A COMPARISON OF TEACHERS’ AND STUDENTS’ ATTRIBUTIONS REGARDING MATHEMATICS ACHIEVEMENTS: A CASE OF SENIOR CHIEF KÖINANGE HIGH SCHOOL, KIAMBU DISTRICT

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E55/7226/02

A THESIS SUBMITTED TO THE SCHOOL OF EDUCATION IN PARTIAL FULFILMENT FOR THE AWARD OF THE DEGREE OF MASTER OF EDUCATION (EDUCATIONAL PSYCHOLOGY) OF KENYATTA UNIVERSITY

FEBRUARY 2010
DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

I dedicate this Thesis to my husband, Julius, for the financial and moral support he gave me, and to our children, Cynthia and Sylvia.
ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to my supervisors, Prof Okatcha and Dr Gatumu, for their tireless supervision, advice and guidance which facilitated the completion of this thesis. I am grateful and proud to be associated with them.

I also wish to thank all my friends and staff in the Department of Educational Psychology for all their assistance given at any time I needed help. I am grateful to the former Principal of Senior Chief Koinange High School, the late Mrs Mutware for allowing me to carry out the study in the school. I also recognize the teachers and students who took part in the study for their support and cooperation.

Finally, special thanks to my husband, Julius, and my daughters, Cynthia and Sylvia, for their patience and understanding during all the stages of this work.
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ABSTRACT
In learning, persons ascribe the causes of their success or failure to factors such as ability, effort, difficulty of the test or luck. Their motivation for similar learning tasks depends not only on whether they experienced success or failure but also on the particular factors to which they attribute their failure or success. The purpose of the study was to compare teachers’ and students’ attributions regarding mathematics achievements in a Kenyan secondary school. The study also compared teachers’ and students’ evaluation of the achievement scores, their levels of satisfaction with the scores, and their expectations regarding future mathematics achievements. The study was also to determine if there are gender differences in teachers’ and students’ attributions regarding mathematics achievements. The sample for the study comprised 140 form four students (80 girls and 60 boys) and Mathematics teachers from Senior Chief Koinange high school in Kiambu District. Twenty students were randomly selected from each of their respective streams and all their mathematics teachers took part. Teacher and student questionnaires were used to collect data. Statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS). Chi-square and t-tests were used at $p \leq 0.05$ level of significance. The study found that there are no significant differences in the teachers’ and students’ attributions to success. They both attributed success to the students more than any other cause. In the case of failure, teachers and students had a similar attribution pattern in that they both attributed failure to themselves and to each other. There were no significant differences in the teachers’ and students’ evaluations of the mathematics scores. Teachers had higher expectations regarding future performance and students were more satisfied with the scores than the teachers. From the findings of the study it is recommended that teachers need to review the approach they use to teach Mathematics. They have to avoid biased interaction in the classroom so as to help students to form attributions which increase their motivation to learn. Future research in the country can include parents’ attributions and other factors like sibling influence, parental influence, career preference and school performance which may affect performance in mathematics.
CHAPTER ONE
INTRODUCTION

1.0 Background to the study

Few educators would argue with the premise that student motivation is an important influence on learning. It is widely acknowledged that students need both the cognitive skill and motivational will to do well in school (Linnenbrink & Pintrich, 2002). Motivation is of particular importance for those who work with young adolescents. Considerable research has shown a decline in motivation and performance for many children as they move from primary school to secondary school (Eccles & Midgley, 1989; Anderman & Maehr, 1999; Wigfield & Tonks, 2002). Often it has been assumed that this decline is largely caused by physiological and psychological changes associated with puberty. This assumption has been challenged however, by research that demonstrates that the nature of motivational change on entry to secondary school depends on characteristics of the learning environment in which students find themselves (Midgley, 1993).

Students’ perceptions of their educational experiences generally influence their motivation more than the actual, objective reality of these experiences. For example, a history of success in a given subject area is generally assumed to lead one to continue persisting in that area. Several researchers have suggested that only motivation directly affects academic achievement, all other factors affect achievement only through their effect on motivation (Tucker, Zayco &
Herman, 2002). Student motivation varies as a function of subject matter domains and classrooms (Bong, 2001).

In Kenyan schools, examinations are used as the main basis for measuring the students’ academic achievement and predicting future academic performance. However, there is a lot of variation in the performance of students in Kenya Certificate of Secondary Examination (K.C.S.E) held at the end of the four-year study of secondary education. The majority of students perform poorly especially in mathematics according to the yearly reports by Kenya National Examination Council (KNEC). This poor performance has drawn the concern of the government, teachers, parents and other stakeholders in education. They have sought for answers to the question of continued mass failures in mathematics in secondary schools over the recent years.

Researchers have studied various factors that have been identified as possible contributors to the variations in academic performance. In Kenya, the variables that have been studied include: the students’ self-concept (Maritim, 1980); parental involvement (Arasa, 1995); family size (Bali, Drenth, Flier & Young, 1984); students’ attitudes (Wanderi, 1989); type of school (Wanderi, 1989); achievement motivation (Kitivo, 1989: Muola, 1990; Arasa, 1995: Oliwa 1998); peer pressure (Rono, 1991); absenteeism (Gitonga, 1987); and locus of control (Oliwa 1998). These are some of the variables researchers have investigated and considered important in the understanding and prediction of students’ achievement–related behavior. However, no study has been carried
out in Kenya on teachers’ and students’ attributions to academic success or failure as a factor that may affect academic performance.

In the present study attention was given to the teachers’ and students’ attributions regarding the students’ mathematics achievements and their expectations as possible factors that may influence the academic performance of students. Causal attributions are the explanations that teachers and students cite as the causes of the students’ academic success or failure. Specific patterns of attribution have been identified as contributing to either high or low levels of motivation and persistence. Students with higher school achievement tend to attribute success to internal, stable, uncontrollable factors such as ability, while they attribute failure to either internal, unstable controllable factors such as effort, or external, uncontrollable factors such as task difficulty (Marsh, 1986; Weiner, 1989). Students with low academic achievement attribute success to external, uncontrollable factors such as luck; ease of task, or assistance received, rather than to internal factors such as ability or effort (Pintrich, Anderman & Klobucar, 1994). They attribute failure to lack of ability, a stable, uncontrollable factor.

A number of studies have investigated teachers’ and students’ attributions of causality for the success or failure of the students (Beckman, 1973; Bar-Tal, 1979; Bar-Tal & Guttmann, 1981; Forsyth & McMillan, 1981, 1982; Wong, 1993; Hall et al. 1992; Lumsden, 1997; Anderman & Midgley, 1998; Stephanou, 2001; Bempechat, 1999; Lema, 1998). These studies give evidence
that the causes which teachers and students cite to explain the students’ achievement outcomes may have an effect on their expectations concerning the students’ future achievements. As a result, these teachers’ and students’ expectations may in fact influence students’ academic performance (Rosenthal & Jacobson, 1968; Good & Brophy, 1995).

The studies on attributions to academic success or failure have been done mainly in America, Asia, Europe and one in Tanzania in Africa. The present study was carried out using a sample of form four boys and girls from Senior Chief Koinange High School in Kiambu District and their mathematics teachers. This is an area of a different cultural context and educational system from that of the studies that have been done so far. The study was carried out to compare the teachers’ and students’ causal attributions regarding the students’ achievement outcomes. The study also compared teachers’ and students’ expectations regarding the students’ future academic achievements. The study was also to determine if there are gender differences in the teachers’ and students’ attributions regarding the students’ mathematics achievements.

1.1 Statement of the problem

Students form beliefs about the causes of their performance based on their experience of success or failure. Although students may have similar outcomes, they attribute them to different causes. Teachers, on the other hand, also form attributions regarding the students’ performance. However, attributions do not reflect a true state of affairs; for example, a student may
blame a low grade on a “tricky” test or unfair teacher when that low grade is really due to the student’s own lack of effort or poor study skills.

The students’ and teachers’ attributions determine their expectations of the students’ future performance. When success is attributed to controllable factors such as effort, motivation and diligence, high expectations are formed. However, if success is attributed to uncontrollable, external factors such as an easy test low expectations are formed. Also, if failure is attributed to uncontrollable factors such as lack of help from others and difficult test, low expectations are formed.

Students tend to internalize the beliefs teachers have about their ability. Generally they rise or fall to the level of expectation of their teachers (Raffini, 1993). Thus the levels of expectations determine how much and how well students learn and, consequently, their performance (Bamburg, 1994). There is need therefore to compare teachers’ and students’ causal attributions regarding students’ mathematics achievements and their expectations as possible factors that may influence the academic performance of students.

1.2 Objectives of the study

The study was aimed at;

i) Comparing teachers’ and students’ attributions regarding mathematics achievements in a Kenyan secondary school.
ii) Determining the relationship between teachers’ and students’ evaluations of mathematics achievements.

iii) Comparing teachers’ and students’ levels of satisfaction concerning mathematics achievements.

iv) Comparing teachers’ and students’ expectations regarding the students’ future mathematics achievements.

v) Determining gender differences in teachers’ and students’ attributions regarding mathematics achievements.

1.3 Research questions

In order to fulfill the above objectives, the following research questions were formulated.

i) Is there a difference between teachers’ and students’ evaluations of mathematics achievements?

ii) Are there differences between teachers’ and students’ attributions’ regarding success or failure in mathematics?

iii) Is there a difference between teachers’ and students’ levels of satisfaction with mathematics achievements?

iv) Is there a difference between teachers’ and students’ expectations for future performance?

v) Are there gender differences in teachers’ and students’ attributions regarding mathematics achievements?
1.4 Statistical hypotheses

In order to achieve the objectives of this study, the following hypotheses were tested:

Ho1. There is no significant difference between teachers’ and students’ evaluations of mathematics achievements.

