the teachers and the students. The researcher went to those people and these were the respondents who had the required information and were willing to share it with him. A sample of 40 respondents was purposively be selected including 30 students of whom 15 were males and 15 were females, 10 teachers of whom 5 were males and 5 were females.

3.4 Data collection

The study used a combination of data collection techniques hoping to draw strength from each other. The data collected will be both primary and secondary. Primary data was collected by use of self administered questionnaire and interviews, secondary data was collected through document analysis that is through critical review of earlier publications, official records' government publications, reports, journals and internet search among others. This enabled the researcher to acquire data that was already processed or analyzed from which research gaps were identified and comparisons made. Secondary sources also provided data that was acquired from primary source.

3.4.1 Interviews

This is an oral questionnaire where the investigator gathers data through direct verbal interaction with participants that is, instead of written responses the subject gives information verbally. An interview involves face-to-face discussions, interactions or interpersonal communication between researcher and the respondents intended to elicit opinions (Abel and Olive 1999:156; Onen and Oso 2008; 84) .This instrument was intended to yield descriptive or qualitative data. As noted by Abel and Olive (1999; 156) attitudes, perceptions, emotions are best studied by qualitative methods. Thus interviews permitted the researcher to go beyond statistical results. The interviews were used to obtain the data mainly from teachers. The interviews was chosen for data

collection in this research because psychological experiences such as attitudes and feelings are best studied through the process of 'introspection' which involves asking questions in order to draw conclusions from ones mind. An interview also created personal contact with respondents and so gave emphasis on the data collected, also created a conducive atmosphere with in which respondents were able to give required information and was economical in terms of time and money. In the process of interviewing, the researcher asked questions and noted down the responses of the respondents out of which data analysis and conclusions were made for reporting.

3.4.2 Questionnaires

The researcher used a questionnaire for the key informants who were mainly the students. The questionnaire used was developed from Sherman – Fennema (1976) scale for measuring students' attitudes towards Mathematics. The researcher delivered the questionnaire in person and waited for respondents to complete and went back with it. This ensured safe delivery and return of the questionnaire, also in the process of filling in the questionnaire the respondents asked and sought for clarity on unclear issues on the questionnaire. The questionnaire also had economy in terms of time and had the ability to elicit the responses that were easy to analyze.

3.5 Data Analysis

The analysis of qualitative data generated by questionnaire and interviews involved a phenomenological approach by emphasizing a deep understanding of the views and opinions of the respondents, literal description and narration of emerging issues out of which authentic conclusions were made. When interviewing, the researcher noted on his diary the relevant issues (that is episodes, situations, events and feelings) for accurate reporting.

3.6 Limitations of the Study

The study on students' attitudes and performance in Mathematics could have been conducted in whole of Uganda, however the nature of the research design (i.e. the

cross sectional design) and the sampling technique (i.e. purposive sampling) confined the study to only the small area in Kasubi parish. Besides the sampling tools and the research instruments used have their own weaknesses. Thus the data gathered applies mostly to Kasubi parish and the areas with similar conditions hence making generalizations for the whole country may not be justifiable. Further the study was conducted with a small sample of only 40 respondents which might have affected the researcher's sourcing of data. Other possible limitations could be; shortage of finance as the study was so demanding yet the resources are limited, also there is time limitation as the researcher is a fulltime student. Such factors may limit the generalization of study to other parts of the country because of limited validity and reliability in the study. However the study provides a fertile ground for further research on students' attitudes towards any subject in secondary education.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter presents the analysis and interpretation of the findings of the study on students' attitudes towards mathematics and performance in mathematics in secondary schools in Kasubi parish in Kampala city. The findings are based on the objectives of the study that were set: students' attitudes towards mathematics, the influence of students' attitude on the performance in mathematics and how students' attitudes and performance in mathematics can be improved upon. In order to achieve these objectives the study was guided by the following research questions: what are students' attitudes towards mathematics? How does students' attitude influence their performance in mathematics? How can students' attitude and performance in mathematics be improved upon? Data analysis and interpretation was carried out on a purposive sample of 40 respondents using a cross sectional research design. The data collected is qualitative and was gathered using a self administered questionnaire and interviews. The analysis, interpretation and presentation of the findings are given under the following headlines: students' attitudes towards mathematics, the influence of students' attitude on the performance in mathematics and how to improve on students' attitude and performance in mathematics.

