PEER INFLUENCE ON ACADEMIC PERFORMANCE OF FORM ONE STUDENTS IN GIRLS BOARDING SECONDARY SCHOOLS IN KANDUYI CONSTITUENCY: KENYA

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF ARTS DEGREE IN PROJECT PLANNING AND MANAGEMENT OF THE UNIVERSITY OF NAIROBI.

2013

DECLARATION

This research project is my own original work and has not been presented for any award in any other university.

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This research project has been submitted for examination with my approval as the university supervisor.

…….. ……

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DEDICATION

To my loving and ever supportive husband Vitalis Wekesa and my daughter Daisy Wekesa.

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There are several people whose contributions, advice and guidance have enabled me complete this research project. It is not possible to enlist all of them here, but their contributions in terms of advice, peer review, expert review, providing reading materials and general support has contributed a lot towards preparation of this project. First to my supervisor Dr.Mbugua John for his constant support, direction and feed back. My Lecturer Dr.Wycliffe Oboka for teaching me research methods.

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ABBREVIATIONS AND ACRONYMS

SQ – Students Questionnaire

TQ – Teachers Questionnaire

KCSE- Kenya Certificate of Secondary Education

NCST – National Council for Science and Technology

ABSTRACT

It is a common belief that children will thrive if educated amongst better schoolmates, and this belief guides many parents in their choice of school. Many studies have tried to measure this peer-group effect, and this project was to extend this literature by looking at the influence of peer group on form one girl student's performance in end of year examinations in Kanduyi constituency, Bungoma County. The study was guided by the following objectives, To establish how peer group prior achievements influence form one girl students academic performance in girls boarding secondary schools, To investigate how peer group composition influence form one girl students academic performance in girls boarding secondary schools and to examine the how peer group teaching environment influence form one girl students academic performance in girls boarding secondary schools. The study adopted a descriptive survey design with a sample size of 95 respondents comprising of 90 students and 5 teachers from the guiding and counseling department. Questionnaires were used to collect data. Validity of data collection tools was achieved through consultation with research experts and reliability of data collection instruments of this study was determined using the coefficient alpha (also known as Cronbach's alpha) before the actual collection of data. The data collected was analyzed using the chi-square test items and presented using APA table format. Peer group members who scored good marks in KCPE had positive influence to girl student academic performance in girl secondary schools. It was deduced that student's prior entry marks had more influence on girl student content mastery; therefore teaching could proceed faster in higher entry marks groups, or could start from a higher base-line when the group's prior attainments are higher. The findings showed that majority of respondents indicated that little pocket money spend per month had a positive influence to girl student performance. It was also deduced that a rich family background positively influenced girl student academic performance, it was deduced that students learning environment had a positive influence on girl student academic performance. The study recommends that Students and school stakeholders should be made aware of the benefits of peer group prior achievements as it greatly influences academic performance of students in secondary schools; Schools administration and other stakeholders should advise the parents on the amount of money to give to their daughters as pocket money as it has influence on the academic performance of the students in secondary schools and lastly the School administration and stakeholders should provide good teaching and learning environment in order to achieve good academic performance. The study recommended that further research should be done in a similar topic in other counties so as to compare the study findings.

CHAPTER ONE

INTRODUCTION

1.1Background of the Study

Peer groups are among the most influential social forces affecting adolescent behavior – from mundane decisions concerning clothing, hairstyle, music, and entertainment, to more significant decisions concerning short and long-term education plans. During the formative adolescent years, peers are arguably even more important than parents, teachers, and counselors, and the peer-influenced decisions of youth can have long-lasting consequences Coleman (1966); Sewell, Haller and Portes(1969); Sewell, Haller and Ohlendorf (1970). Parents recognize the importance of peer groups and – through their choice of neighborhoods, schools, and activities Haynie, South and Bose (2006); Lareau (2003); Mouw and Entwisle (2006) – attempt to guide and direct their Children's friendship selections, which can be increasingly challenging during adolescence.

Regardless of socioeconomic status, parents want their children to be surrounded by the best possible social networks, especially during adolescence, when youth are increasingly independent from parents. During these formative years, educational goals take form, and youth make a series of decisions that shape their educational trajectories, even as their friendship networks gain influence upon these decisions. Unfortunately, the peer effects literature is lacking in two main areas. The first is that peer effects are assumed to be uniform across class, gender, and race and ethnicity. Race and ethnicity is especially likely to be important because adolescents are more likely to choose friends of the same racial and ethnic group Hamm, Brown and Heck (2005); Haynie, South and Bose(2006); Quillian and Campbell(2003), introducing the possibility that peers have differing effects by race and ethnicity. The second problem is that few studies focus on academic decisions that are directly

influenced by friends, such as course or track selection and college choices. Instead, most studies of peer effects focus on educational outcomes that are indirectly influenced by friends, such as early cognitive development, grades, promotion, and, most commonly, test scores Goux and Maurin, (2007); Hanushek (2003); Henry and Rickman (2007); Kang (2007); Zimmerman (2003). Hanushek et al. (2003) and others have pointed out that if innovations to behaviour form an important avenue through which peers affect outcomes, the inability to capture such behaviour might lead to a serious underestimation of peer influences. Thus, behavior decisions may lie at the intersection between peers and achievement – effectively acting as a mediator through which the influence of peers passes prior to shaping student achievement.

Educational economists throughout the world have highlighted, in theoretical and empirical studies, the relevance of peer group quality to student performance Epple and Romano, (1998); Hoxby, (2000). According to the above researchers a peer group affects student achievement in several ways: members of a group interact in learning, help each other in their studies, share important information, and impose externalities on others by behaving well or badly (for example, a noisy student disrupts the study environment) or by allowing teachers to go deeper in subjects, contribute to the formation of values and aspirations, and so on.

Understanding the nature and the magnitude of peer group effects in education is crucial for the "productivity" of educational processes and the organizational design of school systems. for example, in order to improve student outcomes, it is important to know which inputs influence their performance most and the relative importance of peer effects compared to other inputs, such as teacher quality or school resources. Peer effects are also important in school Department of Economics and Statistics, University of Calabria. We would like to thank you for useful suggestions and comments MariarosariaAgostino, Francesco Aiello, Giovanni Anania, Giorgio Brunello, Paola Cardamone, seminar participants at the Oslo EALE Conference (September 2007) and two

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If peer effects are at work, educational outcomes are affected by how students are arranged across classes and the desirability of comprehensive schools (which mix students of different abilities together) or stratified schools (which tend to aggregate students according to their abilities) depends on the magnitude and non-linearity of peer effects. Furthermore, this electivity of university admission policies produces different results in the presence of peer effects. More importantly, the nature of peer effects also has fundamental implications in a family's choice with regards whether parents consider that their offspring would benefit from schools which sort students according to their abilities. Starting from the classical study of Coleman (1966), a host of works have analyzed the effects of peer group on children's achievement and educational outcomes Bettsand Morell, (1999); Hoxby, (2000); Angrist and Lang,(2004); Hanushek(2003) and on college students' grades and choices of fields of study (Sacerdote, 2001; Zimmerman, 2003; De Giorgi,Pellizzari and Redaelli, 2006; Foster, 2006), but several problems and controversies are still unresolved. Some of these studies show that peer effects are statistically and economically significant in a variety of educational contexts and that students tend to perform better if the quality of their peer group is higher (Ding and Lehrer, 2006; Zimmerman 2003; Vandenberghe,2002; Hoxby, 2000; Sacerdote, 2001; Zimmer and Toma, 2000). Moreover, a number of these studies show that peer effects are often non-linear, implying that students of middle abilities are particularly affected by the negative influence of weak students (Sacerdote, 2001; Zimmerman, 2003). However, the significance and size of peer effects often changes in relation to the sample used. Other studies, in fact, find no significant (or minor) peer effects (Angrist and Lang, 2004; Arcidiacono and Nicholson, 2005; Foster, 2006).

Earlier analyses of peer effects were based on simple econometric models regressing students outcomes on their own individual characteristics (measures of ability, family background and so on) and on their peers' outcomes or characteristics.

As shown by Manski (1993), this kind of regression is plagued by two main econometric problems, which raise doubts about the causal interpretation of the coefficient measuring peer group effects. The first problem, known as "self-selection" bias, depends on the fact that groups of peers are often not exogenously determined, but individuals typically choose the other people they will associate with. Therefore, the characteristics of each student contribute to determining the choice of his/her peer and, if some of these characteristics are not observable, an endogeneity problem arises.

The second econometric problem, known as the "reflection" problem, emerges because the outcomes of students in a peer group evolve in an interdependent manner: the achievements of each member affects the achievements of other members but, at the same time, is, itself, affected by the achievements of those self-same peers. Therefore, an estimation bias emerges, due to simultaneity and inverse causality.

Apart from peer effects related to the classroom environment, students belonging to the same class tend to study and revise the subject together, so generating important externalities.

Clearly friendly relationships do not involve all members of a class: some students might attend a course together, but their interaction might still be limited. We are able to address this problem by considering a measure of peer group which weights peers in relation to the number of exams taken together. In fact, students who continually do exams in the same session as one another are often students who study together, sharing course material and information. We look at all the students passing an exam on the same date and we use this information to define a second measure of peer group quality, which weights the abilities of each student according to the number of exams taken together.

Peer-group effects are a distinct class of influences arising from 'social interactions' – a broad term which encompasses any type of individual behavior that involves interdependency with the behavior or characteristics of others. Economists have long shown an interest Becker (1974), but there has been a rapid growth in the field since the 1990s with contributions in theory and empirical work. Theoretical research seems motivated by a desire to widen the scope of economic thought to encompass aspects of behavioral modeling more commonly attributed to sociology and psychology. Empirical work –constrained by the data – is generally concerned with finding evidence for the existence of such effects, rather than the precise pathways by which they occur.

The term 'peer-groups' usually indicates social interactions of children or young adults with people of similar age, rather than broader 'neighborhood' effects or interactions with superiors, family or teachers. We continue to use the term in this way. The range of outcomes that have interested researchers is diverse, including smoking (Alexander, 2001; Ellickson, Bird, 2003), joke-telling (Angelone, Hirschman (2005), sexual behavior (Selvan, 2001), purchase of a retirement plan (Duflo and Saez , 2000) and – more commonly – education. On reflection, it seems very likely that many decisions are linked to similar decisions by a friend or other associate (in same cases fairly explicitly, like the decision to have sex, be in a gang or play tennis), and many consumption decisions rely on other consumers participating (e.g. video phones). However, the more interesting possibility is that group behavior or attributes can modify individual actions in relation to important social and economic decisions that will affect their life chances – especially achievement in education.

Although the literature on peer effects in education dates back to 1960s with the publication of the famous Coleman Report (1966), the importance of peer-group effects is still disputed. Some very bold claims have been made about the potency of peers in child development Rich (1999), yet the results of numerous studies are very mixed, finding strong, weak or non-existent effects across a wide range of outcomes. This reflects the difficulty in defining the peer-group, isolating causal peer-group effects from other influences, lack of appropriate data, and different identification methodologies

adopted by researchers. The potential for peers to affect individual achievement is central to many important policy issues in elementary and secondary education, including the impacts of school choice programs, ability tracking within schools, "mainstreaming" of special education students, and racial and economic desegregation. Vouchers, charter schools and other school choice programs may benefit those who remain in traditional public schools by engendering competition that leads to improvements in school quality, but may also harm those left behind by diminishing the quality of their classmates (Epple and Romano 1998; Caucutt 2002). Grouping students in classrooms by ability can likewise have significant impacts on student achievement, depending on the magnitude of peer influences (Epple, Newlon, and Romano 2002). The effect of desegregation policies on achievement depends not only on potential spillovers from average ability, but on whether different peers exert different degrees of influence on individual outcomes (Angrist and Lang 2004; Cooley 2007; Fryer and Torelli 2005). Indeed, as Manski (1993) and Moffit (2001) argue, the empirical analysis of social interactions is plagued by conceptual and data problems.

1.2 Statement of the Problem

Understanding the nature and the magnitude of peer group influence in education is crucial for the "productivity" of educational processes and the organizational design of school systems. For example, in order to improve student outcomes, it is important to know which inputs influence their performance most and the relative importance of peer influence compared to other inputs, such as teacher quality or school resources. Peer-group influences are a distinct class of influences arising from 'social interactions' – a broad term which encompasses any type of individual behaviour that involves interdependency with the behavior or characteristics of others. Although the literature on peer effects in education dates back to 1960s with the publication of the famous Coleman Report (1966), the importance of peer-group effects is still disputed. Some very bold claims have been made about the potency of peers in child development (Rich,1999), yet the results of numerous studies are

very mixed, finding strong, weak or non-existent effects across a wide range of outcomes. This reflects the difficulty in defining the peer-group, isolating causal peer-group effects from other influences, lack of appropriate data, and different identification methodologies adopted by researchers. Indeed, as Manski (1993) and Moffit (2001) argue, the empirical analysis of social interactions is plagued by conceptual and data problems. The estimation of peer influences at school has received intense attention in recent years. Several studies have presented convincing evidence about race, gender, and immigrants' peer influences. Recent examples include Angrist and Lang (2004) on peer influences through racial integration; Hoxby (2000) and Lavy and Schlosser (2007) on gender peer influences; and Gould, Lavy and Paserman (2009) on the effect of immigrants on native students. But important questions about peer influence on girl student academic performance remain open in Kenya as little research has been done in other areas such as: (1) factors influencing academic performance of students in public secondary schools in Teso south by Otieno Ezekiel Okwach. (2) An investigation of the causes of indiscipline in secondary schools in Tongareen Division in Bungoma North by Danson Amukowa.(3) Factors influencing transition of girls from primary to secondary level in Bungoma East District by Nabibia Simiyu David. It is more evident in kanduyi constituency as no research on peer influence has been contacted in the area. The choice of form one students in girl secondary schools in kanduyi constituency was based on the big disparity in the performance of K.C.S.E between boys and girls between 2007-2011 by boys boarding secondary schools and girls' secondary school categories. According to education insight 2012 issue17, Boy's schools registered the following mean scores in K.C.S.E from 2007 to 2011, 5.061, 5.448, 5.392, 5.475, 5.036 and 5.282 while girl schools registered the following, 4.330, 4.980, 4.827, 4.804. 4.958 And 4.180 respectively. The statistics shows that boys' schools had an upper hand for the last five years. Therefore there was need to investigate on the peer influence on academic performance of students in girl's boarding schools in Kanduyi Constituency.

1.3 Purpose of the Study

The purpose of the study was to establish peer group influence on form one girl students' Academic performance in girls boarding secondary schools in Kanduyi Constituency, Bungoma County.