Ho2. There are no significant differences between teachers’ and students’ attributions regarding success in mathematics.

Ho3. There are no significant differences between teachers’ and students’ attributions regarding failure in mathematics.

Ho4. There is no significant difference between teachers’ and students’ levels of satisfaction with mathematics achievements.

Ho5. There is no significant difference between teachers’ and students’ expectations regarding future performance in mathematics.

Ho6. There are no significant gender differences in teachers’ and students’ attributions regarding mathematics achievements.

1.5 Significance of the study

Considering the importance attached to good academic performance, this study was based on evidence from other related studies that the causes which teachers and students attribute to students’ achievement outcomes may have an effect on their expectations concerning the students’ future achievements in mathematics (Bar-Tal, 1979; Bar-Tal & Guttmann, 1981; stephanou, 2001; Lumsden, 1997; Bempechat, 1999). As a result, these teachers’ and students’
expectations may in fact, influence students’ academic performance (Rosenthal & Jacobsdon, 1968; Good and Brophy, 1995; Lumsden, 1997).

Findings on students’ causal perceptions of success and failure may be important for understanding students’ achievement-related behavior (Weiner, 1974) and the effect of teachers’ attributions on students’ causal perception (Bar-Tel, 1979). In particular, the focus on students’ beliefs about the causes of success and failure may help teachers and other stakeholders in education to understand why some students embrace academic challenge while others shy away from it. The study may provide an understanding of how students approach tasks and how they interpret the feedback they are given by teachers. A number of attribution changing programs have been developed and investigated, but they may only be used after the existing attributions are known. In other words, the findings of the study may encourage teachers to motivate students so that they may improve their mathematics achievements.

1.6 Scope and limitations of the study

1) Given financial and time constraints, and the comparative nature of the study, the study limited its sample of subjects to form four students and their mathematics teachers in one secondary school in Kiambu District. Hence generalization of the results may not be applied to teachers and students in other schools.
2) The study is also confined to the assessment of teachers’ and students’ attributions regarding mathematics achievements. This was done by use of questionnaires as data collection instrument.

3) The sample size is limited by the nature of the study. Teachers were required to fill out questionnaires for each of the students from their classes and therefore, the number of students who took part in the study was limited.

1.7 Assumptions of the study

The researcher based the study on the following basic assumptions:

1) Teachers and students have formed attributions regarding the students’ academic achievements.
2) Teachers know their students well.
3) The subjects responded to the questionnaire adequately.
4) The information given by the respondents was correct.

1.8 Definition of terms

The following terms were used in the study to mean:

1) Attributions: These are a student’s or a teacher’s explanations of causes of a student’s success or failure.
2) Evaluation: The process of classifying a student’s mathematics score as either a success or a failure.
3) Level of satisfaction: This is the extent to which the student’s mathematics achievement confirms the student’s or teacher’s expectations.
4) Mathematics achievement: This is success or failure as measured by a score on a mathematics test.

5) Student expectations: These are inferences that students make about their future mathematics achievement.

6) Teacher expectations: These are inferences that teachers make about students’ future mathematics achievements.
CHAPTER TWO

REVIEW OF LITERATURE

2.0 Introduction

This chapter presents a cognitive perspective on student motivation. The particular cognitive representations addressed are causal attributions; students’ and teachers’ inferences about the causes of students’ performances and evaluations. The main principles of an attribution theory of motivation address the nature and dimensionality of attributions, the impact of success and failure on attributions, factors influencing the development of attributions for performance and consequences of causal attributions. Findings of studies on attributions and the conceptual framework are presented.

2.1 Causal attributions

Evaluation is as much a part of education as is learning. In most schools and colleges, students are regularly tested and evaluated by their teachers who communicate their appraisals in the form of a grade or a score. When students are handed back their papers, they find out whether they have passed or failed. How they react to these academic evaluations depends upon their attributions: student inferences about the causes of their performances and evaluations. Elaborating on theoretical foundations established by Heider (1958), Jones (1978), and Kelly (1967, 1971), these investigations assume that students actively strive to understand the origins of their academic outcomes. They want to know not only their score in the test but also why they got this
particular grade or score. Some categories of experience are particularly more conducive for causal search. For example, they are more likely to ask “why” following failure rather than success and in response to unexpected as opposed to anticipated outcomes (Folkes, 1982; Wong & Weiner, 1981). Causal search is therefore functional because it may impose order on an environment that is sometimes uncertain.

In achievement contexts, success and failure are ascribed to some ability factor which includes both aptitude and acquired skills, a motivation factor such as temporary or sustained effort, the difficulty of the task, luck, personality and help or hindrance from others (Cooper & Burger, 1980). Among these causal ascriptions, ability and effort appear to be the most dominant causes of success and failure. When explaining achievement outcomes, individuals tend to attach the most importance to what their perceived competencies are and how hard they try. Studies have shown that both teachers and students attribute the students’ academic achievements to various causes (Brandt, Hayden, & Brophy, 1975; Bar-Tal and Guttman, 1981; Marsh, 1986; Weiner, 1989; Pintrich, Anderman, & Klobucar, 1994).

Students and teachers explain the educational outcomes of students through reference to a wide variety of causal factors. Although evidence indicates that Heider’s (1958) classic foursome; ability, effort, luck and task difficulty – are among the most frequently offered explanations of performance (Bar-Tal, Ravgad & Ziberman, 1981; Elig & Frieze, 1979; Falbo & Beck, 1979; Frieze,
1976; Wong, 1993; Bempechat, 1999), additional factors are also sometimes suggested as causes. For example, when Forsyth and McMillan (1982) carried out a study to investigate the causal attributions of college students regarding their outcomes on a test, they identified various causes. These included luck, support from friends, classroom atmosphere, knowledge, personal problems and study habits.

Evely (2004) found that effort and lack of effort were the most important causal attributions for success and failure in Mathematics. College students attributed success to teaching quality and persistent diligence and failure to poor improvisation, test difficulty and bad luck (Lei, 2009). Cheong & Subramaniam (2008) found a significant difference in attributing success and failure for instructions between Mathematics and Science teachers to external factors i.e. environment.

Elig & Frieze (1975) identified causes such as motives of others, effort, task difficulty, personality, fatigue, ability and teacher-student interaction. Bar-Tal, Goldberg, & Knaani, (1984) identified teachers’ instructional ability, preparation for test, interest in the subject, mood, self confidence, studying load, learning conditions at home and cheating. In all the studies mentioned above, the different causal attributions given fall into similar categories. It is also evident that Heider’s classic foursome; ability, effort, luck and task difficulty are common explanations since they are featured in all the studies. It can be seen that in a classroom setting the causal attributions regarding
academic outcomes can be classified into some common categories such as level of motivation, knowledge, preparation, personal problems, test difficulty and study habits.

According to Weiner (1989), most of the causes to which students attribute their successes or their failures can be characterized in terms of three dimensions:

i) Locus – location of the cause, internal or external to the person.

ii) Stability – whether the cause stays the same or can change.

iii) Controllability – whether the person can control the cause or not.

Table 2.1 shows how a student might explain failing a test using the eight possible combinations of these dimensions as causes. The table helps to explain the dimensions of attributions and to classify given causal attributions into the various dimensions.

**Table 2.1: Dimensions of causal attributions**

<table>
<thead>
<tr>
<th>Dimension classification</th>
<th>Reason for failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal – Stable – Uncontrollable</td>
<td>Low aptitude</td>
</tr>
<tr>
<td>Internal – Stable – Controllable</td>
<td>Never studies</td>
</tr>
<tr>
<td>Internal – Unstable – Uncontrollable</td>
<td>Sick the day of the test</td>
</tr>
<tr>
<td>Internal – Unstable – Controllable</td>
<td>Did not study for this particular test</td>
</tr>
<tr>
<td>External – Stable – Uncontrollable</td>
<td>School has hard requirements</td>
</tr>
<tr>
<td>External – Stable – Controllable</td>
<td>Instruction is biased</td>
</tr>
<tr>
<td>External – Unstable – Uncontrollable</td>
<td>Bad luck</td>
</tr>
<tr>
<td>External – Unstable – Controllable</td>
<td>Friends failed to help</td>
</tr>
</tbody>
</table>
Weiner (1979, 1984, 1992) believes that these three dimensions have important implications for motivation. The internal/external locus seems to be closely related to feelings of self-esteem. Positive affect, such as high self-regard, happiness and satisfaction are experienced after success, while displeasure, dissatisfaction and low self-regard are experienced after failure. These affects are experienced regardless of whether the cause of the success or failure is perceived as internal or external (Weiner, 1979). Persistence on tasks is greater when positive affect is experienced. In addition, attributions of success to particular internal and external causes are associated with specific feelings. Contentment is experienced when the cause of success is attributed to effort (internal). Gratefulness and thankfulness are experienced when success is linked with other people as the cause of success (external). Incompetence and resignation are felt when the cause is little or low effort (internal). Anger is felt when other people are perceived as causing the failure (external). Surprise is experienced when the failure is attributed to poor luck (external).

Individuals’ perceptions of their ability to control or not to control the achievement of tasks determine their motivation to perform the tasks. Persons choose tasks if they perceive that they can achieve success by their own effort or by receiving help from others (controllable). They avoid tasks where successful performance is uncontrollable by their own effort or by receiving help (Klausmeier, 1985). The perceptions of other people regarding an individual’s controllable or uncontrollable causes of failure, and need for help
determine whether or not help is given. This is explained by a scheme proposed by Weiner (1980) as follows:

Controllable causes: The opportunity to help an individual is perceived. The need for help is attributed to lack of effort by the individual (controllable). As a result, anger is experienced and help is not given.