4.1 students' attitudes

4.1.1 Gender and attitudes

Gender related attitudes towards Mathematics seem to be identical. When students were asked if Mathematics is difficult for only boys or only girls, out the 30 respondents; 27 (representing 90%) answered that mathematics is difficult for only girls and of the 27, all the 16 (representing 59%) were from lower secondary. The findings of this research corroborates the result that boys and girls present very similar attitudes towards Mathematics. However the responses from the respondents slightly

show the difference in attitudes of boys and girls along schooling. This counteracts the pattern presented by boys which showed a decrease in their attitudes from lower to upper secondary but which can be stabilized. The decline in attitudes in girls can be explained with reference to gender stereotypes. Traditionally mathematics is viewed as a male dominated domain which is evident in career choices and jobs.

4.1.2 Mathematics achievement and attitudes

The findings concerning the relationship between Mathematics achievement and attitudes towards Mathematics are consistent with research showing that good achievers develop more positive attitudes than lower achievers. Comparison between good performance and poor performance in encouraging hard work in students shows that 26 of all the 30 respondents (i.e 86%) are encouraged to work hard and perform better when they score highly in math exams and only 4 (that's 14%) are encouraged to work hard by poor performance. Achievement is usually related to self belief in competence can be related to attitudes towards mathematics which suggests that when students succeed at mathematics tasks, it increases their sense of competence and this may promote more positive attitudes.

4.1.3 Students' belief about the usefulness of mathematics

The data obtained on students' beliefs on the usefulness of Mathematics was guided by the question: what is the students' thinking when they refer to Mathematics as being useful in learning? Of the 30 respondents 20 (representing 67%) responded positively and only 10 (that's 33%) responded negatively. The high number of positive responses to the usefulness and the importance of Mathematics could possibly be due to students regarding Mathematics as a school subject and/or a functional tool. In this view if the high percentage is as a result of students regarding learning Mathematics merely for passing examinations without reorganizing the value of Mathematics in practical sense, the results call for a careful reflection on what teachers taught and what students have learnt in Mathematics classrooms. The data on whether students will use Mathematics a lot as an adult, to some extent, indicates that some students can not see a functional

aspect of Mathematics in the practical sense in their adult life. Examining the Mathematics text books, workbooks or school test papers, it is found that the majority of problems that students work on have virtually no relevance to their daily life. It is therefore not difficult to understand why students view Mathematics as a subject being abstract and not applicable to the real life.

4.1.4 Anxiety in learning Mathematics and in Mathematics tests

It is not surprising to see that students were anxious about their Mathematics learning as Mathematics is a core subject in school. In one aspect educators can view students' relatively high level of anxiety as a positive sign indicating that they are serious about the subject. However it seems clear that a high level of anxiety in students will also likely to have a negative influence on their learning and performance. In fact this research has shown that Mathematics anxiety is associated with debilitating test stress, low self confidence, fear of failure and negative to the learning of Mathematics. This is shown by a high percentage of respondents (83%) being worried and frustrated ahead of a math lesson and/or test while only 17% of the 30 may willing to do a test or have a lesson. This result is the same as that obtained by Ma (1999) in a Meta analysis of 26 studies on the relationship between anxiety towards Mathematics at the primary and the secondary levels revealed that there is a significant relationship between the two variables. Lower Mathematics anxiety gives the potential high Mathematics performance.

4.1.5 Students' general view and perception of Mathematics

When students were asked to give their general view and perception of Mathematics, the following were some of their responses: I see a purpose in my life for learning Mathematics, the prospect of having to learn Mathematics makes me nervous, I can get good results in Mathematics, I am more worried about Mathematics than any other subject, having to learn difficult topics in Mathematics does not worry me, no matter how much I study, mathematics is always difficult for me, I am naturally good at Mathematics, I have a lot of confidence when it comes to Mathematics. These

responses indicate that students feel that Mathematics is an interesting subject and they seem to like engage in doing mathematics, however they did not spend much time studying the subject. It seems that one highly possible reason is that the mathematics students learn in school is to a large extent exam oriented; moreover many of the Mathematics questions students work on are routine and close ended.

Summing up on students' attitudes towards Mathematics, the study has shown that the students have the following positive attitudes; students believe that mathematics is very important because of its everyday use in life and in other fields, students also associate Mathematics with ease that is being able to know and get the answer to the problem and also students consider Mathematics as being enjoyable and pleasurable. On the other hand the negative attitudes include; one, Mathematics is difficult; students who feel Mathematics is difficult look at it as boring, monotonous and lack confidence in doing it. They are afraid of appearing foolish in class and will probably stop taking Mathematics as soon as possible. Two, Mathematics or number anxiety; this means an extreme negative reaction in the face of Mathematics class and assignments. This makes students uncomfortable, restless and irritable. Anxiety takes dislike a step further adding suggestion of fear. Thirdly, the belief that Mathematics is inherent and unchangeable conditions them to think that they lack innate aptitude; that is for girls. However, on the other hand boys believe that failure on their side is due to laziness but can improve through practice and hard work.