1.4 Objectives of the Study

The study was guided by the following objectives:

1) To establish how peer group prior achievements influence form one girl student academic performance in girls boarding secondary schools in Kanduyi constituency.
2) To investigate how peer group composition influence form one girl student academic performance in girls boarding secondary schools in Kanduyi constituency.
3) To examine how peer learning environment influence form one girl student academic performance in girls boarding secondary schools in Kanduyi constituency.

1.5 Research Questions

The study was guided by the following research questions:

1) How does peer group prior achievements influence form one girl academic performance in girls boarding secondary schools in Kanduyi constituency?
2) How does peer group composition influence form one girl academic performance in girls boarding secondary schools in Kanduyi constituency?
3) How does peer group learning environment influence form one girl academic performance in girls boarding secondary schools in Kanduyi constituency?

1.6 Significance of the Study

It was hoped that the findings of the study would be of great importance to researchers as it would help develop new literature in the area of peer influence on girl students' performance in Kenya certificate of secondary examinations in Kenya.

It was also hoped that the study findings would benefit the government of Kenya in developing and implementing policies that promote girl student performance in relation to peer influence.

The study findings would also assist schools to eradicate negative peer influence on girls' performance in K.S.C.E.

1.7 Delimitation of the Study

This study was carried out in five public girls boarding secondary schools in Kanduyi Constituency, Bungoma County in Kenya tied on the period 2012- 2013.

1.8 Limitation of the Study

The study on this topic, peer group influence on girl student academic performance in Kenya, a case of Kanduyi Constituency, Bungoma County, was limited by the inadequate time however the researcher keenly followed the time frame. The respondents were also shy about giving information thinking it was for commercial purposes but they were assured of confidentiality. Lastly it was not easy to get some respondents to respond to the questions but the researcher was patient and made several trips to collect the questionnaire.

1.9 Basic Assumptions of the Study

The study was based on the following assumptions, that the responses that the respondents gave constituted a true record of their opinion and views. The respondents were able to fill all the questionnaires without interacting with one another. It was also assumed that all the questionnaires would returned on time and that those that were to be interviewed were available and willing to participate and provided honest, accurate, complete answers, and that the researcher had adequate time to complete the study.

1.10 Definition of Significant Terms as Used in the Study

Academic performance : Scores attained in form one end of year examination.

Constituency : An area represented in a legislative body

County **:** A territorial division of a country

Girl **:** A female school going girl aged between 14-20 years.

National Examination : An examination set by the national examining body and administered in Secondary schools

Peer group **:** A group of girl students in the same class.

Peer pressure **:** Influences from students in the same class.

Peer **:** Students of the same age, status.

Student **:** Form one girl students in boarding public secondary schools.

1.11 Organization of the Study

This study was divided into five chapters as follows: Chapter one gave the background of the study and introduced the problem statement describing the specific problem addressed in the study, as well as the purpose, objectives, research questions, significance of the study, delimitations of the study and limitations of the study. Chapter two presents a review of literature basing on the three objectives of the study, giving theoretical foundation of the study and the conceptual frame work. Chapter three presents the methodology, the target population, sample size and sampling procedure, data collection instruments, piloting of the instruments, validity and reliability of the research instruments and operational definition of variables. Chapter four contains data analysis, presentation, interpretation and discussion of the findings. Chapter five presents a summary of the findings, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed the literature related to the study on the topic discussed under the various study objectives, how peer group prior achievements influence girl student performance in national examination, how peer group composition influence girl student performance in national examination, how peer learning environment influence girl student performance in national examination. A theoretical and conceptual framework was used to operationalize the variables and lastly the gaps in literature were summarized.

2.2 Peer group prior achievements and girl student academic performance

Schools seem often to be judged on the kind of children they enroll, rather than on the quality of their teaching or the other facilities they offer. This observation has led many to argue that the background and abilities of a pupil's school-mates must have an important influence on his or her own achievements at school. Motivated by this, a rich international literature has evolved to try to model and measure the consequences of social interactions between pupils – so called 'peer-group effects' – spanning the economics, education, sociological and psychological fields.

The issue is a critical one in respect of current educational policy which favors expansion of school choice, because choice based on peer-group quality can, in theory at least, leads to a high degree of sorting across schools along lines of prior ability Epple and Romano,(2000). This will exacerbate educational inequalities if peer-group quality has real impacts on personal achievement. An understanding of peer effects is also important because they can mean that educational interventions that appear beneficial to the individual pupil may be even more effective when rolled out to the population (Glaeser, Sacerdote, 2003). Our paper extends the evidence base by providing estimates of

the influence of innovations to a pupil's peer-group at the time when they transfer from Primary to Secondary schooling in England.

The potential for peers to affect individual achievement is central to many important policy issues in elementary and secondary education, including the impacts of school choice programs, ability tracking within schools, "mainstreaming" of special education students, and racial and economic desegregation. Vouchers, charter schools and other school choice programs may benefit those who remain in traditional public schools by engendering competition that leads to improvements in school quality, but may also harm those left behind by diminishing the quality of their classmates (Epple and Romano 1998; Caucutt 2002). Grouping students in classrooms by ability can likewise have significant impacts on student achievement, depending on the magnitude of peer influences (Epple, Newlon, and Romano 2002). The effect of desegregation policies on achievement depends not only on potential spillovers from average ability, but on whether different peers exert different degrees of influence on individual outcomes (Angrist and Lang 2004; Cooley 2007; Fryer and Torelli 2005).

Earlier analyses of peer effects were based on simple econometric models regressing students outcomes on their own individual characteristics (measures of ability, family background and so on) and on their peers' outcomes or characteristics. As shown by Manski (1993), this kind of regression is plagued by two main econometric problems, which raise doubts about the causal interpretation of the coefficient measuring peer group effects. The first problem, known as "self-selection" bias, depends on the fact that groups of peers are often not exogenously determined, but individuals typically choose the other people they will associate with. Therefore, the characteristics of each student contribute to determining the choice of his/her peers and, if some of these characteristics are not observable, an endogeneity problem arises.

2.3 Peer group composition and girl student academic performance

Peer groups are among the most influential social forces affecting adolescent behavior – from mundane decisions concerning clothing, hairstyle, music, and entertainment, to more significant decisions concerning short and long-term education plans. During the formative adolescent years, peers are arguably even more important than parents, teachers, and counselors, and the peer-influenced decisions of youth can have long-lasting consequences (Coleman. 1966; Sewell, Haller and Portes 1969; Sewell, Haller and Ohlendorf 1970). Parents recognize the importance of peer groups and – through their choice of neighborhoods, schools, and activities (Haynie, South and Bose 2006; Lareau 2003; Mouw and Entwisle 2006) – attempt to guide and direct their Children's friendship selections, which can be increasingly challenging during adolescence. Regardless of socioeconomic status, parents want their children to be surrounded by the best possible social networks, especially during adolescence, when youth are increasingly independent from parents. During these formative years, educational goals take form, and youth make a series of decisions that shape their educational trajectories, even as their friendship networks gain influence upon these decisions. Unfortunately, the peer effects literature is lacking in two main areas. The first is that peer effects are assumed to be uniform across class, gender, and race and ethnicity. Race and ethnicity is especially likely to be important because adolescents are more likely to choose friends of the same racial and ethnic group (Hamm, Brown and Heck 2005; Haynie, South and Bose 2006; Quillian and Campbell 2003), introducing the possibility that peers have differing effects by race and ethnicity. The second problem is that few studies focus on academic decisions that are directly influenced by friends, such as course or track selection and college choices. Instead, most studies of peer effects focus on educational outcomes that are indirectly influenced by friends, such as early cognitive development, grades, promotion, and, most commonly, testscores (Goux and Maurin 2007; Hanushek . 2003; Henry and Rickman 2007; Kang 2007; Zimmerman 2003). Hanushek (2003) and others have pointed out that "If innovations to behaviour form an important avenue through which peers affect

outcomes, the inability to capture such behaviour might lead to a serious underestimation of peer influences". Thus, behavior decisions may lie at the intersection between peers and achievement – effectively acting as a mediator through which the influence of peers passes prior to shaping student achievement.

Peer-group effects are a distinct class of influences arising from 'social interactions' – abroad term which encompasses any type of individual behavior that involves interdependency with the behavior or characteristics of others. Economists have long shown an interest [Becker (1974)], but there has been a rapid growth in the field since the 1990s with contributions in theory and empirical work. Theoretical research seems motivated by a desire to widen the scope of economic thought to encompass aspects of behavioral modeling more commonly attributed to sociology and psychology. Empirical work –constrained by the data –is generally concerned with finding evidence for the existence of such effects, rather than the precise pathways by which they occur. The term 'peer-groups' usually indicates social interactions of children or young adults with people of similar age, rather than broader 'neighborhood' effects or interactions with superiors, family or teachers. We continue to use the term in this way. The range of outcomes that have interested researchers is diverse, including smoking. Alexander(2001); Ellickson(2003), joke-telling Angelone and, Hirschman (2005), sexual behavior Selvan and, Ross (2001), purchase of a retirement plan Duflo and Saez (2000) and – more commonly – education. On reflection, it seems very likely that many decisions are linked to similar decisions by a friend or other associate (in same cases fairly explicitly, like the decision to have sex, be in a gang or play tennis), and many consumption decisions rely on other consumers participating (e.g. video phones). However, the more interesting possibility is that group behaviour or attributes can modify individual actions in relation to important social and economic decisions that will affect their life chances – especially achievement in education.

Starting from the classical study of Coleman (1966), a host of works have analysed the effects of peer group on children's achievement and educational outcomes Betts and Morell, (1999); Hoxby, (2000); Angrist and Lang, (2004); Hanushek. , (2003) and on college students' grades and choices of fields of study Sacerdote,(2001); Zimmerman,(2003); De Giorgi,Pellizzari and Redaelli, (2006); Foster, (2006), but several problems and controversies are still unresolved. Some of these studies show that peer effects are statistically and economically significant in a variety of educational contexts and that students tend to perform better if the quality of their peer group is higher .Ding and Lehrer, (2006); Zimmerman, (2003); Vandenberghe,(2002); Hoxby,(2000); Sacerdote,(2001); Zimmer and Toma, (2000). Moreover, a number of these studies show that peer effects are often non-linear, implying that students of middle abilities are particularly affected by the negative influence of weak students Sacerdote, (2001); Zimmerman,(2003). However, the significance and size of peer effects often changes in relation to the sample used. Other studies, in fact, find no significant (or minor) peer effects Angrist and Lang, (2004); Arcidiacono and Nicholson, (2005); Foster, (2006)

2.4 peer group learning environment and girl student academic performance

Students belonging to the same class tend to study and revise the subject together, so generating important externalities. However, this kind of relationship does not develop between all the members of a class, since, even though attending courses together, some students may not interact with each other. In order to overcome this problem and build a peer group measure (called *Peer Exam*) based on this type of interaction, which we believe particularly relevant, we consider as members of the same group students who sit an exam on the same date. Anecdotal evidence suggests that students who study together tends to take exams together (Coleman. 1966).

Educational economists have highlighted, in theoretical and empirical studies, the relevance of peer group quality to student performance Epple and Romano,(1998); Hoxby, (2000). A peer group affects student achievement in several ways: members of a group interact in learning, help each other in their studies, share important information, impose externalities on others by behaving well or badly (for example, a noisy student disrupts the study environment) or by allowing teachers to go deeper in subjects, contribute to the formation of values and aspirations, and so on.

Understanding the nature and the magnitude of peer group effects in education is crucial for the "productivity" of educational processes and the organizational design of school systems. For example, in order to improve student outcomes, it is important to know which inputs influence their performance most and the relative importance of peer effects compared to other inputs, such as teacher quality or school resources. If peer effects are at work, educational outcomes are affected by how students are arranged across classes and the desirability of comprehensive schools (which mix students of different abilities together) or stratified schools (which tend to aggregate students according to their abilities) depends on the magnitude and non-linearity of peer effects. Furthermore, the selectivity of university admission policies produces different results in the presence of peer effects. More importantly, the nature of peer effects also has fundamental implications in a family's choice with regards whether parents consider that their offspring would benefit from schools which sort students according to their abilities (Foster, 2006).

.Apart from peer effects related to the classroom environment, students belonging to the same class tend to study and revise the subject together, so generating important externalities. Clearly friendly relationships do not involve all members of a class: some students might attend course together, but their interaction might still be limited. We are able to address this problem by considering a measure of peer group which weights peers in relation to the number of exams taken together. In fact, students who continually do exams in the same session as one another are often students who study together,

sharing course material and information. We look at all the students passing an exam on the same date and we use this information to define a second measure of peer group quality, which weights the abilities of each student according to the number of exams taken together (Epple and Romano, 1998). We are aware that these definitions may be affected by self-selection problems since students choose other people to collaborate with in studying. In order to overcome possible self-selection problems, we use Two-Stage Least Squares estimation and instrument peer groups through the random (and compulsory) assignment of students to different teaching classes during their First Level Degree course (Foster, 2006).

Their estimations show that peer group abilities have considerable, positive effects on students' academic performance. These effects are not brought about by self-selection and are robust to a variety of definitions of peer group and several measures of abilities (Epple and Romano, 1998). In our preferred Instrumental Variable specification, we find that an increase of one standard deviation in peer group quality (measured as the average ability of students attending the same course) produces an increase in student performance of 0.19 (the OLS estimates show a smaller effect equal to 0.13). This is quite a large effect, since the effect produced by an increase of one standard deviation in the student's own ability generates an increase of 0.54(Foster, 2006). Effects are slightly higher when we consider our second measure of peer group quality, based on repeated interaction at exams, implying that this measure is able to take into account some relevant interaction taking place among students. These results suggest that student quality is an important input in tertiary education and that, in order to improve their students' performance, colleges and university should attract high quality students. Our results are consistent with selection policies adopted by many US universities aimed at admitting only the best students. They also support the idea that students applying for highly reputable institutions evaluate not only the high quality of instructors provided, but also the high-quality of peers. Moreover, if student performance is determined, at least in part, by his/her effort then is rational to subsidize good students for the positive externalities they produce (Foster, 2006).