Uncontrollable causes: The opportunity to help an individual is perceived. The need for help is attributed to individual’s lack of ability (uncontrollable). As a result, pity is experienced and help is given.

Covington and Omelich (1979) and of Covington, Spratt, and Omelich (1980) support the idea that low effort by an individual produces negative affect in others who can help the individual, while high effort produces positive affect. Prawatt, Byers and Anderson (1983) found teachers to be the proudest and most satisfied when low ability students succeed through persistent, high effort. Moreover, the teachers felt guilty when the student stopped trying. On the other hand, teachers become angry when high ability students failed because of lack of effort.

According to Weiner (1992) the stability-instability dimension is related primarily to the expectation of succeeding or failing on future tasks. Success on a prior task, attributed to one or more stable causes (high ability, typical amount of effort, task of proper difficulty and positive teacher bias) increases motivation for similar tasks more than does prior success attributed to unstable
causes (favourable mood of the student, high immediate effort, good luck and unusual help from others). Failure on prior task attributed to stable causes (low ability, typical effort, great difficulty of task, negative teacher bias) decreases motivation for similar tasks more that does failure attributed to unstable causes (bad mood, lack of immediate effort, bad luck, little or no help from others). In general, if either success or failure is attained and the causes are perceived as remaining unchanged, then subsequent success or failure will be expected with a greater degree of certainty than if the causes are perceived as unstable or changeable. Tasks on which success is expected will be performed with greater intensity than those on which failure is expected (Feather & Simon, 2006). This study was to compare teachers’ and students’ attributions regarding mathematics achievements.

2.2 Attribution theory

The systematic analysis of how people relate causes to significant outcomes is known as attribution theory (Wakefield, 1996). The study of attribution processes began with the realization that explanations are not facts; rather they are inferences often based on perceptual relationships (Heider, 1958). A cause and effect tend to be inferred by a person when he or she perceives that two events co-vary or are positively related. The theory was originally developed to explain how we interpret events and to what causes we attribute, or credit these events (Kelley, 1967). The theory assumes that we all want to explain why things happen. So we usually formulate causal explanations for things that happen to us. Further, how we behave is affected by the cause-and-effect
relationships that we believe exist (Clifford, 1981). Heider contended that behavior is affected by factors related to people and to the environment. However, he further stressed that the way we behave is determined by our views about the causal relationship between the person and the environment.

The lay person acts like a social scientist who attends to; (a) the co-variation between particular events (social acts and their outcome), as well as (b) potential causal facts. From such observations, the layperson reasons logically and statistically about the cause of a given event (Zimbardo, 1980). The layperson also discounts possible confounding variables that could obscure the inferred causal relation.

Attribution theory assumes that we have a need to develop an understanding of predictable relations in order to give stability and meaning to events in our lives. This leads to a reality orientation to the world. It assumes that we have a need to be able to predict important events and alter them in a desirable direction. This leads to a control orientation to the world. Attribution theory assumes further that our assignment of causes may involve active information seeking that it occurs in a systematic manner, and the “meaning” an event has for us depends heavily on the cause we assign to it.

Bernard Weiner is one of the main educational psychologists responsible for relating attribution theory to school learning (Weiner, 1974, 1979, 1984, 1989, 1990, 1992; Weiner and Graham, 1989). His theory of attribution is directed
mainly toward understanding how individuals explain the causes of their successes and failures and how their explanations affect their subsequent motivation to achieve. According to the theory, persons ascribe the causes of their successes and failures to factors such as ability, effort, difficulty of the task, or luck. Their motivation for similar learning tasks depends not only on whether they have experienced success or failure but also on the particular factors to which they attribute their success or failures (Klausmeier, 1985).

2.3 Attributional biases after success and failure

Specific patterns of attribution have been identified as contributing to either high or low levels of motivation. Students with higher school achievement tend to attribute success to internal stable, uncontrollable factors such as ability. They attribute failure to either internal, unstable, controllable factors such as effort, or external, uncontrollable factors such as task difficulty (Whitley & Frieze, 1985; Marsh, 1986; Weiner, 1989). Students with low school achievement are more likely to attribute failure to lack of ability, a stable, uncontrollable factor. They are more likely to attribute success to external, uncontrollable factors such as luck, ease of task, or assistance received, rather than to internal factors such as ability or effort (Pintrich, Anderman and Klobucar, 1994). Individuals tend to attribute their success to themselves and their failures to external causes (Simon & Feather, 1973; Nicholls, 1975, Wong 1993).
Members of successful groups attributed greater responsibility for the performance to self, average group members and the group as a whole. They attributed the cause of the performance more to personal ability and less to internal constraints, situational distractions and task difficulty (Forsyth & Schenkler, 1977). Students emphasize external factors such as the difficulty of the test or the teachers’ ability after performing poorly on an examination, but they point to internal factors such as superior ability and effort when they achieve a high score (Forsyth & McMillan, 1981b; Feather & Simon, 2006). Individuals working in groups often claim personal responsibility for the groups’ success, but they deny responsibility when the group fails (Norvell & Forsyth, 1984).

2.4 Factors influencing the development of attributions

The following factors are important in explaining the attribution process:

2.4.1 Age

Young children can not comprehend attribution concepts such as ability and failure; or relate their success and failures to the real causes; and make self-evaluative judgments such as being of low ability. Ruble (1980) indicates that these processes are not yet well understood by young children. Children younger than nine have not yet differentiated between such factors as ability and effort (Lefrancois, 1994). Nicholls (1978) reports that these children equate effort with intelligence; they believe that smart people are those who work hard. Therefore, reliable predictions about young children’s achievement motivation can not be made using attribution theory. At the age of nine or ten,
the child begins to consider ability as a separate factor that contributes to success. By age twelve, children estimate their achievement in reading quite accurately and attribute causes of their success and failure more realistically and in accordance with the theoretical predictions than they do at younger ages (Nicholls, 1979a).

2.4.2 Situational conditions

Equal numbers of boys and girls of grades 1, 3, and 5 were interviewed to identify what they perceived as the cause of children’s success and failure in four simulated situations: an academic test, a football game, catching frogs in a pond, and finishing an art project (Frieze & Snyder, 1980). Differences in the frequencies of their causal attributions of success and failure in the four tasks were significant for each of the three grades, for each sex separately, and for mental ability above and below the median of the children in each grade. The main conclusion of this study is that a young child’s beliefs about the causes of success and failure are dependent on the child’s prior experiences with the particular situation and thus vary from situation to situation.

2.4.3 Gender

Being treated differently, according to some psychologists leads boys and girls to offer different explanations for their failures. Boys often rebuked for being messy, “not trying”, careless, thoughtless, or absent minded, tend to attribute their school failures to lack of effort. Girls who are less criticized for these things tend to think that school failure is due to low intellectual ability (Dweck

When females succeed on a task, success is attributed to external factors such as luck and task ease. In contrast, males’ success is attributed to ability (Wong, 1993). Failure is also attributed to external factors for females, but to lack of effort for males (Feather, 1969; D’ziewiecki & Westberg, 1997). Females are perceived as having little control over their performance, whereas males are perceived as having a great deal of control (Gololombok & Fivush, 1994). But as they argue, these patterns might be a function of the kind of task that the individual is performing. When females succeed on feminine tasks, their success is perceived to be due to internal ability factors, but when they succeed on masculine tasks, it is due to luck. Males’ success is attributed to ability regardless of the type of task being performed.

This differential pattern is extremely interesting especially in mathematics which is strongly stereotyped as masculine (Eccles, 1987; Hyde Fennema, & Lamon, 1990). Female students report less confidence in their mathematical abilities than their male counterparts (Cohen & Kosler, 1991; Hanson, 1992), and males and females differ in their attributions for success and failure in mathematics (Leder, 1984; Subotnik, 1988). Lei (2009) found no significant gender differences in attributions to success and failure. This study was set to
determine if there were gender differences in the teachers’ and students’ attributions regarding mathematics achievements.

2.4.4 Individual dispositions

The motive to strive for success or what is known as the need for achievement markedly influences causal ascription. Individuals classified as high or low in need for achievement have disparate attribution biases (Weiner et al, 1971, Weiner, 1974). Individuals high in need for achievement perceive themselves as more able than persons low in this motivational tendency (Kukla, 1972; Weiner & Kukla, 1970; Weiner & Potepan, 1970). Thus, persons in the high motive group more frequently ascribe success to high ability whereas the persons in the low motive group more frequently ascribe failure to low ability.

In addition, persons highly motivated to achieve perceive that the degree of effort expenditure influences achievement outcomes. An effort–outcome covariation principle is not expressed by persons low in achievement needs.

Orvis, (Personal communication) suggests that individuals with a high self-concept have a past history of success. They believe they can perform better than others. They ascribe success to themselves (high ability) and failure to external causes, such as task difficulty. Individuals with a low self-concept of ability have a history of past failure and believe that others perform better than them. Failure produces an internal attribution endurance of high or low self-concepts of ability.
2.4.5 Causal schemata

A causal schema is a relatively permanent structure that refers to the beliefs that a person holds about the relationship between an observed event (an effect) and the perceived causes of that event (Kelly, 1972). A cause can be related to an effect in at least one of two distinct ways: It can be perceived as sufficient to produce the effect, or necessary for the effect. For example, it may be believed that either high ability or hard work will produce success. This distinctive set of causal relations is referred to as a multiple sufficient causal schema. Each cause in and of itself is capable of producing the effect. On the other hand, it may be believed that both ability and effort are required for success. This conjunctive set of causal relations is referred to as a multiple necessary causal schema (Weiner, 1974). Given an effect, a causal schema will generate inferences about the underlying causes. Thus the type of causal schema used influences one’s perceptions of causality.