Teachers' views about mathematics

When teachers were asked if all students can do mathematics equally irrespective of their gender, two distinct responses arose; teachers who believe that "all students can do mathematics" impart this view to their students especially to girls which encourages them to work hard and strive to achieve in mathematics. The behaviors of effective teachers that have a positive impact on students are commonly related to positive attitudes towards mathematics. Teaching performance and attitude towards mathematics are found to be correlated as teachers' attitudes towards mathematics improves so does their mathematics teaching performance. Some of the teachers behaviors mentioned to positively impact are; the use of reform based pedagogy and connected indirect instruction techniques. Additionally, these teachers also said that the teachers, who are academically supportive, implement error diagnosis and employ

remediation help students succeed in mathematics. Finally teachers who demonstrate high mathematics competency and achievement as measured by GPA, number of math content hours and math test scores positively impact on students' outcomes in mathematics.

On the other hand, some teachers had emotional behaviors that have negative impact some of the emotional behaviors of teachers that negatively impact are dislike of mathematics, high mathematics anxiety and low self esteem. The implication of these behaviors is that teachers' dislike of mathematics can have a destructive impact on students' conceptions of mathematics. Apathy and indifference towards mathematics are teacher attributes cited by students as reasons for lacking motivation in math class and disliking mathematics in general. Teachers who have high mathematics anxiety are often afraid of mathematics and avoid mathematics related activities, including developing and planning effective mathematics lessons and instructions. The higher the female teacher's math anxiety, the lower their female but not male students' mathematics achievement and the more likely their female students' ability beliefs fall along traditional lines. This observation is the same as that obtained by (Beilock, Ramirez and Levine 2010)

Since students' attitudes are influenced by the teacher's attitudes, the study too revealed that teachers have also got some attitudes towards Mathematics. Positively, the positive feedback of students' responses to the teacher that is perceived to be informational is one of the positive attitudes that the teacher has towards the teaching of Mathematics. The other is the teacher's on the students' motivation in developing independent thinking skills and strategies for solving Mathematics problems and the teacher's focus on students' motivation in deriving meaning from Mathematics rather than just getting the task done. On the negative side, teachers have biasness in teaching some topics in Mathematics that is some topics are difficult to teach and that it is hard for students to learn them. The other is the negative feedback of students' responses to the teacher that is perceived to be less important may arouse a teacher's negative attitude towards the teaching of Mathematics. Lastly the challenging tasks involved in teaching of mathematics for example giving many assignments and marking

students' work daily, lesson planning and task of bringing together students with different ability levels to a relatively same level.

4.2 Improving on students' attitudes and performance in mathematics

When teachers were on asked how students' attitudes and performance in Mathematics can be improved, they suggested the following:

Career guidance and counseling should be provided in order to break the negative attitudes of students towards mathematics. This coupled with promotion of gender equality in employment will encourage female students to take up and concentrate in Mathematics since their morale will be boosted hence narrowing the gap between gender disparity in mathematics in performance in mathematics.

There should be curriculum development in such a way that math curriculum and the classroom curriculum must be closely related to mathematics community especially in everyday life of students and the mode of assessment should test attainment not ability to memorize crammed facts.

Also teachers should be provided with training that equips teachers with an understanding of strength and weaknesses that students bring in learning of mathematics and the approaches and teaching methodologies that stimulate students to learn mathematics and enable them perform better.

CHAPTER FIVE

RECOMMENDATIONS AND CONCLUSIONS

5.1 Recommendations

The study has shown that students have different attitudes towards Mathematics which are both positive and negative; also teachers have their perceptions about the subject. The third objective of this research was to find out ways of improving upon the attitudes of students towards Mathematics and the performance of students in the subject. Basing on this objective, in his research, the researcher has recommended the following:

Since positive attitudes towards learning and performing well in mathematics are the necessary ingredients in secondary school mathematics education, there is need for parents, teachers and other education stake holders to enhance these positive attitudes.

There is a successive connection between attitudes, learning, performance and practical utility of mathematics. This connection should be established early enough in students' mathematics education curriculum.

Efforts should be made to ensure that gender does not hinder learning and/or performance in mathematics among students. Teachers, parents and siblings of the students should encourage both the female and male students to equally embrace mathematics.