2.5 Theoretical Framework

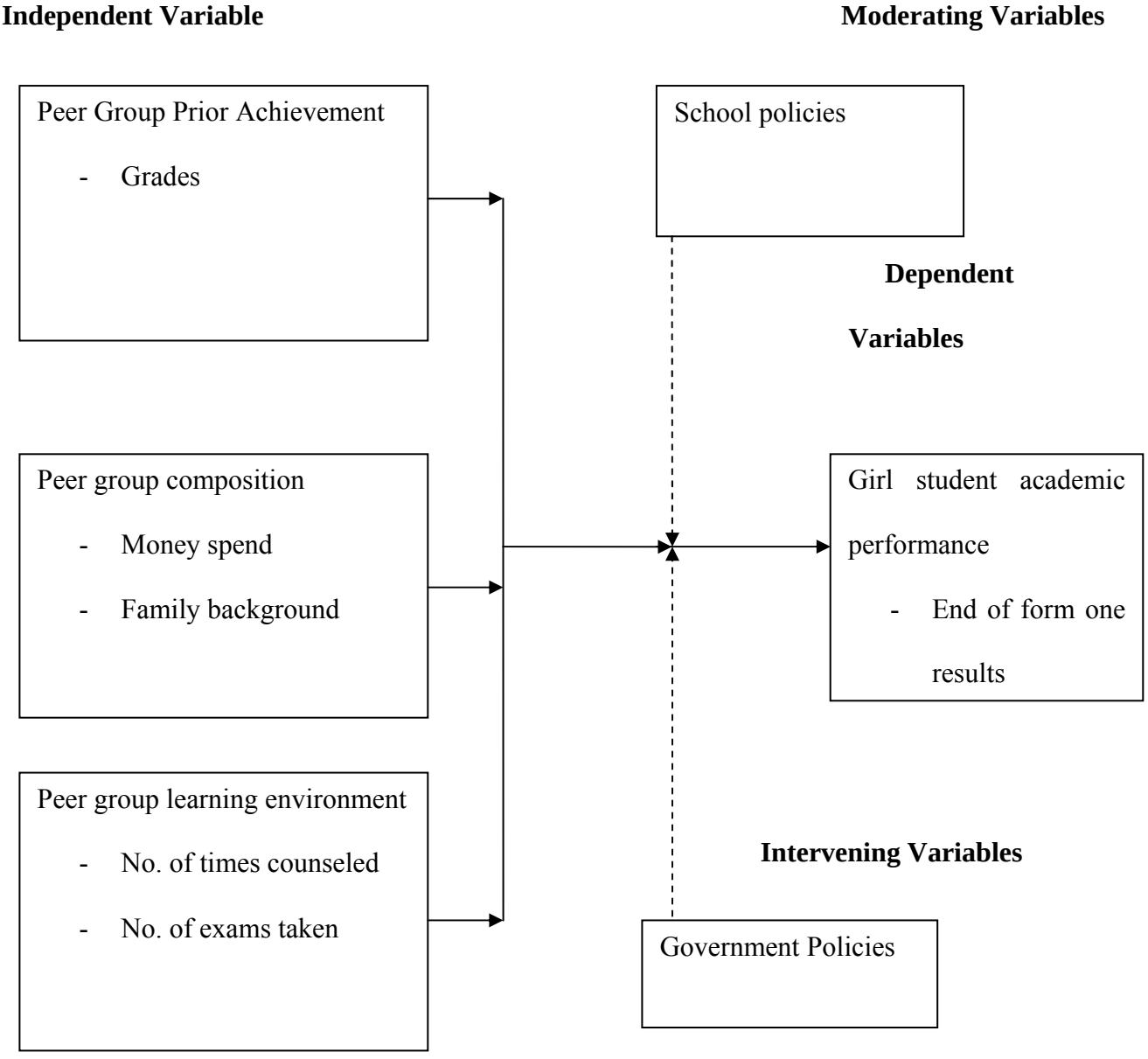
Weidman's (1989) model of socialization in learning institutions is perhaps the most appropriate theoretical model with which to investigate and interpret peer group influence. My adaption of Weidman's model follows similar studies of peer effects by Dey (1996, 1997) and Milem (1998). Weidman conceptualizes the major influences on student change in learning institutions to be pre-learning institutions or student background characteristics, the academic and social normative context of an institution, and the impact of parental and non-college reference groups. Normative contexts are particularly important in Weidman's model for influencing change in personal orientations during college. However, Weidman also made three points about the role of the interpersonal environment and interpersonal processes in socialization. First, he cites Homans (1950, 1961) and argues that the socialization process dependented on interpersonal interaction and the sentimental intensity of the relationship associated with interaction. Second, he notes that frequency of interaction was also critical. Lastly, he underscored a conclusion made by a number of researchers, that the long-term academic impacts of learning institutions are not the result of classroom experiences, but of informal forms of social interaction with students and faculty.

By focusing on peer group influences, this study concentrated on two parts of Weidman's model, the normative context of informal peer groups and implicitly, the socialization process of interpersonal interaction. To isolate these elements of the socialization process in learning institutions, was borrowed from the conceptual and methodological models of college impact of Astin (1984, 1993), models that are also implicit in Weidman's (1989) framework. Astin's (1993) model of college impact emphasized the intercorrelated nature of student pre-college characteristics (inputs) and environmental elements of the college experience. This relationship becomes problematic when trying to isolate the unique contribution of the educational environment on student outcomes because student inputs are frequently related to both environments and outcomes. In other words, qualities of

the student may explain their eventual outcome (smart students will get high grades) and may also determine the types and nature of their educational experiences (math majors will take more math courses). In the statistical implementation of Weidman's socialization model, therefore, I made an effort to properly control the confounding relationship of inputs to friendship group measures.

2.6 Conceptual Framework

This study was guided by the following conceptual framework, which was used to explain the interrelationship between the variables. A conceptual framework is a scheme of variables a researcher operationalizes in order to achieve the set objectives Oso & Onen (2002). Mugenda and Mugenda (1999) argued that independent variable attempts to indicate the total influence in the study. As shown in the figure.



It was hypothesized that the independent variable with its components peer group prior achievements, peer group composition and peer group teaching environment directly influenced the dependent variable girl student academic performance. The interpretation of the above conceptual framework was that there was a relationship between the independent variables indicators, grades, subject choice, family background, pocket money spent and teacher/student relationship and the dependent variable girl student performance. The extraneous variables comprising of moderating variables and

intervening variables were also taken into account during operationalization of the variables as they acted as catalysts of the relationship between the independent and the dependent variables.

2.7 Summary

The purpose of the review of the above literature was to avoid unnecessary and unintentional duplication of the framework from which research findings were interpreted and also demonstrated the researcher's familiarity with existing knowledge. The researcher reviewed literature related to the study on the topic of peer influence on girl student academic performance in national examinations and what other researchers had said in relation to the study objectives. Peer group prior achievements, peer group composition and peer group teaching environment. Although the literature on peer effects in education dates back to 1960s with the publication of the famous Coleman Report (1966), the importance of peer-group effects is still disputed. Some very bold claims have been made about the potency of peers in child development [Rich Harris (1999)], yet the results of numerous studies are very mixed, finding strong, weak or non-existent effects across a wide range of outcomes. This reflects the difficulty in defining the peer-group, isolating causal peer-group effects from other influences, lack of appropriate data, and different identification methodologies adopted by researchers. Indeed, as Manski (1993) and Moffit (2001) argue, the empirical analysis of social interactions is plagued by conceptual and data problems. It is a common belief that children will thrive if educated amongst better schoolmates, and this belief guides many parents in their choice of school. Many studies have tried to measure this peer-group effect, and our current study sought to find out the effects of peer influence on form one girl student academic performance in secondary schools in Kanduyi constituency Bungoma County.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter describes the research design as well as the methods that were used to sample the population and the target population bringing out the sample size. The chapter further looked at methods of data collection, research instruments, their validity and reliability, operational definition of variables and methods of data analysis.

3.2 Research Design

This study employed a descriptive survey design, which is a type of research undertaken with the aim of describing characteristics of variables in a situation. According to Best and Khan (2009), descriptive survey design is concerned with conditions or relationships that exists, opinions that are held, processes that are going on, effects that are evident, or trends that are developing. (Kerlinger, 1969).The descriptive survey design enabled collection of data without manipulating the research variables .The descriptive survey design optimized on the strengths of both quantitative and qualitative research methodology. The survey method allowed collection of data from a large sample population and generated findings that were a representation of the whole population at a lower cost (Saunders, 2007).

3.3 Target Population

The target population of the study was form one girl students in boarding girl secondary schools in Kanduyi Constituency, Bungoma County. The target population was 905 in total, comprising of 900 girl students, 5 teachers in charge of guidance and counseling in 5 boarding girls secondary schools in Kanduyi Constituency, Bungoma County.

3.4 This section include the sample size of the study and the sampling procedure

3.4.1 Sample size

A sample is a smaller group of subjects obtained from the accessible population (Mugenda and Mugenda 2003). The study employed Mugenda and Mugenda (2003) recommended sample size of 10% of the target population. Using the above formula to determine the sample size for the 900 respondents; Sample size was 18 respondents from each school making a total of 90students plus five teachers in charge of guidance and counseling making a total 95 respondents.

3.4.2. Sampling Procedure

Sampling is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected Mugenda and Mugenda, (1999). The study employed random sampling technique to select the sample size from individual schools. A sampling frame was developed per school that listed all the units in the population. The units were picked randomly until the desired sample size was attained. This enabled every member of the accessible population to have equal chance of participating in the study.

3.5 Data Collection Instruments

Bourke (2005) simply states that questionnaires are used to obtain two different types of information: First the background information on students, teachers, or others, such as age, gender, amount of schooling, and secondly attitudinal information about some specific events, way of behaving, quality of life, other persons. In the first case, even though the same information could also be gathered in other ways. from institutional records, a questionnaire is simply a convenient way of obtaining the information. In the second case, a number of items are asked about each attitude or opinion in an attempt to tap various aspects underlying beliefs or feelings which gives rise to the attitudes. Similarly, Oppenheim (1996) affirms that the questionnaires are one way of obtaining a measure of

attitude. The attitudes have two components: beliefs (cognitive) and feelings (emotional or affective). Responses to questionnaire items are what respondents say their belief or say they would do, which are taken as indicators of their beliefs, attitudes and likely behavior.

According to Burns (1994) the use of questionnaires in research is based on one basic underlying assumption: that the respondent will be both willing and able to give truthful answers. He explains three kinds of items which are generally used in the construction of questionnaires, namely, closed items, open-ended items, and scale items. The close items allow the respondents to choose from two or more fixed alternatives, for example, the dichotomous items which provide two alternative only: yes or no. The open-ended items simply supply a frame of reference for respondents' answer, couple with a minimum of restraint or command on their expression. Thus, in open-ended items, respondents provide the answers in their own words. The scale is a set of items to which the respondents respond by indicating degrees of agreement or disagreement.

The key instrument applied in this study was the questionnaire which was characterized by the three types of item construction mentioned above, as well as a selected response format of A *Likert scale.* The questionnaire was adopted from Gamage (1996) for an empirical study in the New South Wales (NSW) state schools system. On the basis of an extensive review of literature, it was found that the research questionnaire which was modified to suit the context of this study was the appropriate one.

Furthermore, the questionnaire in the study consisted of three major parts. The first part began with demographic information. The second part was completed by all students and the third part was completed by teachers in charge of guidance and counseling only. The The research instruments that were employed in this study as tools for data collection were questionnaires namely.

(a) Student's Questionnaire (SQ)

(b) Teacher's Questionnaire (TQ)

The two instruments were used to supplement each other and to give a deeper and wider exploration into research perspective which gave the research more quality.

3.5.1 Piloting

Piloting is trying out of research instruments on the respondents who were not used in the main study: (Groll 1986) Note that a pilot study is necessary because" a researcher embarking on classroom research for the first time will find it valuable to spend some time in the classroom using one or more established systems and looking at the kind of issues which will arise in turning his/ her own research questions into a set of criteria and definition for use in the classroom." It is important for a pilot study to be carried out before any research is done as stated by Peter (1994). He states" even the most carefully constructed instrument cannot guarantee to obtain a hundred percent reliable data". Therefore it was necessary to pretest the instruments of the research on a small sample of respondents in a preparatory exercise to find out if there was any weakness so that it could be corrected. In this study, two schools that did not take part in the main study were selected for piloting.

3.5.2 Validity of the Instruments

Validity is the extent to which the instrument measures what it appears to measure according to the researcher's subjective assessment (Nachmias: 1958). Validity deals with the adequacy of the instruments for example, the researcher needs to have adequate questions in the written task in order to collect the required data for analysis that can be used to draw conclusion. Frenekel (1993) suggest that the individual who is supposed to render an intelligent judgment about the adequacy of the instruments should be given the instruments before the instruments are administered. The instruments were amended according to the expert's comments and recommendations before being administered. In this study, the researcher sought help from the supervisors and lecturers in the school of education to judge the validity of the questionnaire and the questions in the written task.

3.5.3 Reliability of the research instruments

The study adopted the coefficient alpha (also known as Cronbach's alpha) to determine the internal reliability of the study instruments. The coefficient alpha ranges in values from 0 (no reliability) to 1

(perfect reliability). Gregory (2000, cited in Manning & Munro, 2006) claims: Coefficient alpha is an index of the internal consistency of the items, that is, their tendency to correlate with one another. Insofar as a test or scale with high internal consistency will also tend to show stability of scores in a test-retest approach, coefficient alpha is a useful estimate of reliability. They then state that the values of coefficient alpha above .70 are considered to represent "acceptable" reliability, above .80 "good reliability", and above .90 to represent "excellent" reliability. However, Pallant (2005: 90) asserted that with short scales (e.g. scales with fewer than ten items); it is common to find quite low Cronbach values, for example, .50. In this study, the values of coefficient alpha ranged was.75, indicating an acceptable and good reliability (Gregory cited in Manning & Munro, 2006)

3.6 Data Collection Procedures

Permission to carry out the study was sought after presentation of study proposal to the supervisors at the University of Nairobi. The nature and purpose of the study was explained to the respondents by the researcher. The researcher filled application form for a research permit and submitted two copies of approved study proposal, a banks cheque of one thousand shillings, curriculum vitae, two photo passports and a photocopy of the National identity card to the Council for Science and Technology in regard to University's ethical considerations. After two weeks the researcher received the permit to carry out the research.

3.7 Data Analysis Techniques

Some researchers report that there are two broad categories of statistical approaches in quantitative research, namely, descriptive (Creswell, 2005; Spatz, 2005; Salkind, 2004; McMillan & Schumacher, 2001). Descriptive statistics are used to summarize, organize, and describe the characteristics of a data collection. Inferential statistics is the most fundamental way to summarize data and it is a prerequisite for interpreting the results of quantitative research, while descriptive statistics are

Commonly used in reporting results (McMillan & Schumacher, 2001). Similarly, in the context of analyzing quantitative data using statistical techniques, Creswell (2005: 181) explains that descriptive statistics summarize a single variable in a data set or compare how one score relates to all others, while inferential statistical tests are used to assess the differences, relationships, and correlations among variables in the data set. The data collected was edited, coded and analyzed using inferential statistics. This involved use of measurers of distributions (chi-Square) and presentation of information in APA tables.