2.4.6 Antecedent cues

An individual’s knowledge about himself or herself, such as prior performance and typical effort expenditure on test, are important sources of attribution information, as is performance relative to others. If an exam is easy and everyone but the student in question succeeds, that student is likely to question his or her ability (Fieldman, 1986). Attribution research has identified a number of cues such as prior performance history and social norm information that influence causal ascriptions (Kelly & Michella, 1980).
Other cues are the pattern of performance, the maximum performance level, objective task characteristics, apparent lack of control over the outcome, and variability in the outcome sequence. Persons exhibiting ascending performance are frequently judged as more able than those displaying random or descending performance (Jones et al, 1968). What a teacher communicates to students will also be an important source of information that students then use to infer ascriptions. Sandra Graham (1990, 1991), Bamberg (1994), and Cotton (1989) give evidence that when teachers respond to students’ mistakes with pity, praise for a “good try” or unsolicited help, the students are more likely to attribute their failure to an uncontrollable cause – usually lack of ability.

2.4.7 Beliefs about intelligence

Just how children view ability can have important consequences for their levels of motivation. Children who view ability or intelligence as a quality that is unfixed and changeable are more likely to tackle risky, challenging tasks and to rebound from failures by redoubling their efforts. Those who see their ability as fixed tend to choose easy assignments over challenging ones and to be less resilient about failures (Dweck & Bempechat, 1983).

2.5 Attributions and expectations about future performance

The crux of attribution theory is the causal perception, to what an individual attributes the cause of his or her success or failure and the influence this has on perceptions of future performance (Child, 1997). Pupils who believe their
failure is brought about by unstable internal causes, for example, lack of effort, tend to persist in the face of failure.

A number of studies based on Weiner’s three–dimensional model of attributions indicate that students’ and teachers’ attributions are systematically linked to their expectations concerning future performances (Bar-tal, 1979, Green, 1978; Bar tal & Guttmann, 1981; Forsyth & Mcmillan, 1981b; Wong, 1993; Stephanou, 2001). Etaugh and Ropp (1976) noted that many individuals attribute stable factors to expected outcomes and unstable factors to unexpected outcomes. Future expectations of success or failure are based upon perceived level of ability in relation to the perceived difficulty of the task and an estimation of the intended effort and anticipated luck.

Weiner (1990) stated that when an individual experiences failure or success, there are changes in his or her expectancy, and consequently, performance is affected. Individuals who attribute low ability or difficulty of the task to failure decrease expectation of future success more than those who attribute it to bad luck, mood or lack of immediate effort. Also individuals who attribute success to good luck or the ease of the task have smaller increments in subjective expectations of future success. Thus, success-oriented students will attribute success to ability and effort, while they attribute failure to insufficient effort.
The three elements of expectancy value, perceptions of competence and self-efficacy – are the criteria by which an individual arrives at a perception of how he or she will perform. They help to define motivational intensity and hence the likelihood of a task being undertaken and achieved at a particular level. Forsyth and McMillan (1981b) examined the expectations of high and low scoring college people who attributed their performance to internal or external, stable or unstable, and controllable or uncontrollable factors, they found no effects of stability. However, individuals who failed expressed the most negative expectations when they felt their performance was caused by external, uncontrollable factors. Individuals who succeeded expressed somewhat positive expectations when they felt that their score was the product of internal, controllable factors. They argued that controllability may be more important than stability when people are concerned about maintaining or improving their current levels of performance.

Raymond (1999) suggested that high achievers are likely to receive less negative feedback from teachers, attribute more academic failures to internal factors, and have high self-efficacy. Conversely, low achievers develop more learned hopelessness which leads them to make more stable attributions for academic failures, as they become more hopeless and believe that they have little chance of ever doing well.

When success is produced by factors that people can control – effort, motivation, diligence – then they can assume that good scores will occur again.
If however, good grades are attributed to uncontrollable, external factors – an easy test, an excellent substitute teacher, or the topic – then successful people wonder if they can maintain their high level of achievement. In contrast, if failing people believe that they can control the cause of the poor performance, then they expect to overcome these constraints in the future. If, however, they believe their grade was caused by external, uncontrollable factors – outside pressures or a poor teacher – then they conclude that they will fall again.

Simon and Feather (1973) noted that variable factors not assumed to play much part in influencing the initial expectation are invoked as causes when outcome violates the expectation. That is, attribution shifts from stable to variable causal factors when the expectation is disconfirmed. Unexpected outcomes tend to be attributed to good or bad luck, or to momentary effort, or lack of effort, or even to ease or difficulty or the task (Weiner et al, 1971). The study was to compare teachers’ and students’ expectations regarding future mathematical achievements.

2.6 Expectations and performance

Although some teachers maintain uniformly high expectations for all students, others have “great expectations” for particular segments of the student population but minimal expectations for others (Lumsden, 1997). The expectations teachers have for their students and the assumptions they make about their potential have a tangible effect on student achievement. Research “clearly establishes that teacher expectations do play a significant role in
determining how well and how much students learn” (Bamburg, 1994). Students tend to internalize the beliefs teachers have about their ability. Generally, they “rise or fall to the level of expectation of their teachers’ (Raffini, 1993).

Researchers have found a positive correlation between performance and expectations (Atkinson & Feather, 1966; Felker, 1974). Lema (1998) found a large proportion of pupils in Tanzanian Primary Schools had low expectations to achieve the objectives as stated in the syllabus. Pupils with high expectations performed better than pupils with low expectations. Feather (1967) discovered that probability estimates for success are positively related to performance scores where the nature of the task is truthfully represented. He further argues that the relationship may reflect stability in underlying factors influencing performance. Students who have previously experienced failure might have low expectations. Thus the level of expectations may have in turn influenced learning and, consequently, performance. Felker (1974) stated that: “If a pupil expects good experiences, he acts in a way which brings them about. If he expects bad experiences he acts in ways which make the expectations come true” (p.19).

Teacher expectations are inferences that teachers make about present and future academic achievements and general behaviour of students. General expectations include teacher’s beliefs about the changeability versus the rigidity of students’ abilities, the students’ potential to benefit from instruction,
and the appropriate difficulty of assigned material (Good & Brophy, 1995). Teacher expectations tend to be self-sustaining. They affect perception, by causing teachers to be alert for what they expect and less likely to notice what they do not expect. They also affect interpretation, by causing teachers to interpret what they see so that it is consistent with their expectations. Some expectations persist even though they do not coincide with the facts (Proctor, 1984).

Teachers’ expectations can also function as self-fulfilling prophecies if they influence teachers to behave in ways that confirm the teachers’ original expectations. Either consciously or unconsciously teachers behave differently towards students based on the beliefs and assumptions they have about the students (Lumsden, 1997). For example, if they expect a student to do well, the student may be given more encouragement like affirming nonverbal behaviors such as smiling or more time to answer a question (Bamburg, 1994). If this pattern is repeated daily for months, the student will do better academically and score better on achievement tests (Woolfolk, 1995). Over time, the student’s behavior moves closer and closer to the kind of performance originally expected by the teachers (Good & Brophy, 1984; Jussim, 1986; Cotton, 1989). When teachers summarily categorize or label students, typically some students end up receiving “a watered-down curriculum and less intense and less motivating-instruction” (Gonder, 1991).
Lema (1998) found that teacher expectations were not the same in all aspects of English language learning. Most teachers felt that by the end of primary school education, most pupils would be able to read well in English but very few would be able to write in the language and fewer still would be able to speak the language. The pupils were found to have similar expectations to these aspects of the language. This shows aspects of the language that are considered attainable by both teachers and the pupils. Lema further argues that this might also be indicative of teachers’ expectations that have been internalized by pupils. He found a significant difference between the mean test scores of the pupils of teachers with high expectations and that of pupils of teachers with low expectations. A number of other studies had similar findings (Good and Brophy, 1977; Schunk, 1990).

Bar-Tal and Guttman (1981) found that teachers’ expectations for future performance were significantly lower than the students’ expectations. They, however, found no significant difference in the students’ and teachers’ levels of satisfaction. They also found that students tended to evaluate their grades as less successful than teachers. Other studies (e.g Simmons and Rosenberg, 1971) indicate that students often tend to have unrealistic, high expectations regarding future success and therefore, the achieved outcome may be below the expected grade. Lei (2009) found that students had higher expectations after failure and were willing to work hard to make progress. Wong (1993) found that girls have lower expectations than boys especially in mathematics. Therefore, this study was set to determine if there was a relationship in
teachers’ and students’ evaluations of mathematics scores. The study was also to compare teachers’ and students’ feelings of satisfaction with the scores and their expectations of future mathematical achievements.

2.7 Conceptual framework

Following success or failure in a given subject, both teachers and students give various attributions to explain the performance. The nature of these attributions determines the teachers’ and students’ levels of expectations regarding future performance in the
subject. The levels of expectations determine the students’ motivation to learn and consequently their academic achievement. Positive attributions lead to high expectations regarding future performance which in turn lead to high motivation to learn and hence high academic achievement. On the other hand, negative attributions lead to low expectations regarding future performance which in turn lead to low motivation to learn and consequently low academic achievement.

2.8 Observations made from review of literature

The results of studies investigating the teachers’ ascription of causality regarding students’ academic outcomes have been somewhat contradictory. In some studies, the teachers take credit for the student’s success and tend to attribute failure to causes external to them (Johnson et al. 1964; Beckman, 1970; and Brand et al. 1975. In other studies, both teachers and students share the credit for success. In other studies teachers take the responsibility for the students’ failures while students attribute failure to external causes (Bar-Tal & Guttman, 1981). Effort and lack of effort were the most important causal attributions for success and failure in Mathematics (Evely, 2004).