School teachers should provide more opportunities for students to work on more challenging tasks and non routine tasks and recognize the importance of the practice of high order thinking skills so as to fully develop students Mathematics ability. As noted by other researchers (Carlson 1999, Higgins 1997) it is important for students to comprehend the nature of Mathematics in order to increase their desire to undertake challenging tasks which will potentially promote high order thinking.

Teachers should also consider that Mathematics is a subject that should not be limited to rigid processing, routine manipulation and theoretical operation. In this sense Mathematics should be demonstrated in a more authentic way by which students can spontaneously associate Mathematics knowledge with their everyday environment. We believe that in so doing, the engagement and exposure will result in students' better understanding of Mathematics and their mathematics learning which in turn will help students to develop more positive attitudes towards the subject and therefore further promote their learning ability and performance.

Teachers should provide intrinsic motivation to the students. Teachers should create situations that promote pleasure and competence as these will promote positive attitudes towards Mathematics. A teacher should be supportive to students, shape students expectations of learning in appositive way, set meaningful but not excessively challenging tasks. These will stimulate intrinsic motivation in the students and may contribute to the development of more positive attitudes towards the subject.

5.2 Conclusions

The study investigates the attitudes of students towards mathematics and performance in mathematics via a questionnaire. The data was collected from 40 respondents including 30 students and 10 teachers. The results show that students in Kasubi secondary schools hold positive views about mathematics and their learning of mathematics in terms of confidence, anxiety, interest and beliefs. Meanwhile the data also reveals that students are not well keen in working on unfamiliar and challenging mathematics problems and some students do not see the potential usefulness of mathematics in their future life.

The results from this study suggest that Kasubi secondary schools' students know that mathematics is important and they seem to be willing to learn and perform in it well. However teachers must be aware that there are certain aspects of students that need to be improved. In particular students should be given more opportunities to work on non routine and challenging mathematics problems so as to maximize their high order

thinking skills and value the intrinsic essence of mathematics (Yeo and Zhu 2002) Mathematics should not be limited to the representation of rigid processing, routine manipulation and theoretical operation. In this sense, mathematics should be demonstrated in a more authentic way; by which in turn to help students to develop more positive attitudes towards mathematics and further promote their learning ability and hence performance.

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APPENDIX A

QUESTIONNAIRE FOR THE STUDENTS

Dear Sir/Madam,

This questionnaire is about the academic research about **“students’ attitudes and Performance in Mathematics in Secondary Schools in Kasubi Parish”** as a partial fulfillment for the award of a Bachelors’ degree in science with Education by Kampala International University. Your response will be highly appreciated and all information given will be treated with utmost confidentiality.

You are kindly requested to fill this questionnaire on the study “students’ attitudes towards Mathematics and the performance in Mathematics in secondary schools in Kasubi Parish.” The information you will give will be used for purely academic purposes and shall be held confidential. You should therefore give the right information that applies to you in your own opinion.

Please tick in the appropriate box.

Section A: General information:

1. School name

2. Gender: male female

3. Class: S.1 S.2 S.3 S.4 S.5 S.6

4. Age

Section B: usefulness of mathematics

5. Do you think mathematics will be useful in your future adult life?

 Yes No

6. With reference to the math text books you use, is mathematics a difficult and abstract subject?

Yes

No

Section C: Gender and attitudes towards mathematics

7. Do both boys and girls approach academic tasks equally?

Yes

No

8. Is mathematics difficult for;

boys only?

Girls only?

9. Is mathematics difficult at these secondary levels?

lower

upper

Section D: Math achievement and attitudes

10. Does this performance encourage you to like mathematics?

good performance

poor performance

Section E: Environment and attitudes

11. Do teachers help equally boys and girls in academic tasks?

Yes

No

Section F: Anxiety and mathematics learning and/or tests

12. When going in for a math lesson and/or test, do you go in

Willingly?

Worriedly?

13. In your own opinion, write down your perceptions of mathematics

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.....

APPENDIX B

INTERVIEW SCHEDULE FOR TEACHERS

1. Can all students do Mathematics?
2. If all students can do mathematics, what do teachers do in order to keep students interested in mathematics?
3. Do female math teachers encourage female students do mathematics?
4. How do female teachers impact on gender performance in mathematics among students?
5. As a math teacher, what are your views and perceptions about teaching and learning of mathematics?
6. In general, how can we teachers improve up on the attitudes of students towards mathematics?

APPENDIX C

WORK PLAN

Time in Months	Activity
1	Proposal writing
2	Data collection
3 and 4	Data analysis and reporting