3.8 Ethical Considerations

Permission to carry out the study was sought after presentation of study proposal to the supervisors at the University of Nairobi. The nature and purpose of the study was explained to the respondents by the researcher. The researcher treated all the information given by the respondents with a lot of confidentiality to safeguard the respondent's personal integrity in regard to University's ethical considerations. In line with human ethics procedures established by the University of Nairobi, the researcher submitted the questionnaire, which was constructed in English to the National Council for Science and Technology (NCST). It was aimed at seeking approval and ensuring the ethical acceptability of the research involving human participants. Accordingly, the pre-testing and pilot study was conducted after obtaining the approval of the NCST.

3.9 Operational Definition of Variables

Indicators are shown by the main variables under the study to ensure that they are measurable.

Objective	Type of variable	Indicators	Source	Scale of measurement
To establish how peer group prior achievement influenced form one girl academic performance	**Independent:** peer group prior achievement	Good grades	Secondary girl students	Nominal Ordinal
	Dependent: academic Performance	End of form one marks	Secondary girl students	Nominal Ordinal
To investigate how peer group composition influenced form one girl student academic performance	**Independent:** Peer group composition	Money spend Family background	Secondary girl students	Ordinal Nominal
	Dependent: academic Performance	End of form one marks	Secondary girl students	Nominal Ordinal
To examine how peer group learning environment influenced form one girl student academic performance	**Independent:** Peer group teaching environment	Exams taken No. counseled	Secondary girl students	Ordinal
	Dependent academic Performance	End of form one marks	Secondary girl students	Nominal

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1Introduction

This chapter is divided into three sections: section one presents the response return rate, the second section gives demographic information of respondents covering age, and gender and the third section provides results and discussions based on the three research objectives.

4.2 Response Return Rate

From the response return rates, the study was able to get a general return rate response from all the 95 respondents. The study received 100% (95). According to Gay, (1981), ten percent of the accessible population is enough for a descriptive study and therefore this return rate of 100% has helped boost the reliability of the study.

4.3 Demographic information of the respondents

Two demographic characteristics of respondents were studied. These were age and gender.

4.3.1 Distribution of the respondents by age

The age of the respondents was thought to be of importance to the study therefore the researcher sought to establish the age of the respondents. This is shown in the table 4.1.

Table 4.1 Distribution of respondents by age

Age	Frequency	Percentage
15-25 yrs	90	94.73
26-45 yrs	4	4.21
46 and above	1	1.06
Total/Average	**95**	**100**

Distribution of respondents by age

The findings revealed that 94.73%(90) of the respondents were between 15 to 25 years old and 4.21%(4) were between 26 to 45 years old, while 1.06% were above 46 years. The findings showed that majority of respondents were mainly students.

4.3.2 Gender of the respondents

The gender of the respondents was sought and the results are given in table 4.2.

Table 4.2 Gender of respondents

Gender	Frequency	Percentage
Male	3	3.16
Female	92	96.84
Total/Average	**95**	**100**

The findings show that gender distribution of the respondents revealed that 96.84 (92) were female while 3.16 (3) were male. This was generally because the study targeted girl students in Girls Boarding secondary schools in Kanduyi constituency.

4.4 Influence of peer group prior achievement on academic performance of form one students in girl boarding secondary school in Kanduyi constituency

The study sought to establish the influence of peer group prior achievement on student academic performance in public secondary schools under the following themes.

4.4.1 Influence of Peer group members prior grades on academic performance

The study sought to establish the influence of peer group membership of former school mates who scored good marks in KCPE on academic performance. The findings are shown in table 4.3.

Table 4.3 influence of peer group prior grades on academic performance

KCPE	Performance		Total	Chi-square
Marks	Good: 500-1100mks	Poor: Below 500mks		
400-500	18	2	20	1.25
300-399	32	10	42	0.381
200-299	22	6	28	0.035
Total	**72**	**18**	**90**	**1.666**

The findings revealed a calculated chi-square of 1.666 which was below the table chi-square of 7.815 at a probability level of 0.05 (5% significant level) hence the expected results were significant to the observed results. It was deduced that the expected results were consistent with the observed results as chi-square calculated was lower than the chi-square table thus peer group members who scored good marks in KCPE had positive influence on girl student academic performance in girl secondary schools. My reading of this result was Students seemed to do better in their early stages of Secondary school when their new Schoolmates had a good record of prior achievement. There was also some form of social interaction between students that promoted higher attainments. The findings were in line with other previous findings by (Epple and Romano, 2000) who asserted that Schools seem often to be judged on the kind of children they enroll, rather than on the quality of their teaching or the other facilities they offer. This observation led many to argue that the background and abilities of a pupil's school-mate have an important influence on his or her own achievements at school. Motivated by this, a rich international literature evolved to try to model and measure the consequences of social interactions between pupils – so called 'peer-group effects' – spanning the economics, education, sociological and psychological fields.

4.4.2 Influence of peer group learning resources on girl student academic performance in boarding secondary schools

The study sought to determine the extent to which peer group learning resources influenced the academic performance of girl students in girls boarding secondary schools. The sampled students were asked to rate the influence of text book ratio on girl student performance and the findings are in the table 4.4.

Table 4.4 Influence of text book ratio on girl student academic performance in boarding secondary schools

Text books	Performance		Total	Chi-square
Student ratio	Good: 500-1100mks, poor: Below 500mks			
1-2	32	4	36	3.45
1-3	20	6	26	0.02
1-4	12	8	20	2.76
1-5	4	4	8	2.84
Total	**68**	**22**	**90**	**9.07**

The chi-square calculated was 9.07 and is greater than the chi-square table of 7.815 at probability level of 0.05 (5% significant level) hence the expected results were insignificant to the observed results. From the table above it was asserted text books had no significant influence on girl student performance in boarding girl secondary schools. Therefore performance is not influenced by text book student ratio because students can perform well due to group discussions or using their notes given by their teachers. This view is also shared by previous studies by Coleman.(1966), Understanding the nature and the magnitude of peer group effects in education is crucial for the "productivity" of educational processes and the organizational design of school systems. for example, in order to improve student outcomes, it is important to know which inputs influence their performance most and the relative importance of peer effects compared to other inputs, such as

teacher quality or school resources. More importantly, the nature of peer effects also has fundamental implications in a family's choice with regards whether parents consider that their offspring would benefit from schools which sort students according to their abilities.

4.5 Influence of peer group composition on girl student academic performance in secondary schools.

The study sought to investigate whether peer group economic stability had boosted girl student academic performance under the following indicators.

4.5.1. Influences of peer group pocket money spent per month on girl student academic performance in secondary schools.

The study sought to reveal the extent to which peer group pocket money spent per month had influenced the academic performance of girl students in girls boarding in secondary schools. The sampled students were asked to rate the following given statements as the indicators the: 0-499, 500-999, 1000-1999, and the findings are in the table 4.5.

Table 4.5 Influence of peer group pocket money spent per month on girl student academic performance in secondary schools.

Pocket money	**Performance**		**Total**	**Chi-square**
Spend per month	**Good: 500-1100mks, Poor: Below 500mks**			
000-499	19	2	21	1.68
500-999	30	12	42	1.4
1000-1999	22	5	27	0.10
Total	**71**	**19**	**90**	**3.18**

The chi-square calculated was 3.18 and is less than the chi-square table of 7.815 at probability level of 0.05 (5% significant level) hence the expected results were consistent with the observed results. The findings showed that majority of respondents indicated that little pocket money spend per month had a positive influence to girl student performance. This showed that low money spent by peers was

an important ‘contextual’ influence on student attainments because too much money distracts the attention of the students towards education causing poor academic performance. The findings were also in line with other previous findings which asserted that Parents recognized the importance of peer groups and – through their choice of neighborhoods, schools, and activities regardless of their economic backgrounds (Haynie, South and Bose 2006; Lareau 2003; Mouw and Entwisle 2006) – parents attempt to guide and direct their Children’s friendship selections, which can be increasingly challenging during adolescence. Regardless of socioeconomic status, parents want their children to be surrounded by the best possible social networks, especially during adolescence, when youth are increasingly independent from parents. During these formative years, educational goals take form, and youth make a series of decisions that shape their educational trajectories, even as their friendship networks gain influence upon these decisions.

4.5.2 Influence of peer group family background on girl student academic performance in secondary schools.

The study sought to reveal the extent to which peer group family background had influenced the academic performance of girl students in girls boarding in secondary schools. The sampled students were asked to rate the following given statements as the indicators starting with a rich family background and then a poor family background under the following indicators, influence, no influence, little influence and undecided and table 4.6 shows the study findings.

Table 4.6 Influence of peer group family background on girl student academic performance in secondary schools

Family Background	Performance		Total	Chi-square
	Good: 500-1100mks	Poor: Below 500mks		
Rich	44	5	49	4.08
Poor	26	15	41	4.88
Total	**70**	**20**	**90**	**8.96**

The chi-square calculated was 8.96 and was higher than the chi-square from the table which is 7.815 at a probability level of 0.05(5% significant level) hence the expected results were insignificant to observed results, Therefore it was deduced that neither a rich family background nor a poor family background had any significant influence on girl student academic performance, the findings were in contrary with other findings by Duflo and Saez (2000) whose reflection seemed very likely that students from rich backgrounds tended to perform better compared to others from poor backgrounds. However, the more interesting possibility was that rich peer group behaviour or attributes could modify individual actions in relation to important social and economic decisions that would affect their life chances – especially achievement in education.

4.6 Influence of peer group teacher/ student learning environment on girl student academic performance in secondary schools.

The study sought to establish the Influence of peer group teacher/ student learning environment on girl student academic performance in secondary schools under the following indicators.

4.6.1 Influence of career counselors on girl student academic performance in secondary schools

The study sought to reveal the extent to which career counselors had influenced the academic performance of girl students in girls boarding in secondary schools. The sampled students were asked to rate the following given statements as the indicators on whether the number of times a student has

been counseled had any influence on their academic performance. Starting from 1-2 times per term, 3-5, and 6-7; table 4.7 shows the study findings.

Table 4.7 Influence of number of times a student was counselled on girl student academic performance in secondary schools

No of times Counselled	Performance		Total	Chi-square
	Good: 500-1100mks	Poor: Below 500mks		
01-02	18	2	20	1.25
03-05	32	10	32	0.381
06-07	22	6	28	0.035
Total	**72**	**18**	**90**	**1.666**

The calculated chi-square was 1.666 which was less than chi-square in the table which: 7.815 at probability level of 0.05 (5% significant level) hence it was deduced that a low number of time counselled influence the academic performance of girl students. The research concludes that the fewer the number the student was counseled indicated the discipline of the student that positively influenced the academic performance. This finding were in line with other previous findings by Fennema and Sherman (1995) found that students of teachers who were well- organized, achievement-oriented and enthusiastic tended to have more positive attitudes towards education. In support of other studies concerning the influence of career counselors, the students mentioned the teacher, in both personality and interrelationships with students as a crucial variable in academic performance (Bolaji Caleb, 1996). Teacher personality, relations and interactions with students' classroom activities, rewards, assignments and students work are all controlled by the teachers. The results from this study suggested the need for the teachers to develop positive relations with students, to stress classroom activities which involve active- teaching process and student participation and to engage students meaningfully in the subject, so that a fruitful and satisfying results is assured.

4.6.2 Influence of the number of exams taken by peer group on student academic performancein girl secondary schools

The study sought to establish the extent to which the number of exams taken by peer group together had influence on student academic performance in girl secondary schools. The sampled students were asked to rate the number of exams taken together in relation to their peer group academic performance. The findings are shown in the table 4.8.

Table 4.8 Influence of the number of exams taken together by peer group members on student academic performance in girl secondary schools

No. of exams	Performance		Total	Chi-square
Taken	Good: 500-1100mks	Poor: Below 500mks		
5 Times	19	2	21	1.68
4 Times	30	12	42	1.4
3 Times	22	5	27	0.1
Total	**71**	**19**	**90**	**3.18**

The calculated chi-square was 3.18 which was less than chi-square in the table which is 7.815 at probability level of 0.05 (5% significant level) hence it showed that the expected results were consistent with the observed results since they were significant. Therefore it was deduced that the number of exams taken by a peer group together had a positive influence on girl student academic performance. From the study the researcher concluded that the student's interaction and discussions improves student's academic performance. The findings were in line with other previous findings by Foster, (2006) who asserted that apart from peer effects related to the classroom environment, students belonging to the same class tend to study and revise the subject together, so generating important externalities. Clearly, friendly teacher/student relationships boosted academic achievements of all members of a class. In fact, students who continually do exams in the same session with one another are often students who study together, sharing course material and information. We looked at

the students teaching environment as having had a big influence to their performance and we used this information to define a second measure of peer group quality, which weight the abilities of each student according to the number of exams taken together.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter provides a summary of findings as deduced by the study, it also presents Conclusions, Recommendations of the study and areas for further research.

5.2 Summary of findings

The purpose of this study was to investigate peer group influence on girl student academic performance in girl boarding schools in Kanduyi constituency, Bungoma County.

On the influence of peer group prior achievement on student academic performance in public secondary schools, The findings revealed that 1.666 chi-square indicated that peer group members who scored 400-500 marks in KCPE had a positive influence on girl student academic performance, The findings also show that text book ratio had no significant influence on girl student performance in boarding girl secondary schools with a chi-square of 9.08 at probability level of 0.05 (5% significant level).

Concerning the influence of peer group composition on girl student academic performance in secondary schools the findings showed that little pocket money spend per month had a positive influence to girl student performance with a chi-square of 3.18. The findings also revealed that a rich nor a poor family background had no significant influence on girl student academic performance by a chi-square 8.96.

Investigation on the influence of peer group teacher/ student learning environment on girl student academic performance in secondary schools showed that a low number of times counselled influenced the academic performance of girl students by a chi-square of 1.666. The findings also showed that the number of exams taken by a peer group together had a positive influence on girl student academic performance with a chi-square of 3.18.

5.3 Conclusions.

It was deduced that peer group members who scored good marks in KCPE had positive influence on girl student academic performance in girl secondary schools. Students seemed to do better in their early stages of Secondary school when their new Schoolmates had a good record of prior achievement. My reading of this result was that there was some form of social interaction between students that promoted higher attainments. And lastly it was asserted that peer group text book ratio had no significant influence on girl student performance in boarding girl secondary schools.