Teachers’ expectations for the students’ future performance are lower than the student’s expectations (Bar – Tal and Guttman, 1981). Students tend to have unrealistic high expectations regarding future success and therefore, the achieved outcome may be below the expected grade or score (Simmons and Rosenberg, 1971). As a consequence students tend to evaluate their grades as less successful than teachers. Students had higher expectations after failure (Lei, 2009).
Bar-Tal and Guttman (1981) found no difference in teachers’ and students’ levels of satisfaction with the achievement outcomes. However, there are gender differences in the teachers’ and students’ attributions of the students’ achievement outcomes (Leder, 1984; Subotnik, 1988; Cohen & Kosler, 1991; and Hansen, 1992). Female students attribute success to external factors while male students attribute it to ability (Feather, 1969; and D’zowiecki & Westberg, 1997). Failure is attributed to external factors by females, but to lack of effort by males. Lei (2004) found no significant gender differences in attributions to success and failure.
CHAPTER THREE

METHODOLOGY

3.0 Introduction

Described in this chapter is the research design, sampling technique, instruments for data collection and procedures that were followed in the analysis of data.

3.1 Research design

The research design was causal – comparative in nature. A causal – comparative research is one in which investigators attempt to determine the causes or consequences of differences that already exist between or among groups of individuals (Fraenkel, 2000). The study compared teachers’ and students’ attributions regarding students’ mathematics achievements.

3.2 Population and sample

All form four mathematics teachers and 140 form four students (60 boys and 80 girls) in Senior Chief Koinange High School in Kiambaa Division of Kiambu District were to take part in the study. However, data was collected from a sample of 120 form four students and their Mathematics teachers. Four boys and 16 girls did not respond to all the items in the questionnaires and were therefore dropped from the sample.
The school was selected for the study because at the time of the study it was the biggest mixed school in the country. There were 1100 students and 83 teachers in the school. In Form Four in particular, there were a total of 286 students in seven streams (4 for girls and 3 for boys). The students who took part in the study were randomly selected. Twenty girls and 20 boys were randomly selected from each of their respective streams. No other schools participated because of the comparative nature of the study. This was to control the effect of school differences on the results of the study.

Form four students were selected for the study because they had been in school long enough to form attributions regarding their success and failure in various subjects. They were also expected to be more focused on their academic achievements because of the K.C.S.E examination ahead of them at the end of the year.

3.3 Locale of the study

The study was carried out in Senior Chief Koinange High School in Kiambaa Division of Kiambu District. This is a provincial school located about 10km from Kiambu town along the Kiambu - Limuru road.

3.4 Ethical issues related to the study

The respondents were assured by the researcher that the information given would be confidential. Anonymity of the respondents was also ensured by protecting their identity. Respondents were not required to write their names.
After information was given on the purpose of the study and identification of the researcher, the principle of voluntary consent was used where the respondents willingly participated in the research.

3.5 Instrumentation

The instruments that were used included a teachers’ questionnaire, a students’ questionnaire and a mathematics test.

3.5.1 Mathematics Achievement Test

Mathematics achievement was measured using a Mathematics test. The test was prepared by the Mathematics teachers in the school. Mathematics was selected because it is one of the subjects in which students appear to have a lot of difficulties and records poor general performance country wide in national examinations.

From the studies reviewed it appeared that attributions are subject-dependent, that is, they differ from one subject to another. The studies focused on only one subject in measuring academic achievement e.g Wong (1993), Bar – Tal and Guttmann (1981), and D’zeniecki and Westberg (1997) used a mathematics test while Stephanou (2001) used a Psychology examination.
3.5.2 Students’ and Teachers’ Questionnaires

The questionnaires were used to study students’ and teachers’ perceptions regarding students’ scores in the mathematics test. They were similar to the ones used by Lema (1998), Bar-Tal and Guttman (1981) and Bar-Tal and Darom (1979). The questionnaires were structured on the basis of a pilot study in which 20 students (10 boys and 10 girls) were asked on an open-ended questionnaire to list causes which could have contributed to the score received.

The questionnaires consisted of three major parts. First, the subjects were asked to evaluate the mathematics test score as a success or failure. Second, the subjects were asked to indicate the extent to which each of the listed causes influenced the achieved score. The answers were given on a five-point Likert Scale ranging from (5) very great influence to (1) very little influence. Finally, the subjects were asked to indicate on a four-point scale their level of satisfaction with the score and to indicate on a five-point scale their expectation regarding the mathematics score in the next test.

3.6 Data collection procedure

The Mathematics test was administered by the Mathematics teachers. After the students were informed of their scores in the test, the teacher left the classroom and the researcher distributed printed instructions and the questionnaires. The questionnaires were presented as a study of students’ evaluations and views regarding their scores. In the instructions, the researcher identified herself and explained the purpose of the study. The students were then assured of their
anonymity and confidentiality of the information they gave in the questionnaires.

The mathematics teachers were contacted later and asked to fill out the questionnaires after receiving the same printed instructions from the researcher. The questionnaires were a study of teachers’ evaluations and views regarding each of the students’ scores. The questionnaires given to the teachers and students contained similar items.

3.7 Reliability and validity

The questionnaires used in this study were similar to the ones used by Lema (1998), Bar-Tal and Guttman (1981) and Bar-Tal and Darom (1979). To ensure content validity, the questionnaires were structured on the basis of a pilot study in which 20 students (10 boys and 10 girls) were asked on an open-ended questionnaire to list causes which could have contributed to scores received in a given Mathematics test. The questionnaires were then developed with the guidance of the supervisors.

For the purpose of this study and to establish the reliability of the questionnaires in the Kenyan set up, the questionnaires were pretested in a pilot study carried out in a school within the locality of the research area. The sample for the pilot study consisted of 20 students and 1 teacher. The reliability coefficient of the questionnaires was 0.65. The pilot study also served the purpose of training a research assistant and giving exposure to the researcher.
3.8 Data analysis methods

Statistical analysis was performed with the data regarding causal attributions. Comparison of the causal attributions to success and failure between students and teachers was done only with cases in which an agreement was found between the teachers and students as to their evaluations of the score as a success or a failure. This restriction was used because of the repeated measure nature of the data, that is, a teacher and a student evaluated the same score.

In order to test the study’s main hypotheses, the causal attributions were combined into three groupings: students-related causes, external causes, and teacher-related causes. To compare the causal perceptions of success and failure between the two groups, t-tests were used.

In order to compare teachers’ and students’ evaluation of the scores as success or failure, chi-square tests were used. To compare teachers’ and students’ levels of satisfaction with the score received and their levels of expectation for future outcomes, a t-test for each of these variables was carried out. Gender differences in the students’ and teachers’ attributions for success and failure were tested using t-tests at 95% significance level.
CHAPTER FOUR

RESULTS OF THE STUDY

4.0 Introduction

This chapter presents the results obtained in the present study. The analysed data are presented in tables, line graphs and bar charts. A demographic overview of the respondents precedes testing of the hypotheses. The difference between teachers’ and students’ evaluations of scores in a Mathematics test was tested. Teachers’ and students’ attributions to success or failure in Mathematics were identified and the differences tested. The differences between teachers’ and students’ feelings of satisfaction and expectations regarding Mathematics scores were tested. Gender differences in attributions to success or failure in Mathematics were also tested. Each hypothesis tested was rejected or accepted at $p \leq 0.05$.

4.1 Demographic details of respondents

Table 4.1: Sex of the students

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>56</td>
<td>46.7</td>
</tr>
<tr>
<td>Girls</td>
<td>64</td>
<td>53.3</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100.0</td>
</tr>
</tbody>
</table>
4.2 Teachers’ and students’ evaluations of Mathematics scores

The students’ scores in mathematics were evaluated by both teachers and students as either success or failure. Table 4.2 below gives a summary of the evaluations.

Table 4.2: Distribution of student-teacher perceptions of Success or Failure

<table>
<thead>
<tr>
<th></th>
<th>Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Failure</td>
</tr>
<tr>
<td>Students</td>
<td></td>
</tr>
<tr>
<td></td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>68.3%</td>
</tr>
<tr>
<td>Failure</td>
<td>86</td>
</tr>
<tr>
<td>Success</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>9.2%</td>
</tr>
<tr>
<td></td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>28.3%</td>
</tr>
<tr>
<td></td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>77.5%</td>
</tr>
</tbody>
</table>

As shown in table 4.2, majority (71.7%) of the students evaluated their scores to be failures compared to 77.5% of teachers’ evaluations that were similar. There were more students (28.3%) who evaluated their scores as successes as compared to 22.5% of teachers’ evaluations that were successes. It can also be seen that 68.3% of the respondents were in agreement that the students’ scores were failures while 19.7% were in agreement of the students having been successful. Figure 4.1 further explains these results.
A chi-square test was done to test the significance of the differences between students’ and teachers’ evaluations of Mathematics scores. The results of the test are given in table 4.3. The test indicated a chi-square value of 55.45 and a df of 1 at 95% confidence level, whereby no significant differences between teachers’ and students’ evaluations of Mathematics achievements were established. Thus, the null hypothesis that there were no significant differences between teachers’ and students’ evaluations of performance in Mathematics was accepted. This means that both teachers and students made similar evaluations of performance in Mathematics.

Table 4.3: Chi-square results of the difference between teachers’ and students’ evaluations of Mathematics scores

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Df</th>
<th>Asymp. Sig (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson chi-square</td>
<td>55.454</td>
<td>1</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a) Computed only for a 2x2 table
b) 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.65.
Bar-Tal and Guttman (1981) found that students tended to evaluate their grades as less successful than teachers. This is in contrast to the findings of the present study where there are no significant differences in teachers’ and students’ evaluations. This may be explained by school differences and the students who took part in the studies. This may also indicate that the teachers in the present study know their students well enough so that their evaluations do not differ from those of the students themselves.

4.4 Attributions to success

Table 4.4 shows the means of each of the teachers’ and students’ attributions to success in Mathematics. The means are further explained in figure 4.2 which illustrates the detailed attribution patterns of teachers and students for perceived success. It can be seen that students tended to attribute their success mainly to their own hard work, interest, effort, ability, confidence and preparation. Teachers attributed the students’ success to confidence, effort, ability, the preparation done prior to exams as well as time management.
Table 4.4: Attributions to success

<table>
<thead>
<tr>
<th></th>
<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>2.85</td>
<td>3.44</td>
</tr>
<tr>
<td>Interest</td>
<td>3.26</td>
<td>3.85</td>
</tr>
<tr>
<td>Teacher’s explanation</td>
<td>2.56</td>
<td>3.03</td>
</tr>
<tr>
<td>Effort</td>
<td>3.03</td>
<td>3.76</td>
</tr>
<tr>
<td>Luck</td>
<td>1.94</td>
<td>1.53</td>
</tr>
<tr>
<td>Hard work</td>
<td>3.18</td>
<td>3.94</td>
</tr>
<tr>
<td>Test difficult</td>
<td>3.24</td>
<td>2.59</td>
</tr>
<tr>
<td>Time management</td>
<td>3.29</td>
<td>3.26</td>
</tr>
<tr>
<td>Preparation</td>
<td>3.65</td>
<td>3.76</td>
</tr>
<tr>
<td>Careless mistakes</td>
<td>2.97</td>
<td>2.82</td>
</tr>
<tr>
<td>Misunderstanding questions</td>
<td>2.85</td>
<td>2.88</td>
</tr>
<tr>
<td>Students' help</td>
<td>2.88</td>
<td>3.41</td>
</tr>
<tr>
<td>Teachers' help</td>
<td>3.12</td>
<td>3.74</td>
</tr>
<tr>
<td>Confidence</td>
<td>3.74</td>
<td>4.24</td>
</tr>
</tbody>
</table>

Figure 4.2: Attributions to Success
In order to test the study’s main hypotheses, the causal attributions were combined into three groupings as follows:

Student – related causes: Ability, interest, effort, hard work, time management, preparation, careless mistakes, misunderstanding questions and confidence.

Teacher – related causes: Quality of explanation.

External factors: Luck, task difficulty.

Table 4.5 shows the means and statistical differences for the three groupings of attributions by students and teachers.

Table 4.5: Means and statistical differences for the three groupings of attributions to success by teachers and students

<table>
<thead>
<tr>
<th>Attributions</th>
<th>Student causes</th>
<th>Teacher causes</th>
<th>External causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>Mean</td>
<td>3.47</td>
<td>2.65</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.456</td>
<td>0.781</td>
</tr>
<tr>
<td>Teachers</td>
<td>Mean</td>
<td>3.35</td>
<td>2.57</td>
</tr>
</tbody>
</table>

To test if there were any significant differences in teachers’ and students’ attributions to success in Mathematics, t-tests were used. The tests indicated that there were no significant differences in teachers’ and students’ attributions to success. This is shown by the p-values obtained for student-related causes, teacher- related causes and external causes which are all greater than 0.05. Students and teachers attributed success to student-related causes more than
any other causes, teacher or external. It can be seen that teachers and students showed a similar attribution pattern with regard to success. Thus, the null hypothesis that there were no significant differences in teachers’ and students’ attributions to success in Mathematics was accepted.

When compared with previous studies, the findings of the present study are in agreement with some. Forsyth and Mcmillan, (1981b) found that students point to internal factors such as superior ability and effort after success. Individuals tend to attribute their success to themselves and their failures to external causes (Simon and Feather; 1973, Nicholls; 1975, Wong 1993). The teachers in the present study gave credit to students for success. This is in contrast to other studies where teachers took credit for success (Beckman, 1970 and Brandt et al. 1975) and in others they shared credit with students (Bar-Tal & Guttman, 1981). The teachers’ attribution pattern may be explained in terms of the school performance level. Majority of the students were below average more especially in Mathematics and therefore, the teachers were more likely to give credit to the few students who performed well. Prawatt, Byers and Anderson (1983) found teachers to be the proudest and more satisfied when low ability students succeed through persistent, high effort.

4.4 Attributions to failure
Table 4.6 shows the means of each of the teachers’ and students’ attributions to failure in Mathematics. Figure 4.3 further explains the means by giving a more clear comparison of the means. Figure 4.3 illustrates that students attributed their failure mainly to misunderstanding of questions, teachers’ explanation,
effort, confidence and test difficulty. Teachers on the other hand attributed perceived failures to careless mistakes, test difficulty as well as the low effort made by students.

Table 4.6: Attributions to failure

<table>
<thead>
<tr>
<th></th>
<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>2.87</td>
<td>2.83</td>
</tr>
<tr>
<td>Interest</td>
<td>2.98</td>
<td>2.74</td>
</tr>
<tr>
<td>Teacher’s explanation</td>
<td>3.05</td>
<td>3.07</td>
</tr>
<tr>
<td>Effort</td>
<td>3.18</td>
<td>2.93</td>
</tr>
<tr>
<td>Luck</td>
<td>1.69</td>
<td>1.56</td>
</tr>
<tr>
<td>Hard work</td>
<td>3.28</td>
<td>2.88</td>
</tr>
<tr>
<td>Test difficult</td>
<td>3.40</td>
<td>3.00</td>
</tr>
<tr>
<td>Time management</td>
<td>3.05</td>
<td>2.71</td>
</tr>
<tr>
<td>Preparation</td>
<td>3.09</td>
<td>2.79</td>
</tr>
<tr>
<td>careless mistakes</td>
<td>3.53</td>
<td>2.84</td>
</tr>
<tr>
<td>Misunderstanding questions</td>
<td>3.21</td>
<td>3.34</td>
</tr>
<tr>
<td>Students' help</td>
<td>2.59</td>
<td>2.80</td>
</tr>
<tr>
<td>Teachers' help</td>
<td>2.80</td>
<td>2.80</td>
</tr>
<tr>
<td>Confidence</td>
<td>3.14</td>
<td>3.02</td>
</tr>
</tbody>
</table>
Figure 4.3: Attributions to Failure
Table 4.7 gives the means of each of the three groupings of teachers’ and students’ attributions to failure.

Table 4.7: Means and statistical differences for the three groupings of attributions to failure by teachers and students

<table>
<thead>
<tr>
<th>Attributions</th>
<th>Student causes</th>
<th>Teacher causes</th>
<th>External causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>Mean</td>
<td>2.87</td>
<td>3.09</td>
</tr>
<tr>
<td>p-value</td>
<td>0.021</td>
<td>0.987</td>
<td>0.798</td>
</tr>
<tr>
<td>Teachers</td>
<td>Mean</td>
<td>3.11</td>
<td>3.07</td>
</tr>
</tbody>
</table>

Multiple t-tests were used to compare teachers’ and students’ attributions to failure. The tests indicated that there was a significant difference in the teachers’ and students’ attribution of failure to student causes. However, there were no significant differences in the teachers’ and students’ attribution of failure to teacher causes and external causes. Teachers attributed failure to
student causes as well as to teacher causes while students attributed it to
teacher causes more than to any other cause. It can be seen that in cases of
failure, teachers and students had different attribution patterns.

The findings of the present study are in agreement with some studies. For
example, Forsyth and McMillan (1981b) found that students emphasize
external factors such as the difficulty of the test or teachers’ ability after
performing poorly on an examination. In the present study, students attributed
failure to themselves more than to external causes while teachers attributed
failure to the students more than to themselves. Other studies have found that
individuals tend to attribute their failures to external causes (Simon & Feather,
1973; Nicholls, 1975; Wong, 1993). The finding that teachers attributed failure
to themselves is similar to Beckman, (1973), Ross & Polly (1974), Ames
(1975) and Hall, Hines, Bacon & Loulianos (1992) who found that teachers do
take responsibility for the students’ outcomes. These findings may be
explained in terms of the students’ low school achievement. Students with low
school achievement are more likely to attribute failure to lack of ability, a
stable, uncontrollable factor (Whitley & Frieze, 1985; Marsh, 1986; Weiner,
1989).

4.5 Teachers’ and students’ levels of satisfaction
Teachers were not satisfied with 94.2% of the scores in the Mathematics test
compared to 80% of the students. The findings are shown in Figure 4.4.
Figure 4.4: Students’ and teachers’ levels of satisfaction with the scores

Table 4.8 shows the mean rating for the teachers’ satisfaction with the students’ score was 1.27 while that of the students was 1.59. The rating was based on a four point scale in which the low score represents no satisfaction and the high score high satisfaction.

Table 4.8: Students’ and teachers’ levels of satisfaction with the test scores

<table>
<thead>
<tr>
<th>Student/teacher</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>120</td>
<td>1.59</td>
<td>0.874</td>
</tr>
<tr>
<td>Teacher</td>
<td>120</td>
<td>1.27</td>
<td>0.561</td>
</tr>
</tbody>
</table>

$t=3.427$, df =238, p=0.001

As indicated on table 4.8 the significance value of the t-test is 0.001. Thus, the hypothesis that there were no significant differences in the teachers’ and students’ levels of satisfaction with Mathematics scores is rejected. The implication of this finding is that there were significant differences between
teachers’ and students’ levels of satisfaction with the scores. The means plot in figure 4.5 illustrates the structure of these differences. The figure shows that students were more satisfied with their scores relative to teachers. This finding suggests that the standpoints of the teachers and students differ in giving a satisfaction rating. A higher rating by students may suggest that they are weak in Mathematics and are therefore easily satisfied with the scores. This may also be indicative of the low expectations that the students had before the test. They expected very low scores and were therefore satisfied with the scores.