Concerning influence of peer group composition on girl student academic performance in secondary schools, The findings showed that little pocket money spend per month had a positive influence to girl student performance. This showed that low money spend by peers is an important 'contextual' influence on student attainments. It was deduced that neither a rich nor a poor family background had any significant influence on girl student academic performance, the findings were contrary with other findings by (Duflo and Saez 2000) whose reflection seemed very likely that students from rich backgrounds tended to perform better compared to those from poor backgrounds. However, the more interesting possibility is that rich peer group behaviour or attributes could modify individual actions in relation to important social and economic decisions that could affect their life chances – especially achievement in education.

Investigation on the influence of peer group student learning environment on girl student academic performance in secondary schools showed that the less the time a student was counselled the more the influence on student academic performance. It was deduced that students learning environment had a positive influence on girl student academic performance.

5.4 Recommendations of the Study

On the basis of the findings and conclusions above, the following section presents the recommendations of the study**.**

1. Students and school stakeholders should be made a ware of the benefits of peer group prior achievements as it greatly influences academic performance of students in secondary schools.

2. Schools administration and other stakeholders should advise the parents on the amount of money to give to their daughters as pocket money as it has influence on the academic performance of the students in secondary schools.

3. School administration and stakeholders should provide good teaching/ learning environment in order to achieve good academic performance

5.5 Recommendation for further research

The research recommended the following areas for further studies

A similar study on female academic performance be undertaken in other counties so as to compare the study findings

REFERENCES

Ammermueller, A. and Pischke, J., (2006), Peer Effects in European Primary Schools.

and William Tye, 436-68. Washington, DC: Brookings Institution.

Angrist, J. and Krueger A. (1999), Empirical Strategies in Labor Economics, *Handbook of*

Angrist, J. D. and K. Lang, (2004), Does School Integration Generate Peer Effects? Evidence

Arcidiacono, P. and S. Nicholson, (2005), Peer Effects in Medical School, *Journal of Public*

Arcidiacono, P., Foster, G., Goodpaster, N., Kinsler, J. (2005), Estimating Spillovers in the

Armor, David J. (1995) Forced justice: School desegregation and the law. New York: Oxford

Bayer, P., Hjalmarsson, R., Pozen, D. (2007), Building Criminal Capital behind Bars: Peer

Benabou, Roland. (1993) Workings of a city: Location, education, and production. Quarterly Journal of Economics 434, no. 3

Betts, J., and Morell, D., (1999), The Determinants of Undergraduate GPA: The Relative

Cambridge, MA: Health-Lexington. The trade-off between child quantity and quality.

Case, A., and Katz, L., (1991), The Company You Keep: The Effect of Family and

Caucutt, Elizabeth M. (1998) Educational policy when there are peer group effects. Department of

Center Conference, Achieving Universal Literacy, University of Texas at Dallas,

Classroom with Panel Data, mimeo *Duke University*.

Coleman, et al., (1966), Equality of Educational Opportunity, Washington, DC: U. S.

Coleman, James S.(1966) Equality of educational opportunity. Washington, D.C.: U.S. Government

company you keep. Evidence on peer effects in educational choices, *mimeo*.

Costrell, R., (1994), A Simple Model of Educational Standards. *American Economic Review,*

Countries, *Journal of Policy Analysis and Management*, 19

Crain, Robert L., and Rita E. (1978). Desegregation and black achievement: A revie w of the

Dallas,

De Bartolome, Charles A. M. (1990) Equilibrium and inefficiency in a community model with peer

De Giorgi, G., Pellizzari, M., Redaelli, S., (2006), Be as careful of the books you read as of the

Degree: Evidence from Tuition Discontinuities, *NBER Working Paper*, N. 12863.

Ding W. and Lehrer S. (2006), *Do Peers Affect Student Achievement in China's Secondary*

Does It Matter? Science. Economics of Education Review (forthcoming).

Economics, 89, Economics, University of Rochester (mimeo).

Economics, educational production functions. Ottawa, Canada: Economic

Council of Canada, 1976. Effects in Juvenile Corrections, *NBER Working Paper* no. 12932.

Epple, D. and R. E. Romano, (1998), Competition between private and public schools,

Essays in transportation economics, edited by Clifford Winston, Jose A. Gomez-Ibanez

Evaluation in Education.

Evans, W, Oates, W. and Schwab, R. (1992), Measuring Peer Group Effects: A Study of

Evans, William, Wallace Oates, and Robert Schwab.(1992) Measuring peer group effects: A study

Evidence from PIRLS, *NBER Working Paper* no. 12180.

evidence from the Harvard/UTD Texas schools project. Paper presented at the Green

Experiment, *Review of Economics and Statistics*, 85

Fernandez, Raquel, and Richard Rogerson. (1996) Income distribution, communities, and the

Foster, G., (2006), It's not Your Peers, And It's Not Your Friends: Some Progress Toward

from Boston's Metco Program, *American Economic Review,* 94

Garibaldi, P., Giavazzi, F., Ichino, A., Rettore, E., 2007, College Cost and Time to Complete a

Government Printing Office. group effects. Journal of Political Economy.

Hanushek, E. A., J. F. Kain, J. M. Markman, and S. G. Rivkin, (2003), Does peer ability affect

Hanushek, Eric A. (1972) Education and race: an analysis of the educational production process.

Hanushek, Eric A., John F. Kain, and Steven G. Rivkin. (1998) Does special education raise

Henderson, Vernon, Peter Mieszkowski, and YvonSauvageau. Peer group effects and

Hopkins University (mimeo).

Hoxby, C., (2000), Peer effects in the classroom: Learning from gender and race variation,

Hoxby, Caroline Minter (1998). The effects of class size and composition on student achievement: Importance of Family Background, High School Resources, and Peer Group Effects, *Journal of Human Resources*, Journal of Political Economy.

Kain, John F., and Daniel M. O'Brien. (1998) A longitudinal assessment of reading achievement

Kremer, M., Miguel, E. and Thornton, R. (2007), Incentives to Learn, *mimeo*, Harvard *Labour Economics*, pp. 1277-1366.

Lazear, E., (2001), Educational Production, *Quarterly Journal of Economics*, Logit Approach, *Applied Economics*, 34, pp. 2031-41.

Manski, C., (1993), Identification of Endogenous Social Effects: The Reflection Problem

Manski, Charles F. (1993) Identification of endogenous social effects: The reflection problem.

Mayer, Susan E., and Christopher Jencks. (1989) Growing Up in Poor Neighborhoods: How Much

Moffitt, Robert A. (1998) Policy interventions, low-level equilibria, and social interactions. Johns

Moulton, B.R. (1990), An Illustration of a Pitfall in Estimating the Effects of Aggregate *NBER Working Paper* 7867. Neighborhood on Disadvantaged Youths, *NBER Working Paper* No. 3705. New evidence from natural population variation. National Bureau of Economics Research,

Oakes, Jeannie. (1985)Keeping track: How schools structure inequality. New Haven, CT: Yale of teenage behavior. Journal of Political Economy.

O'Regan, Katherine M., and John M. Quigley. (1999) Accessibility and economic opportunity. In Printing Office quality of public education. Quarterly Journal of Economics. Research, Working Paper No. 6690 research. Law and Contemporary Problems. Review of Economic Studies 60 (July 1993): *Review of Economic Studies*,

Rivkin, Steven G. (1998) Tiebout sorting, aggregation, and the estimation of peer group effects.

Rivkin, Steven G., Eric A. Hanushek, and John F. Kain. (1998) Teachers, schools, and academic Roommates, *Quarterly Journal of Economics*,

Rosenbaum, James E., and Susan J. Popkin. (1991) Employment and earnings of low-income Blacks

Sacerdote, B., (2001), Peer Effects with Random Assignment: Results for Dartmouth

Sanders, William L., and Sandra P. Horn. (1994) The Tennessee value-added assessment system

Sawkins, J., (2002), Examination Performance in Scottish Secondary Schools: An Ordered *School*? NBER Working Paper No. 12305.

science and math achievement across OECD, *Applied Economics*, 34, 1283-1290.

Stock, J. and M. Watson, (2003), *Introduction to Econometrics*, Pearson Education Inc.

student achievement?, *Journal of Applied Econometrics*,

Summers, Anita, and Barbara Wolfe. (1977) Do schools make a difference? American Economic Teenage Behavior, *Journal of Political Economy*,

U.S. Commission on Civil Rights. (1967)Racial isolation in the public schools. Washington, DC: Understanding the Educational Peer Effect Mechanism, *Journal of Public* University Press.

Vandenberghe V. (2002), Evaluating the magnitude and the stakes of peer effects analyzing Variables on Micro Units, *The Review of Economics and Statistics*,

vouchers, and peer-group effects, *American Economic Review,*

who move to middle-class suburbs. In The urban underclass, edited by Christopher Jencks and Paul E. Peterson. Washington, DC: Brookings Institution.

Working paper, (1999) Green Center for the Study of Science and Society, University of Texas at Working Paper.

Zimmer, R. W. and E. Toma, (2000), Peer effects in private and public schools across

Zimmerman, D., (2003) Peer Effects in Academic Outcomes: Evidence from a Natural

APPENDIX I: LETTER OF INTRODUCTION

Date …… 2013

To Whom It May Concern

Dear Sir/Madam

REF: REQUEST FOR COLLECTION OF DATA.

I, Mapesa Sophy, Reg. No. L50/84226/2012, I am a post graduate student at the school of continuing and a distance education, university of Nairobi. I am conducting a research study titled ***"Peer influence on Girl Students' academic performance in girls boarding secondary schools in Kanduyi constituency, Bungoma County"***.

You have been selected to form part of this study, kindly assist by filling in the attached questionnaire. The information given will be treated with strict confidence, and will be purely for academic purposes. Do not indicate your name or unwanted details on the questionnaire.

A copy of finding report will be availed upon your request. Your assistance and cooperation will be highly appreciated.

Yours Sincerely,

Mapesa Sophy,

L50/84226/2012

Dr. Mbugua,

Lecturer

Department of Educational Studies

University of Nairobi

APPENDIX II: RESEARCH PERMIT FROM THE NATIONAL COUNCIL OF SCIENCE AND TECHNOLOGY

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

PAGE 2

THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Sophy Mapesa Misanya
of (Address) University of Nairobi
P.O Box 422, Kakamega.
has been permitted to conduct research in

Location: Bungoma South
District: Western
Province:

on the topic: Effect of peer influence on form one girl students academic performance in girls boarding secondary schools Kanduyi Constituency: Kenya.

for a period ending: 31st December, 2013.

Applicant's Signature

For Secretary
National Council for Science & Technology

PAGE 3

Research Permit No. NCST/RCD/14/013/996
Date of issue: 13th June, 2013
Fee received: KSH. 1000

APPENDIX III: QUESTIONNAIRE FOR THE FORM TWO STUDENT.

Thank you for your interest in participating in this survey.

The purpose of this study is to collect data on the Peer influence on girl student academic performance in girl boarding Secondary schools in kanduyi constituency; Kenya.

This Questionnaire is a part of Master of Arts in Project Planning and Management at the University of Nairobi, and is completely for academic purposes. Your answers will be treated with confidentiality. Please indicate the correct option as honestly and as correctly as possible by putting a tick (√) on one of the options. For the questions that require your opinion, please complete the blank space.

SECTION A: DEMOGRAPHIC DETAILS OF RESPONDENTS (PLEASE CHECK ALL THAT APPLY)

PARTICIPANT DETAILS	**DESCRIPTION**
Age	☐ 16 – 20 ☐ 20 – 25 ☐ >26
Sex	☐ Male ☐ Female
Level of your school	☐ District ☐ Province ☐ National
Type of your school	☐ Public ☐ Private
Role	☐ Leader ☐ Not Leader

SECTION B: INFLUENCE OF PEER GROUP PRIOR ACHIEVEMENT ON GIRL STUDENT ACADEMIC PERFORMANCE

On a scale of SD, DM, AM, SA, N, please tick one answer that best describe your response.

SD – Strongly Disagree, DM – Disagree Mildly, AM – Agree Mildly, SA – Strongly Agree and N – None.

1. I belong to a peer group

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

2 a) My peer group comprise of my former school mates who scored the following marks in k.c.p.e

400-500 ☐ 300-399 ☐ 200-299 ☐ 100-199 ☐

b) My peer group prior marks influenced my current academic performance in my end of year marks

SD ☐ MD ☐ AM ☐ SA ☐ N ☐

3 My peer group comprise of members who had previously scored good grades

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

4 The text book ratio in our school is as follows

1-1 ☐ 1-2 ☐ 1-3 ☐ 1-4 ☐ 1-5 ☐

5 The text book ratio has had great influence on my academic performance

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

SECTION C: INFLUENCE OF PEER GROUP COMPOSITION ON GIRL STUDENT ACADEMIC PERFORMANCE

6 a) How much pocket money do your peer group spend per month

000-499 ☐ 500-999 ☐ 1000-1999 ☐ 2000 and above ☐

b) Low amount of pocket money spend by my peer group influence my academic performance

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

c) High amount of pocket money spend by my peer group influenced my academic performance?

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

7 My peer group poor family background has boosted my academic performance

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

8 My peer group rich family background has influenced my academic perfomance

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

9 I am limited to my academic grades by my peer group family background

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

SECTION D: INFLUENCE OF PEER GROUP LEARNING ENVIRONMENT ON GIRL STUDENT ACADEMIC PERFORMANCE

10 How many times did your peer group counseled within your first year of secondary school?

1-5 ☐ 6-10 ☐ 11-15 ☐ 16 and above ☐

11 Does the number of times counseled have any influence to academic performance? Yes

No ☐ ☐

12 If yes, explain how ……...……

13 Number of exams taken together by your peer group influence your academic performance of?

SD DM AM SA N

☐ ☐ ☐ ☐ ☐

14 Pleas rank the following factors by ticking: 1 strongly Agree 2.Agree 3.Neutral 4.Disagree 5.Strong Disagree.

Influence of learning environment on girl student performance	**1**	**2**	**3**	**4**	**5**
No. of exams taken together					
Freedom from noisy classes					
Student/Teachers interaction					
Freedom from drugs abuse					

APPENDIX IV: QUESTIONNAIRE FOR THE TEACHER IN-CHARGE OF STUDENT'S GUIDANCE AND COUNSELING

Thank you for your interest in participating in this survey.

The purpose of this study is to collect data on the Peer influence on girl student academic performance in girls boarding Secondary schools in Kanduyi constituency; Kenya.

This Questionnaire is a part of Master of Arts in Project Planning and Management at the University of Nairobi, and is completely for academic purposes. Your answers will be treated with confidentiality. Please indicate the correct option as honestly and as correctly as possible by putting a tick (√) on one of the options. For the questions that require your opinion, please complete the blanks.

SECTION A: GENERAL DETAILS (PLEASE CHECK ALL THAT APPLY)

Participant details	**Description**
Age	☐ 25 – 34 ☐ 35 – 44 ☐ 45 – 54 ☐ 55 – 60
Sex	☐ Male ☐ Female
Level of your school	☐ District ☐ Provincial ☐ National
Type of your school	☐ Public ☐ Private

SECTION B. EFFECTS OF PEER INFLUENCE ON GIRL STUDENT PERFORMANCE IN KCSE IN PUBLIC SCHOOLS

1. Would you please state your role as guidance and counseling teacher?
   ……
2. How do you rate the effects of peer influence on girl student performance in KCSE from the most influential to the least influential?

Please rank the following factors by ticking: 1 strongly Agree 2.Agree 3.Neutral 4.Disagree 5.Strong Disagree.

Effects of peer influence on girl student performance in KCSE	**1**	**2**	**3**	**4**	**5**
Peer group prior achievements					

Peer group background					
Peer group composition					
Peer group teaching environment					
Peer group learning interactions					

3. In your opinion what are the peer group effects that influence girl student performance in KCSE that have come out to be so effective …….. (Please give an explanation)……..
4. As a guiding and counseling teacher, what motivates/steer you to intervene during peer group influence? .....
5. In your opinion, what effect of peer group influence girl student performance in KCSE that should be relied on when a student join peer group?

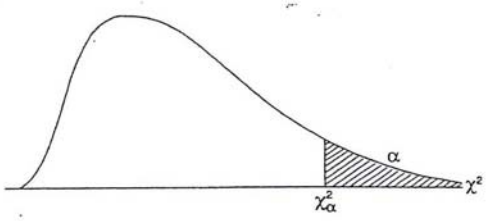
   ……

APPENDIX V: THE CHI-SQUARE TABLE

TABLE – 10

CHI-SQUARE DISTRIBUTION

The following table provides the values of χ_α^2 that correspond to a given upper-tail area χ and a specified number of degrees of freedom.



Degree of Freedom	Upper-Tail Area					
	.20	.10	.05	.02	.01	.001
1	1.642	2.706	3.841	5.412	6.635	10.827
2	3.219	4.605	5.991	7.824	9.210	13.815
3	4.642	6.251	7.815	9.837	11.345	16.268
4	4.989	7.779	9.488	11.668	13.277	18.465
5	7.289	9.236	11.070	13.388	15.086	20.517
6	8.558	10.645	12.592	15.033	16.812	22.457
7	9.083	12.017	14.067	16.622	18.475	24.322
8	11.030	13.362	15.507	18.168	20.090	26.125
9	12.242	14.648	16.919	19.679	21.666	27.877
10	13.442	15.987	18.307	21.161	23.209	29.588
11	14.631	17.275	19.675	22.618	24.725	31.264
12	15.812	18.549	21.026	24.054	26.217	32.909
13	16.985	19.812	22.362	25.472	27.688	34.528
14	18.151	21.064	23.685	26.873	29.141	36.123
15	19.311	22.307	24.996	28.259	30.578	37.697
16	20.465	23.542	26.296	29.633	32.000	39.252
17	21.615	24.769	27.587	30.995	33.409	40.790
18	22.760	25.989	28.869	32.346	34.805	42.312
19	23.900	27.204	30.144	33.687	36.191	43.820
20	25.038	28.412	31.410	35.020	37.566	45.315
21	26.171	29.615	32.671	36.343	38.932	46.797
22	27.301	30.813	33.924	37.659	40.289	48.268
23	28.429	32.007	35.172	38.968	41.638	49.728
24	29.553	33.196	36.415	40.270	42.980	51.179
25	30.675	34.382	37.652	41.566	44.314	52.620
26	31.795	35.563	38.885	42.856	45.642	54.052
27	32.912	36.741	40.113	44.140	46.963	55.476
28	34.027	37.916	41.337	45.419	48.278	56.893
29	35.139	39.087	42.557	46.693	49.588	58.302
30	36.250	40.256	43.773	47.962	50.892	59.703

CHAPTER ONE

INTRODUCTION

1.1Background of the Study

Peer groups are among the most influential social forces affecting adolescent behavior – from mundane decisions concerning clothing, hairstyle, music, and entertainment, to more significant decisions concerning short and long-term education plans. During the formative adolescent years, peers are arguably even more important than parents, teachers, and counselors, and the peer-influenced decisions of youth can have long-lasting consequences Coleman (1966); Sewell, Haller and Portes(1969); Sewell, Haller and Ohlendorf (1970). Parents recognize the importance of peer groups and – through their choice of neighborhoods, schools, and activities Haynie, South and Bose (2006); Lareau (2003); Mouw and Entwisle (2006) – attempt to guide and direct their Children's friendship selections, which can be increasingly challenging during adolescence.

Regardless of socioeconomic status, parents want their children to be surrounded by the best possible social networks, especially during adolescence, when youth are increasingly independent from parents. During these formative years, educational goals take form, and youth make a series of decisions that shape their educational trajectories, even as their friendship networks gain influence upon these decisions. Unfortunately, the peer effects literature is lacking in two main areas. The first is that peer effects are assumed to be uniform across class, gender, and race and ethnicity. Race and ethnicity is especially likely to be important because adolescents are more likely to choose friends of the same racial and ethnic group Hamm, Brown and Heck (2005); Haynie, South and Bose(2006); Quillian and Campbell(2003), introducing the possibility that peers have differing effects by race and ethnicity. The second problem is that few studies focus on academic decisions that are directly

influenced by friends, such as course or track selection and college choices. Instead, most studies of peer effects focus on educational outcomes that are indirectly influenced by friends, such as early cognitive development, grades, promotion, and, most commonly, test scores Goux and Maurin, (2007); Hanushek (2003); Henry and Rickman (2007); Kang (2007); Zimmerman (2003). Hanushek et al. (2003) and others have pointed out that if innovations to behaviour form an important avenue through which peers affect outcomes, the inability to capture such behaviour might lead to a serious underestimation of peer influences. Thus, behavior decisions may lie at the intersection between peers and achievement – effectively acting as a mediator through which the influence of peers passes prior to shaping student achievement.

Educational economists throughout the world have highlighted, in theoretical and empirical studies, the relevance of peer group quality to student performance Epple and Romano, (1998); Hoxby, (2000). According to the above researchers a peer group affects student achievement in several ways: members of a group interact in learning, help each other in their studies, share important information, and impose externalities on others by behaving well or badly (for example, a noisy student disrupts the study environment) or by allowing teachers to go deeper in subjects, contribute to the formation of values and aspirations, and so on.

Understanding the nature and the magnitude of peer group effects in education is crucial for the "productivity" of educational processes and the organizational design of school systems. for example, in order to improve student outcomes, it is important to know which inputs influence their performance most and the relative importance of peer effects compared to other inputs, such as teacher quality or school resources. Peer effects are also important in school Department of Economics and Statistics, University of Calabria. We would like to thank you for useful suggestions and comments MariarosariaAgostino, Francesco Aiello, Giovanni Anania, Giorgio Brunello, Paola Cardamone, seminar participants at the Oslo EALE Conference (September 2007) and two

anonymous referees. We thank the administration of University of Calabria for allowing access to administrative dataset and Maria Gabriele, Paolo Santolla and Antonio Ventriglia for helping with the use of data.

If peer effects are at work, educational outcomes are affected by how students are arranged across classes and the desirability of comprehensive schools (which mix students of different abilities together) or stratified schools (which tend to aggregate students according to their abilities) depends on the magnitude and non-linearity of peer effects. Furthermore, this electivity of university admission policies produces different results in the presence of peer effects. More importantly, the nature of peer effects also has fundamental implications in a family's choice with regards whether parents consider that their offspring would benefit from schools which sort students according to their abilities. Starting from the classical study of Coleman (1966), a host of works have analyzed the effects of peer group on children's achievement and educational outcomes Bettsand Morell, (1999); Hoxby, (2000); Angrist and Lang,(2004); Hanushek(2003) and on college students' grades and choices of fields of study (Sacerdote, 2001; Zimmerman, 2003; De Giorgi,Pellizzari and Redaelli, 2006; Foster, 2006), but several problems and controversies are still unresolved. Some of these studies show that peer effects are statistically and economically significant in a variety of educational contexts and that students tend to perform better if the quality of their peer group is higher (Ding and Lehrer, 2006; Zimmerman 2003; Vandenberghe,2002; Hoxby, 2000; Sacerdote, 2001; Zimmer and Toma, 2000). Moreover, a number of these studies show that peer effects are often non-linear, implying that students of middle abilities are particularly affected by the negative influence of weak students (Sacerdote, 2001; Zimmerman, 2003). However, the significance and size of peer effects often changes in relation to the sample used. Other studies, in fact, find no significant (or minor) peer effects (Angrist and Lang, 2004; Arcidiacono and Nicholson, 2005; Foster, 2006).

Earlier analyses of peer effects were based on simple econometric models regressing students outcomes on their own individual characteristics (measures of ability, family background and so on) and on their peers' outcomes or characteristics.

As shown by Manski (1993), this kind of regression is plagued by two main econometric problems, which raise doubts about the causal interpretation of the coefficient measuring peer group effects. The first problem, known as "self-selection" bias, depends on the fact that groups of peers are often not exogenously determined, but individuals typically choose the other people they will associate with. Therefore, the characteristics of each student contribute to determining the choice of his/her peer and, if some of these characteristics are not observable, an endogeneity problem arises.

The second econometric problem, known as the "reflection" problem, emerges because the outcomes of students in a peer group evolve in an interdependent manner: the achievements of each member affects the achievements of other members but, at the same time, is, itself, affected by the achievements of those self-same peers. Therefore, an estimation bias emerges, due to simultaneity and inverse causality.

Apart from peer effects related to the classroom environment, students belonging to the same class tend to study and revise the subject together, so generating important externalities.

Clearly friendly relationships do not involve all members of a class: some students might attend a course together, but their interaction might still be limited. We are able to address this problem by considering a measure of peer group which weights peers in relation to the number of exams taken together. In fact, students who continually do exams in the same session as one another are often students who study together, sharing course material and information. We look at all the students passing an exam on the same date and we use this information to define a second measure of peer group quality, which weights the abilities of each student according to the number of exams taken together.

Peer-group effects are a distinct class of influences arising from 'social interactions' – a broad term which encompasses any type of individual behavior that involves interdependency with the behavior or characteristics of others. Economists have long shown an interest Becker (1974), but there has been a rapid growth in the field since the 1990s with contributions in theory and empirical work. Theoretical research seems motivated by a desire to widen the scope of economic thought to encompass aspects of behavioral modeling more commonly attributed to sociology and psychology. Empirical work –constrained by the data – is generally concerned with finding evidence for the existence of such effects, rather than the precise pathways by which they occur.

The term 'peer-groups' usually indicates social interactions of children or young adults with people of similar age, rather than broader 'neighborhood' effects or interactions with superiors, family or teachers. We continue to use the term in this way. The range of outcomes that have interested researchers is diverse, including smoking (Alexander, 2001; Ellickson, Bird, 2003), joke-telling (Angelone, Hirschman (2005), sexual behavior (Selvan, 2001), purchase of a retirement plan (Duflo and Saez , 2000) and – more commonly – education. On reflection, it seems very likely that many decisions are linked to similar decisions by a friend or other associate (in same cases fairly explicitly, like the decision to have sex, be in a gang or play tennis), and many consumption decisions rely on other consumers participating (e.g. video phones). However, the more interesting possibility is that group behavior or attributes can modify individual actions in relation to important social and economic decisions that will affect their life chances – especially achievement in education.

Although the literature on peer effects in education dates back to 1960s with the publication of the famous Coleman Report (1966), the importance of peer-group effects is still disputed. Some very bold claims have been made about the potency of peers in child development Rich (1999), yet the results of numerous studies are very mixed, finding strong, weak or non-existent effects across a wide range of outcomes. This reflects the difficulty in defining the peer-group, isolating causal peer-group effects from other influences, lack of appropriate data, and different identification methodologies

adopted by researchers. The potential for peers to affect individual achievement is central to many important policy issues in elementary and secondary education, including the impacts of school choice programs, ability tracking within schools, "mainstreaming" of special education students, and racial and economic desegregation. Vouchers, charter schools and other school choice programs may benefit those who remain in traditional public schools by engendering competition that leads to improvements in school quality, but may also harm those left behind by diminishing the quality of their classmates (Epple and Romano 1998; Caucutt 2002). Grouping students in classrooms by ability can likewise have significant impacts on student achievement, depending on the magnitude of peer influences (Epple, Newlon, and Romano 2002). The effect of desegregation policies on achievement depends not only on potential spillovers from average ability, but on whether different peers exert different degrees of influence on individual outcomes (Angrist and Lang 2004; Cooley 2007; Fryer and Torelli 2005). Indeed, as Manski (1993) and Moffit (2001) argue, the empirical analysis of social interactions is plagued by conceptual and data problems.