![Figure 4.5: A plot of teachers’ and students’ means of satisfaction](image)

The findings of this study disagree with those of other studies. Bar-Tal and Guttman (1981) found no significant differences in the teachers’ and students’ feelings of satisfaction with test scores. Simmons and Rosenberg, (1971) indicated that students often tend to have unrealistic, high expectations
regarding future success and therefore, the achieved outcome may be below the expected grade. This means that students would be less satisfied with their scores which is not the case in the present study.

4.6 Students’ and teachers’ expectations of future performance

Table 4.9: Students’ and teachers’ expectations

<table>
<thead>
<tr>
<th>Student/teacher</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>120</td>
<td>3.15</td>
<td>0.816</td>
</tr>
<tr>
<td>Teacher</td>
<td>120</td>
<td>3.90</td>
<td>0.999</td>
</tr>
</tbody>
</table>

t= -6.368, df = 238, p = 0.000

Table 4.10 shows that the mean rating of teachers on a scale of 1 – 5 was 3.9 and that of students was 3.15. The findings are further explained in figures 4.6 and 4.7.

\[ X^2 = 26.486, \text{ df} = 2, p = 0.000 \]

**Figure 4.6: Students’ and teachers’ expectations of future performance**
Figure 4.6 illustrates that 70% of the teachers had high expectations of the students’ future performance compared to 38.3% of the students. On the other hand 7.5% of the teachers had low expectations while one quarter of the students had a similar view.

![Graph showing the comparison of teachers' and students' expectations](image)

**Figure 4.7: A plot of students’ and teachers’ means of expectation of future performance**

Table 4.9 indicates that the significance value of the t-test is 0.000. Thus, the hypothesis that there are no significant differences in teachers’ and students’ expectations of future performance is rejected. This means that teachers and students differed in terms of the expected performance in subsequent mathematics tests. Teachers had higher expectations than students. This indicates that the students may have been more affected by their performance in the test than the teachers. Most of them did not do well and therefore
expected to fail even in the next test. Also, most of them gave stable uncontrollable attributions for their failure which may explain the low expectations.

Bar-Tal and Guttman (1981) found that teachers' expectations for future performance were significantly lower than the students' expectations. In the present study teachers have higher expectations than the students. Other studies (eg. Simmons and Rosenberg; 1971) indicate that students often tend to have unrealistic high expectations regarding future success and therefore, the achieved outcome may be below the expected grade. The findings of present study may be explained in terms of the low school performance level which students have internalized. Raymond (1999) suggested that low achievers develop more learned hopelessness which leads them to make stable attributions for academic failures.

Lema (1998) that found teachers and pupils had similar expectations in various aspects of English language learning. Some aspects were considered attainable and others unattainable by both teachers and pupils. He argues that this might be indicative of teachers’ expectations that have been internalized by pupils. Lema also found a significant difference between the mean test scores of the pupils of teachers with high expectations and that of pupils of teachers with low expectations.
Teacher expectations can function as self-fulfilling prophesies if they influence teachers to behave in ways that confirm the teachers original expectations. Either consciously or unconsciously, teachers behave differently towards students based on the beliefs and assumptions they have about them (Lumsden, 1997). For example, if they expect a student to do well, the student may be given more encouragement like affirming non-verbal behaviors such as smiling or more time to answer a question (Bamburg, 1994). If this pattern is repeated over time, the student will do better academically and score better on achievement tests (Woolfolk, 1995). When teachers summarily categorize or label students typically some students end up receiving a watered down curriculum and less intense and less motivating instruction” (Gonder, 1991). A number of other studies have the same findings (Lema, 1998, Good and Brophy, 1977, Schunk, 1990)

4.7 Gender differences in attributions

Table 4.10: Means and statistical differences for the three groupings of attributions by students

<table>
<thead>
<tr>
<th></th>
<th>Success</th>
<th></th>
<th></th>
<th>Failure</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>p-value</td>
<td>Boys</td>
<td>Girls</td>
<td>p-value</td>
</tr>
<tr>
<td>Pupil causes</td>
<td>3.69</td>
<td>3.21</td>
<td>0.012</td>
<td>3.14</td>
<td>2.76</td>
<td>0.008</td>
</tr>
<tr>
<td>Teacher causes</td>
<td>3.33</td>
<td>2.30</td>
<td>0.041</td>
<td>3.06</td>
<td>3.07</td>
<td>0.948</td>
</tr>
<tr>
<td>External causes</td>
<td>2.89</td>
<td>2.65</td>
<td>0.378</td>
<td>2.83</td>
<td>2.37</td>
<td>0.006</td>
</tr>
</tbody>
</table>
The means on table 4.12 show that boys (mean=3.69) attributed success to themselves more than girls (mean=3.21). Similarly, boys (mean=2.89) attributed success to their teachers (mean=3.33) more than did the girls (mean=2.30). Also, boys attributed success to external factors more than the girls (mean=2.65). With regard to failure, boys attributed failure to themselves (mean=3.14) more than did the girls (mean=2.76). Boys (mean=2.83) also attributed failure to external factors more than girls (mean=2.37). Both boys (mean=3.06) and girls (mean=3.07) attribute failure to teacher causes equally. There were no significant differences in the means between boys and girls in attributing success to external factors and failure to teachers.

An independent samples t-test was used to test for the difference in means between boys and girls for the three attribution groupings for either success or failure. Table 4.12 gives the results of students’ attributions. The results show that there are significant differences between the sexes in attribution of success to student and teacher causes as indicated by p<0.05. The means show that boys (mean=3.69) attributed success to themselves more than did the girls (mean=3.21). Similarly boys attributed success to their teachers (mean=3.33) more than did the girls (mean=2.30). There were however no significant differences between boys and girls in attributing success to external factors. The findings of this study are in agreement with those of previous studies. Female students report less confidence in their mathematical abilities than their male counterparts (Cohen & Kosler, 1991; Hanson, 1992). Some studies have shown that mathematics is strongly stereotyped as masculine (Eccles, 1987;

With regard to failure, it can be seen that there were significant differences between boys and girls in attributions to student and external causes. Boys again attributed failure to themselves (mean=3.14) more than did the girls (mean=2.76). Boys also attributed failure to external factors (mean=2.83) more than girls (mean=2.37). There were no significant differences between boys and girls in attributing failure to teachers implying a consensus on the influence of their teachers in their performance in the subject.

These findings are in agreement with other studies. Failure is attributed to external factors for females but to lack of effort for males (Feather, 1969; D’zewiecki & Westberg, 1997). Females are perceived as having little control over their performance unlike males (Golombok & Fivush, 1994). Boys who are criticized tend to attribute their school failures to lack of effort while girls tend to think that school failure is due to low intellectual ability (Dweck & Bush, 1976). Many investigations have turned up evidence that females do, in fact explain failure by lack of ability (Dweck, & Repucci, 1973; Nicholls, 1975; Halperin & Abrams, 1978; Feather 1967, 1969). After experiencing failure, girls have a lower level of school performance (Veroff, 1969).
Table 4.11: Means and statistical differences for the three groupings of attributions by teachers

<table>
<thead>
<tr>
<th></th>
<th>Success Boys</th>
<th>Success Girls</th>
<th>p-value</th>
<th>Failure Boys</th>
<th>Failure Girls</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pupil causes</td>
<td>3.24</td>
<td>3.12</td>
<td>0.622</td>
<td>3.19</td>
<td>3.12</td>
<td>0.658</td>
</tr>
<tr>
<td>Teacher causes</td>
<td>2.58</td>
<td>2.5</td>
<td>0.822</td>
<td>3.28</td>
<td>2.91</td>
<td>0.152</td>
</tr>
<tr>
<td>External causes</td>
<td>2.82</td>
<td>2.72</td>
<td>0.697</td>
<td>2.60</td>
<td>2.63</td>
<td>0.872</td>
</tr>
</tbody>
</table>

The means on table 4.13 indicate that the teachers’ attributions to either success or failure are not influenced by the gender of the students. An independent samples t-test indicated that there were no significant differences between teachers’ attributions to success for boys and girls for any of the causations as indicated by p>0.05. The same is observable in the case of failure. These findings indicate that the teachers’ attributions to either success or failure are not influenced by the students’ sex.
CHAPTER V
CONCLUSION

5.0 Introduction

This chapter gives a summary of the research findings, the implications of the findings, conclusions and recommendations of areas for further research. The study was set out to compare teachers’ and students’ attributions regarding Mathematics achievements in a Kenyan secondary school.

5.1 Summary of findings

1) Majority (71.7%) of the students evaluated their scores to be failures compared to 77.5% of teachers’ evaluations that were similar. There were more students (28.3%) who evaluated their scores as successes as compared to 22.5% of teachers’ evaluations that were successes. Also, 68.3% of the respondents were in agreement that the students’ scores were failures while 19.7% were in agreement of the students having been successful. A chi-square test indicated there were no significant differences between teachers’ and students’ evaluations of Mathematics scores.