1.2 Statement of the Problem

Understanding the nature and the magnitude of peer group influence in education is crucial for the "productivity" of educational processes and the organizational design of school systems. For example, in order to improve student outcomes, it is important to know which inputs influence their performance most and the relative importance of peer influence compared to other inputs, such as teacher quality or school resources. Peer-group influences are a distinct class of influences arising from 'social interactions' – a broad term which encompasses any type of individual behaviour that involves interdependency with the behavior or characteristics of others. Although the literature on peer effects in education dates back to 1960s with the publication of the famous Coleman Report (1966), the importance of peer-group effects is still disputed. Some very bold claims have been made about the potency of peers in child development (Rich,1999), yet the results of numerous studies are

very mixed, finding strong, weak or non-existent effects across a wide range of outcomes. This reflects the difficulty in defining the peer-group, isolating causal peer-group effects from other influences, lack of appropriate data, and different identification methodologies adopted by researchers. Indeed, as Manski (1993) and Moffit (2001) argue, the empirical analysis of social interactions is plagued by conceptual and data problems. The estimation of peer influences at school has received intense attention in recent years. Several studies have presented convincing evidence about race, gender, and immigrants' peer influences. Recent examples include Angrist and Lang (2004) on peer influences through racial integration; Hoxby (2000) and Lavy and Schlosser (2007) on gender peer influences; and Gould, Lavy and Paserman (2009) on the effect of immigrants on native students. But important questions about peer influence on girl student academic performance remain open in Kenya as little research has been done in other areas such as: (1) factors influencing academic performance of students in public secondary schools in Teso south by Otieno Ezekiel Okwach. (2) An investigation of the causes of indiscipline in secondary schools in Tongareen Division in Bungoma North by Danson Amukowa.(3) Factors influencing transition of girls from primary to secondary level in Bungoma East District by Nabibia Simiyu David. It is more evident in kanduyi constituency as no research on peer influence has been contacted in the area. The choice of form one students in girl secondary schools in kanduyi constituency was based on the big disparity in the performance of K.C.S.E between boys and girls between 2007-2011 by boys boarding secondary schools and girls' secondary school categories. According to education insight 2012 issue17, Boy's schools registered the following mean scores in K.C.S.E from 2007 to 2011, 5.061, 5.448, 5.392, 5.475, 5.036 and 5.282 while girl schools registered the following, 4.330, 4.980, 4.827, 4.804. 4.958 And 4.180 respectively. The statistics shows that boys' schools had an upper hand for the last five years. Therefore there was need to investigate on the peer influence on academic performance of students in girl's boarding schools in Kanduyi Constituency.

1.3 Purpose of the Study

The purpose of the study was to establish peer group influence on form one girl students' Academic performance in girls boarding secondary schools in Kanduyi Constituency, Bungoma County.

1.4 Objectives of the Study

The study was guided by the following objectives:

4) To establish how peer group prior achievements influence form one girl student academic performance in girls boarding secondary schools in Kanduyi constituency.
5) To investigate how peer group composition influence form one girl student academic performance in girls boarding secondary schools in Kanduyi constituency.
6) To examine how peer learning environment influence form one girl student academic performance in girls boarding secondary schools in Kanduyi constituency.

1.5 Research Questions

The study was guided by the following research questions:

4) How does peer group prior achievements influence form one girl academic performance in girls boarding secondary schools in Kanduyi constituency?
5) How does peer group composition influence form one girl academic performance in girls boarding secondary schools in Kanduyi constituency?
6) How does peer group learning environment influence form one girl academic performance in girls boarding secondary schools in Kanduyi constituency?

1.6 Significance of the Study

It was hoped that the findings of the study would be of great importance to researchers as it would help develop new literature in the area of peer influence on girl students' performance in Kenya certificate of secondary examinations in Kenya.

It was also hoped that the study findings would benefit the government of Kenya in developing and implementing policies that promote girl student performance in relation to peer influence.

The study findings would also assist schools to eradicate negative peer influence on girls' performance in K.S.C.E.

1.7 Delimitation of the Study

This study was carried out in five public girls boarding secondary schools in Kanduyi Constituency, Bungoma County in Kenya tied on the period 2012- 2013.

1.8 Limitation of the Study

The study on this topic, peer group influence on girl student academic performance in Kenya, a case of Kanduyi Constituency, Bungoma County, was limited by the inadequate time however the researcher keenly followed the time frame. The respondents were also shy about giving information thinking it was for commercial purposes but they were assured of confidentiality. Lastly it was not easy to get some respondents to respond to the questions but the researcher was patient and made several trips to collect the questionnaire.

1.9 Basic Assumptions of the Study

The study was based on the following assumptions, that the responses that the respondents gave constituted a true record of their opinion and views. The respondents were able to fill all the questionnaires without interacting with one another. It was also assumed that all the questionnaires would returned on time and that those that were to be interviewed were available and willing to participate and provided honest, accurate, complete answers, and that the researcher had adequate time to complete the study.

1.10 Definition of Significant Terms as Used in the Study

Academic performance : Scores attained in form one end of year examination.

Constituency : An area represented in a legislative body

County **:** A territorial division of a country

Girl **:** A female school going girl aged between 14-20 years.

National Examination : An examination set by the national examining body and administered in Secondary schools

Peer group **:** A group of girl students in the same class.

Peer pressure **:** Influences from students in the same class.

Peer **:** Students of the same age, status.

Student **:** Form one girl students in boarding public secondary schools.

1.11 Organization of the Study

This study was divided into five chapters as follows: Chapter one gave the background of the study and introduced the problem statement describing the specific problem addressed in the study, as well as the purpose, objectives, research questions, significance of the study, delimitations of the study and limitations of the study. Chapter two presents a review of literature basing on the three objectives of the study, giving theoretical foundation of the study and the conceptual frame work. Chapter three presents the methodology, the target population, sample size and sampling procedure, data collection instruments, piloting of the instruments, validity and reliability of the research instruments and operational definition of variables. Chapter four contains data analysis, presentation, interpretation and discussion of the findings. Chapter five presents a summary of the findings, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed the literature related to the study on the topic discussed under the various study objectives, how peer group prior achievements influence girl student performance in national examination, how peer group composition influence girl student performance in national examination, how peer learning environment influence girl student performance in national examination. A theoretical and conceptual framework was used to operationalize the variables and lastly the gaps in literature were summarized.

2.2 Peer group prior achievements and girl student academic performance

Schools seem often to be judged on the kind of children they enroll, rather than on the quality of their teaching or the other facilities they offer. This observation has led many to argue that the background and abilities of a pupil's school-mates must have an important influence on his or her own achievements at school. Motivated by this, a rich international literature has evolved to try to model and measure the consequences of social interactions between pupils – so called 'peer-group effects' – spanning the economics, education, sociological and psychological fields.

The issue is a critical one in respect of current educational policy which favors expansion of school choice, because choice based on peer-group quality can, in theory at least, leads to a high degree of sorting across schools along lines of prior ability Epple and Romano,(2000). This will exacerbate educational inequalities if peer-group quality has real impacts on personal achievement. An understanding of peer effects is also important because they can mean that educational interventions that appear beneficial to the individual pupil may be even more effective when rolled out to the population (Glaeser, Sacerdote, 2003). Our paper extends the evidence base by providing estimates of

the influence of innovations to a pupil's peer-group at the time when they transfer from Primary to Secondary schooling in England.

The potential for peers to affect individual achievement is central to many important policy issues in elementary and secondary education, including the impacts of school choice programs, ability tracking within schools, "mainstreaming" of special education students, and racial and economic desegregation. Vouchers, charter schools and other school choice programs may benefit those who remain in traditional public schools by engendering competition that leads to improvements in school quality, but may also harm those left behind by diminishing the quality of their classmates (Epple and Romano 1998; Caucutt 2002). Grouping students in classrooms by ability can likewise have significant impacts on student achievement, depending on the magnitude of peer influences (Epple, Newlon, and Romano 2002). The effect of desegregation policies on achievement depends not only on potential spillovers from average ability, but on whether different peers exert different degrees of influence on individual outcomes (Angrist and Lang 2004; Cooley 2007; Fryer and Torelli 2005).

Earlier analyses of peer effects were based on simple econometric models regressing students outcomes on their own individual characteristics (measures of ability, family background and so on) and on their peers' outcomes or characteristics. As shown by Manski (1993), this kind of regression is plagued by two main econometric problems, which raise doubts about the causal interpretation of the coefficient measuring peer group effects. The first problem, known as "self-selection" bias, depends on the fact that groups of peers are often not exogenously determined, but individuals typically choose the other people they will associate with. Therefore, the characteristics of each student contribute to determining the choice of his/her peers and, if some of these characteristics are not observable, an endogeneity problem arises.

2.3 Peer group composition and girl student academic performance

Peer groups are among the most influential social forces affecting adolescent behavior – from mundane decisions concerning clothing, hairstyle, music, and entertainment, to more significant decisions concerning short and long-term education plans. During the formative adolescent years, peers are arguably even more important than parents, teachers, and counselors, and the peer-influenced decisions of youth can have long-lasting consequences (Coleman. 1966; Sewell, Haller and Portes 1969; Sewell, Haller and Ohlendorf 1970). Parents recognize the importance of peer groups and – through their choice of neighborhoods, schools, and activities (Haynie, South and Bose 2006; Lareau 2003; Mouw and Entwisle 2006) – attempt to guide and direct their Children's friendship selections, which can be increasingly challenging during adolescence. Regardless of socioeconomic status, parents want their children to be surrounded by the best possible social networks, especially during adolescence, when youth are increasingly independent from parents. During these formative years, educational goals take form, and youth make a series of decisions that shape their educational trajectories, even as their friendship networks gain influence upon these decisions. Unfortunately, the peer effects literature is lacking in two main areas. The first is that peer effects are assumed to be uniform across class, gender, and race and ethnicity. Race and ethnicity is especially likely to be important because adolescents are more likely to choose friends of the same racial and ethnic group (Hamm, Brown and Heck 2005; Haynie, South and Bose 2006; Quillian and Campbell 2003), introducing the possibility that peers have differing effects by race and ethnicity. The second problem is that few studies focus on academic decisions that are directly influenced by friends, such as course or track selection and college choices. Instead, most studies of peer effects focus on educational outcomes that are indirectly influenced by friends, such as early cognitive development, grades, promotion, and, most commonly, testscores (Goux and Maurin 2007; Hanushek . 2003; Henry and Rickman 2007; Kang 2007; Zimmerman 2003). Hanushek (2003) and others have pointed out that "If innovations to behaviour form an important avenue through which peers affect

outcomes, the inability to capture such behaviour might lead to a serious underestimation of peer influences". Thus, behavior decisions may lie at the intersection between peers and achievement – effectively acting as a mediator through which the influence of peers passes prior to shaping student achievement.

Peer-group effects are a distinct class of influences arising from 'social interactions' – abroad term which encompasses any type of individual behavior that involves interdependency with the behavior or characteristics of others. Economists have long shown an interest [Becker (1974)], but there has been a rapid growth in the field since the 1990s with contributions in theory and empirical work. Theoretical research seems motivated by a desire to widen the scope of economic thought to encompass aspects of behavioral modeling more commonly attributed to sociology and psychology. Empirical work –constrained by the data –is generally concerned with finding evidence for the existence of such effects, rather than the precise pathways by which they occur. The term 'peer-groups' usually indicates social interactions of children or young adults with people of similar age, rather than broader 'neighborhood' effects or interactions with superiors, family or teachers. We continue to use the term in this way. The range of outcomes that have interested researchers is diverse, including smoking. Alexander(2001); Ellickson(2003), joke-telling Angelone and, Hirschman (2005), sexual behavior Selvan and, Ross (2001), purchase of a retirement plan Duflo and Saez (2000) and – more commonly – education. On reflection, it seems very likely that many decisions are linked to similar decisions by a friend or other associate (in same cases fairly explicitly, like the decision to have sex, be in a gang or play tennis), and many consumption decisions rely on other consumers participating (e.g. video phones). However, the more interesting possibility is that group behaviour or attributes can modify individual actions in relation to important social and economic decisions that will affect their life chances – especially achievement in education.

Starting from the classical study of Coleman (1966), a host of works have analysed the effects of peer group on children's achievement and educational outcomes Betts and Morell, (1999); Hoxby, (2000); Angrist and Lang, (2004); Hanushek. , (2003) and on college students' grades and choices of fields of study Sacerdote,(2001); Zimmerman,(2003); De Giorgi,Pellizzari and Redaelli, (2006); Foster, (2006), but several problems and controversies are still unresolved. Some of these studies show that peer effects are statistically and economically significant in a variety of educational contexts and that students tend to perform better if the quality of their peer group is higher .Ding and Lehrer, (2006); Zimmerman, (2003); Vandenberghe,(2002); Hoxby,(2000); Sacerdote,(2001); Zimmer and Toma, (2000). Moreover, a number of these studies show that peer effects are often non-linear, implying that students of middle abilities are particularly affected by the negative influence of weak students Sacerdote, (2001); Zimmerman,(2003). However, the significance and size of peer effects often changes in relation to the sample used. Other studies, in fact, find no significant (or minor) peer effects Angrist and Lang, (2004); Arcidiacono and Nicholson, (2005); Foster, (2006)

2.4 peer group learning environment and girl student academic performance

Students belonging to the same class tend to study and revise the subject together, so generating important externalities. However, this kind of relationship does not develop between all the members of a class, since, even though attending courses together, some students may not interact with each other. In order to overcome this problem and build a peer group measure (called *Peer Exam*) based on this type of interaction, which we believe particularly relevant, we consider as members of the same group students who sit an exam on the same date. Anecdotal evidence suggests that students who study together tends to take exams together (Coleman. 1966).

Educational economists have highlighted, in theoretical and empirical studies, the relevance of peer group quality to student performance Epple and Romano,(1998); Hoxby, (2000). A peer group affects student achievement in several ways: members of a group interact in learning, help each other in their studies, share important information, impose externalities on others by behaving well or badly (for example, a noisy student disrupts the study environment) or by allowing teachers to go deeper in subjects, contribute to the formation of values and aspirations, and so on.

Understanding the nature and the magnitude of peer group effects in education is crucial for the "productivity" of educational processes and the organizational design of school systems. For example, in order to improve student outcomes, it is important to know which inputs influence their performance most and the relative importance of peer effects compared to other inputs, such as teacher quality or school resources. If peer effects are at work, educational outcomes are affected by how students are arranged across classes and the desirability of comprehensive schools (which mix students of different abilities together) or stratified schools (which tend to aggregate students according to their abilities) depends on the magnitude and non-linearity of peer effects. Furthermore, the selectivity of university admission policies produces different results in the presence of peer effects. More importantly, the nature of peer effects also has fundamental implications in a family's choice with regards whether parents consider that their offspring would benefit from schools which sort students according to their abilities (Foster, 2006).

.Apart from peer effects related to the classroom environment, students belonging to the same class tend to study and revise the subject together, so generating important externalities. Clearly friendly relationships do not involve all members of a class: some students might attend course together, but their interaction might still be limited. We are able to address this problem by considering a measure of peer group which weights peers in relation to the number of exams taken together. In fact, students who continually do exams in the same session as one another are often students who study together,

sharing course material and information. We look at all the students passing an exam on the same date and we use this information to define a second measure of peer group quality, which weights the abilities of each student according to the number of exams taken together (Epple and Romano, 1998). We are aware that these definitions may be affected by self-selection problems since students choose other people to collaborate with in studying. In order to overcome possible self-selection problems, we use Two-Stage Least Squares estimation and instrument peer groups through the random (and compulsory) assignment of students to different teaching classes during their First Level Degree course (Foster, 2006).