2) Students attributed their successes mainly to their own hard work, interest, effort and ability while teachers attributed the students’ successes to confidence, the preparation done prior to exams as well as time management. On the other hand, students attributed their failures mainly to misunderstanding of questions, teachers’ effort, confidence
and test difficulty. Teachers attributed perceived failures to careless mistakes, test difficulty as well as the low effort made by students. It was indicated by t-tests that there were no significant differences in teachers’ and students’ attributions to success. Students and teachers attributed success to student-related causes more than any other causes, teacher or external. It can be seen that teachers and students showed a similar attribution pattern with regard to success.

3) Students attributed their failure mainly to misunderstanding of questions, teachers’ explanation, effort, confidence and test difficulty. Teachers on the other hand, attributed perceived failures to careless mistakes, test difficulty as well as the low effort made by students. It was indicated by t-tests that there was a significant difference in teachers’ and students’ attribution of failure to student causes. However, there were no significant differences in teachers’ and students’ attribution of failure to teacher causes and external causes. Teachers attributed failure to student causes as well as themselves while students attributed it to teacher causes more than to any other cause. It can be seen that in cases of failure, teachers and students had different attribution patterns.

4) A large proportion of teachers (94.2%) were not satisfied with the students’ scores in the test compared to 80% of the students. A t-test indicated there were significant differences between teachers’ and students’ levels of satisfaction with the Mathematics scores. Students were more satisfied with the scores than teachers.
5) Seventy percent of the teachers had high expectations of the students’ future performance compared to 38.3% of the students. A t-test indicated that there were significant differences between the teachers’ and students’ expectations of future performance in Mathematics. Teachers had higher expectations than students.

6) The results of an independent samples t-test showed there were significant differences between the sexes in attribution of success to student causes and teacher causes. The means showed that boys (mean=3.69) attributed success to themselves more than did the girls (mean=3.21). Similarly boys attributed success to their teachers (mean=3.33) more than did the girls (mean=2.30). There were however, no significant differences between boys and girls in attributing success to external factors.

7) With regard to failure, there were significant differences between boys and girls in attribution to student and external causes. Boys again attributed failure to themselves (mean=3.14) more than did the girls (mean=2.76). Boys also attributed failure to external factors (mean=2.83) more than girls (mean=2.37). There were no significant differences between boys and girls in attributing failure to teacher causes.

8) It was found that the teachers’ attributions to either success or failure were not influenced by the students’ sex.
5.2 Conclusion

The teachers and students in the study made similar evaluations of the Mathematics scores. This indicates that teachers in the present study knew their students well and were able to make evaluations similar to those made by students.

Both teachers and students attributed success to student causes more than any other cause. This indicates that teachers gave credit to students for success. Most students failed in the test and therefore, the teachers were more likely to give credit to the few students who performed well. Teachers attributed failure to student causes and to teacher causes while students attributed it to teacher causes more than any other cause. This indicates that teachers took the responsibility for the students’ failures.

Students were more satisfied with the scores than teachers. This indicates the students’ low level of motivation since they are satisfied with low scores. Teachers had higher expectations than students. This indicates that teachers were a lot more optimistic about the students’ future performance. The low scores in the test affected the students’ expectations of their future performance more than the teachers.

Boys attributed success to student causes and teacher causes more than the girls. This indicates that boys had more confidence in their ability than the girls. Boys attributed failure more to student causes and external causes than girls. This indicates that boys attributed failure to more controllable causes than
girls. Also, both boys and girls had a consensus on the influence of their teachers on their performance in Mathematics. Teachers’ attributions to either success or failure are not influenced by the gender of the students.

5.3 Implications

The main concern of this study was to compare the teachers' and students' attributions regarding mathematics achievements, in Kenyan secondary schools. There is need for teachers to understand how students explain the causes of their successes and failures and how their explanations affect their subsequent motivation to achieve in mathematics. The motivation for similar learning tasks depends not only on whether they have experienced success or failure but also on the particular factors to which they attribute their success or failure.

Teachers also need to be aware of their own attributions regarding students’ academic achievements and how they affect the quality of their teaching. It is important that teachers give low achievers more positive feedback so that they do not develop learned hopelessness. Teachers need to understand that the feedback students receive from them to a large extent determine the attributions they form. There is need to understand why some students embrace academic challenge while others shy away from it. It is therefore important for teachers to understand how students approach tasks and how they interpret the feedback they are given by teachers. In other words, the findings
suggest the need for teachers to encourage and motivate students to improve their mathematics achievements.

5.4 Recommendations

In view of the findings of this study the following major recommendations are made.

1) There is need for seminars for teachers to create awareness about attributions and how they affect students’ motivation to learn. This will help teachers to appreciate the role they play in shaping the students’ attributions, encourage weak students and acknowledge good work.

2) There is need for workshops to review the methods of teaching Mathematics. More effective student friendly methods should be adopted. This would help students not to get the wrong impression of Mathematics being a difficult subject.

3) Teaching methods used should ensure that all students get the attention they need from the teacher without bias. Teachers have to communicate high expectations to all students. This would help students to believe in their abilities and as a result motivate them to learn.

4) Guidance and counselling should be strengthened in schools. This would help especially in changing stereotypes like mathematics being a masculine subject. This would also help to motivate weak students to improve their performance in Mathematics.
5.5 **Suggested areas of research**

1. Further research is needed to explore teachers’ and students’ attributions to success or failure in other subjects.

2. There is need for research that would include parents' attributions regarding mathematics achievements.

3. Research should also be carried out on other factors which affect performance in mathematics like parental influence, sibling influence, career preference and school performance.

4. This study was a case study of a single school. Similar studies should be carried out in more schools in Kenya for the results to be more applicable.
REFERENCES


and achievement motivation. *Journal of Educational Psychology*, 70, 763-771.


APPENDIX I: STUDENT’S QUESTIONNAIRE

The purpose of the questionnaire is to collect information about the causes of success or failure in mathematics so that possible solutions may be identified. Tick the appropriate response. Do not write your name on this paper. Your responses will be treated with total confidentiality.

NAME OF SCHOOL__________________________
SEX_____________________________________
CLASS__________________________________
ADMISSION NO._________________________

1. How do you evaluate your performance in the mathematics test?
   (i) A success (ii) A failure

2. Indicate the extent to which each of the causes listed below influenced your score in the mathematics test:
   (a) Ability in Mathematics
      (1) Very little influence (2) Little influence (3) Moderate influence
         (4) Great influence (5) Very great influence
   (b) Interest in Mathematics
      (1) Very little influence (2) Little influence (3) Moderate influence
         (4) Great influence (5) Very great influence
   (c) Quality of the teacher’s explanation
      (1) Very little influence (2) Little influence (3) Moderate influence
         (4) Great influence (5) Very great influence
   (d) Quality of the teacher’s explanation
      (1) Very little influence (2) Little influence (3) Moderate influence
         (4) Great influence (5) Very great influence
   (e) Effort exerted to study Mathematics during the term
      (1) Very little influence (2) Little influence (3) Moderate influence
         (4) Great influence (5) Very great influence
   (f) Luck
      (1) Very little influence (2) Little influence (3) Moderate influence
         (4) Great influence (5) Very great influence
(g) Hard work
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence        (5) Very great influence

(h) The difficulty of the test
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence        (5) Very great influence

(i) Time management during the test
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence        (5) Very great influence

(j) Preparation for the test
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence        (5) Very great influence

(k) Careless mistakes
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence        (5) Very great influence

(l) Misunderstanding questions in the test
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence        (5) Very great influence

(m) Help from other students
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence        (5) Very great influence

(n) Help from other teacher
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence        (5) Very great influence

(o) Confidence
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence        (5) Very great influence

3. Indicate your level of satisfaction with the score in the test.
   (1) Not satisfied          (2) A little satisfied
   (3) Satisfied              (4) Very satisfied
4. Indicate the extent of your expectation regarding the mathematics score in the next test.

(1) Very low expectations  (2) Low expectations
(3) Moderate expectations  (4) High expectations
(5) Very high expectations.
APPENDIX II: TEACHERS’ QUESTIONNAIRE

The purpose of the questionnaire is to collect information about the causes of success or failure in mathematics so that possible solutions may be identified. You are requested to fill in the questionnaire for each of the students in your class taking part in the study. Tick the appropriate response for each question. Your responses will be treated with total confidentiality.

NAME OF SCHOOL______________________________________
SEX____________________________________________________
CLASS__________________________________________________
ADMISSION NO. __________________________________________

1. How do you evaluate the students’ performance in the mathematics test?
   (i) A success
   (ii) A failure

2. Indicate the extent to which each of the causes listed below influenced the students’ core in the mathematics test:
   (a) Ability in Mathematics
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence       (5) Very great influence
   (b) Interest in Mathematics
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence       (5) Very great influence
   (c) Difficulty of the material in Mathematics
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence       (5) Very great influence
   (d) Quality of the teacher’s explanation
   (1) Very little influence   (2) Little influence   (3) Moderate influence
   (4) Great influence       (5) Very great influence
(e) Effort exerted to study Mathematics during the term
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

(f) Luck
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

(g) Hard work
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

(h) The difficulty of the test
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

(i) Time management during the test
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

(j) Preparation for the test
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

(k) Careless mistakes
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

(l) Misunderstanding questions in the test
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

(m) Help from other students
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

(n) Help from other teacher
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence
(o) Confidence
(1) Very little influence   (2) Little influence   (3) Moderate influence
(4) Great influence       (5) Very great influence

3. Indicate your level of satisfaction with the students’ score in the test.
(1) Not satisfied         (2) A little satisfied
(3) Satisfied            (4) Very satisfied

4. Indicate the extent of your expectation regarding the students’ score in the next test.
(1) Very low expectations (2) Low expectations
(3) Moderate expectations (4) High expectations
(5) Very high expectations.