Their estimations show that peer group abilities have considerable, positive effects on students' academic performance. These effects are not brought about by self-selection and are robust to a variety of definitions of peer group and several measures of abilities (Epple and Romano, 1998). In our preferred Instrumental Variable specification, we find that an increase of one standard deviation in peer group quality (measured as the average ability of students attending the same course) produces an increase in student performance of 0.19 (the OLS estimates show a smaller effect equal to 0.13). This is quite a large effect, since the effect produced by an increase of one standard deviation in the student's own ability generates an increase of 0.54(Foster, 2006). Effects are slightly higher when we consider our second measure of peer group quality, based on repeated interaction at exams, implying that this measure is able to take into account some relevant interaction taking place among students. These results suggest that student quality is an important input in tertiary education and that, in order to improve their students' performance, colleges and university should attract high quality students. Our results are consistent with selection policies adopted by many US universities aimed at admitting only the best students. They also support the idea that students applying for highly reputable institutions evaluate not only the high quality of instructors provided, but also the high-quality of peers. Moreover, if student performance is determined, at least in part, by his/her effort then is rational to subsidize good students for the positive externalities they produce (Foster, 2006).

2.5 Theoretical Framework

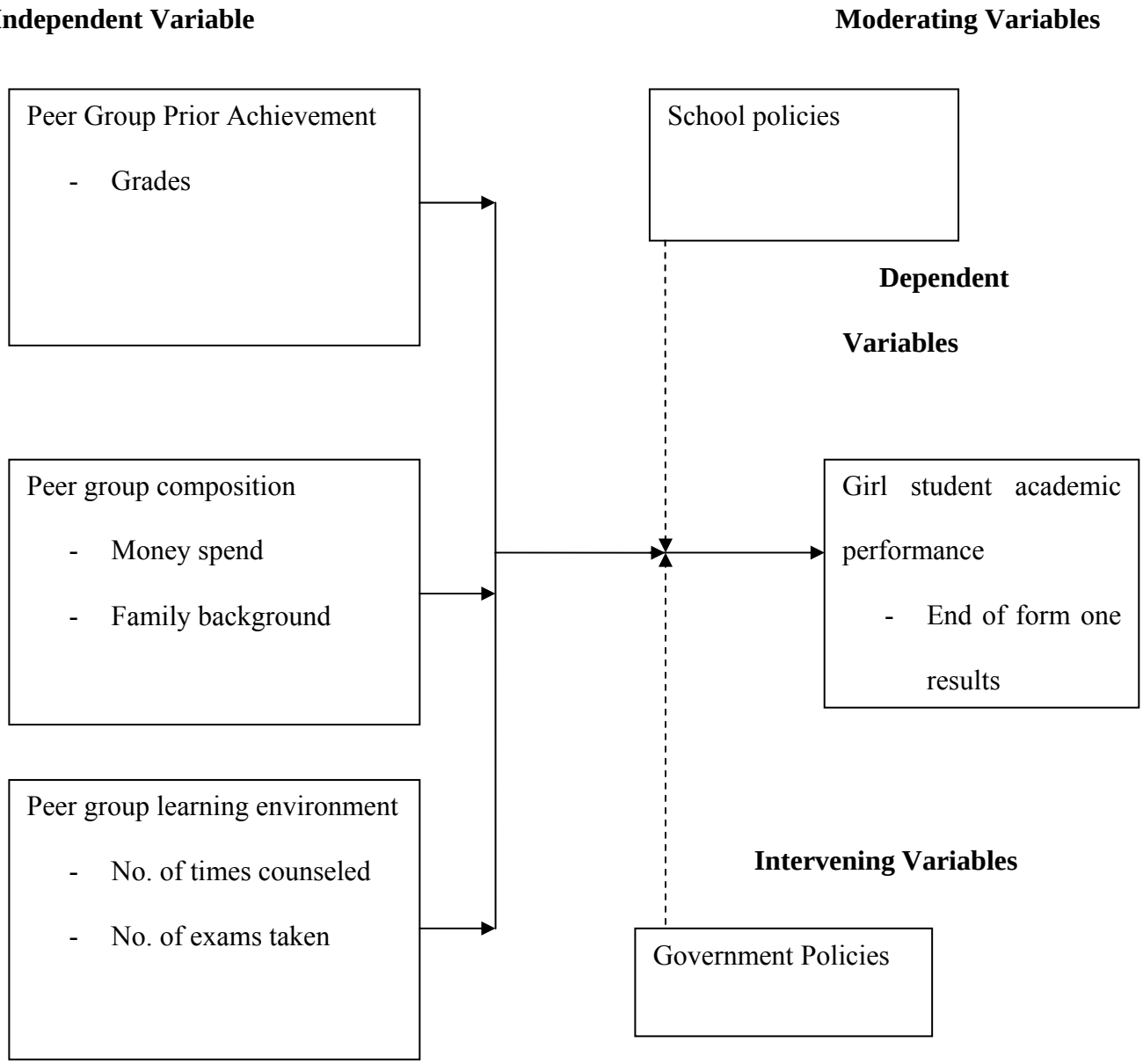
Weidman's (1989) model of socialization in learning institutions is perhaps the most appropriate theoretical model with which to investigate and interpret peer group influence. My adaption of Weidman's model follows similar studies of peer effects by Dey (1996, 1997) and Milem (1998). Weidman conceptualizes the major influences on student change in learning institutions to be pre-learning institutions or student background characteristics, the academic and social normative context of an institution, and the impact of parental and non-college reference groups. Normative contexts are particularly important in Weidman's model for influencing change in personal orientations during college. However, Weidman also made three points about the role of the interpersonal environment and interpersonal processes in socialization. First, he cites Homans (1950, 1961) and argues that the socialization process dependented on interpersonal interaction and the sentimental intensity of the relationship associated with interaction. Second, he notes that frequency of interaction was also critical. Lastly, he underscored a conclusion made by a number of researchers, that the long-term academic impacts of learning institutions are not the result of classroom experiences, but of informal forms of social interaction with students and faculty.

By focusing on peer group influences, this study concentrated on two parts of Weidman's model, the normative context of informal peer groups and implicitly, the socialization process of interpersonal interaction. To isolate these elements of the socialization process in learning institutions, was borrowed from the conceptual and methodological models of college impact of Astin (1984, 1993), models that are also implicit in Weidman's (1989) framework. Astin's (1993) model of college impact emphasized the intercorrelated nature of student pre-college characteristics (inputs) and environmental elements of the college experience. This relationship becomes problematic when trying to isolate the unique contribution of the educational environment on student outcomes because student inputs are frequently related to both environments and outcomes. In other words, qualities of

the student may explain their eventual outcome (smart students will get high grades) and may also determine the types and nature of their educational experiences (math majors will take more math courses). In the statistical implementation of Weidman's socialization model, therefore, I made an effort to properly control the confounding relationship of inputs to friendship group measures.

2.6 Conceptual Framework

This study was guided by the following conceptual framework, which was used to explain the interrelationship between the variables. A conceptual framework is a scheme of variables a researcher operationalizes in order to achieve the set objectives Oso & Onen (2002). Mugenda and Mugenda (1999) argued that independent variable attempts to indicate the total influence in the study. As shown in the figure.



It was hypothesized that the independent variable with its components peer group prior achievements, peer group composition and peer group teaching environment directly influenced the dependent variable girl student academic performance. The interpretation of the above conceptual framework was that there was a relationship between the independent variables indicators, grades, subject choice, family background, pocket money spent and teacher/student relationship and the dependent variable girl student performance. The extraneous variables comprising of moderating variables and

intervening variables were also taken into account during operationalization of the variables as they acted as catalysts of the relationship between the independent and the dependent variables.

2.7 Summary

The purpose of the review of the above literature was to avoid unnecessary and unintentional duplication of the framework from which research findings were interpreted and also demonstrated the researcher's familiarity with existing knowledge. The researcher reviewed literature related to the study on the topic of peer influence on girl student academic performance in national examinations and what other researchers had said in relation to the study objectives. Peer group prior achievements, peer group composition and peer group teaching environment. Although the literature on peer effects in education dates back to 1960s with the publication of the famous Coleman Report (1966), the importance of peer-group effects is still disputed. Some very bold claims have been made about the potency of peers in child development [Rich Harris (1999)], yet the results of numerous studies are very mixed, finding strong, weak or non-existent effects across a wide range of outcomes. This reflects the difficulty in defining the peer-group, isolating causal peer-group effects from other influences, lack of appropriate data, and different identification methodologies adopted by researchers. Indeed, as Manski (1993) and Moffit (2001) argue, the empirical analysis of social interactions is plagued by conceptual and data problems. It is a common belief that children will thrive if educated amongst better schoolmates, and this belief guides many parents in their choice of school. Many studies have tried to measure this peer-group effect, and our current study sought to find out the effects of peer influence on form one girl student academic performance in secondary schools in Kanduyi constituency Bungoma County.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter describes the research design as well as the methods that were used to sample the population and the target population bringing out the sample size. The chapter further looked at methods of data collection, research instruments, their validity and reliability, operational definition of variables and methods of data analysis.

3.2 Research Design

This study employed a descriptive survey design, which is a type of research undertaken with the aim of describing characteristics of variables in a situation. According to Best and Khan (2009), descriptive survey design is concerned with conditions or relationships that exists, opinions that are held, processes that are going on, effects that are evident, or trends that are developing. (Kerlinger, 1969).The descriptive survey design enabled collection of data without manipulating the research variables .The descriptive survey design optimized on the strengths of both quantitative and qualitative research methodology. The survey method allowed collection of data from a large sample population and generated findings that were a representation of the whole population at a lower cost (Saunders, 2007).

3.3 Target Population

The target population of the study was form one girl students in boarding girl secondary schools in Kanduyi Constituency, Bungoma County. The target population was 905 in total, comprising of 900 girl students, 5 teachers in charge of guidance and counseling in 5 boarding girls secondary schools in Kanduyi Constituency, Bungoma County.

3.4 This section include the sample size of the study and the sampling procedure

3.4.1 Sample size

A sample is a smaller group of subjects obtained from the accessible population (Mugenda and Mugenda 2003). The study employed Mugenda and Mugenda (2003) recommended sample size of 10% of the target population. Using the above formula to determine the sample size for the 900 respondents; Sample size was 18 respondents from each school making a total of 90students plus five teachers in charge of guidance and counseling making a total 95 respondents.

3.4.2. Sampling Procedure

Sampling is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected Mugenda and Mugenda, (1999). The study employed random sampling technique to select the sample size from individual schools. A sampling frame was developed per school that listed all the units in the population. The units were picked randomly until the desired sample size was attained. This enabled every member of the accessible population to have equal chance of participating in the study.

3.5 Data Collection Instruments

Bourke (2005) simply states that questionnaires are used to obtain two different types of information: First the background information on students, teachers, or others, such as age, gender, amount of schooling, and secondly attitudinal information about some specific events, way of behaving, quality of life, other persons. In the first case, even though the same information could also be gathered in other ways. from institutional records, a questionnaire is simply a convenient way of obtaining the information. In the second case, a number of items are asked about each attitude or opinion in an attempt to tap various aspects underlying beliefs or feelings which gives rise to the attitudes. Similarly, Oppenheim (1996) affirms that the questionnaires are one way of obtaining a measure of

attitude. The attitudes have two components: beliefs (cognitive) and feelings (emotional or affective). Responses to questionnaire items are what respondents say their belief or say they would do, which are taken as indicators of their beliefs, attitudes and likely behavior.

According to Burns (1994) the use of questionnaires in research is based on one basic underlying assumption: that the respondent will be both willing and able to give truthful answers. He explains three kinds of items which are generally used in the construction of questionnaires, namely, closed items, open-ended items, and scale items. The close items allow the respondents to choose from two or more fixed alternatives, for example, the dichotomous items which provide two alternative only: yes or no. The open-ended items simply supply a frame of reference for respondents' answer, couple with a minimum of restraint or command on their expression. Thus, in open-ended items, respondents provide the answers in their own words. The scale is a set of items to which the respondents respond by indicating degrees of agreement or disagreement.

The key instrument applied in this study was the questionnaire which was characterized by the three types of item construction mentioned above, as well as a selected response format of A *Likert scale.* The questionnaire was adopted from Gamage (1996) for an empirical study in the New South Wales (NSW) state schools system. On the basis of an extensive review of literature, it was found that the research questionnaire which was modified to suit the context of this study was the appropriate one.

Furthermore, the questionnaire in the study consisted of three major parts. The first part began with demographic information. The second part was completed by all students and the third part was completed by teachers in charge of guidance and counseling only. The The research instruments that were employed in this study as tools for data collection were questionnaires namely.

(c) Student's Questionnaire (SQ)

(d) Teacher's Questionnaire (TQ)

The two instruments were used to supplement each other and to give a deeper and wider exploration into research perspective which gave the research more quality.

3.5.1 Piloting

Piloting is trying out of research instruments on the respondents who were not used in the main study: (Groll 1986) Note that a pilot study is necessary because" a researcher embarking on classroom research for the first time will find it valuable to spend some time in the classroom using one or more established systems and looking at the kind of issues which will arise in turning his/ her own research questions into a set of criteria and definition for use in the classroom." It is important for a pilot study to be carried out before any research is done as stated by Peter (1994). He states" even the most carefully constructed instrument cannot guarantee to obtain a hundred percent reliable data". Therefore it was necessary to pretest the instruments of the research on a small sample of respondents in a preparatory exercise to find out if there was any weakness so that it could be corrected. In this study, two schools that did not take part in the main study were selected for piloting.

3.5.2 Validity of the Instruments

Validity is the extent to which the instrument measures what it appears to measure according to the researcher's subjective assessment (Nachmias: 1958). Validity deals with the adequacy of the instruments for example, the researcher needs to have adequate questions in the written task in order to collect the required data for analysis that can be used to draw conclusion. Frenekel (1993) suggest that the individual who is supposed to render an intelligent judgment about the adequacy of the instruments should be given the instruments before the instruments are administered. The instruments were amended according to the expert's comments and recommendations before being administered. In this study, the researcher sought help from the supervisors and lecturers in the school of education to judge the validity of the questionnaire and the questions in the written task.

3.5.3 Reliability of the research instruments

The study adopted the coefficient alpha (also known as Cronbach's alpha) to determine the internal reliability of the study instruments. The coefficient alpha ranges in values from 0 (no reliability) to 1

(perfect reliability). Gregory (2000, cited in Manning & Munro, 2006) claims: Coefficient alpha is an index of the internal consistency of the items, that is, their tendency to correlate with one another. Insofar as a test or scale with high internal consistency will also tend to show stability of scores in a test-retest approach, coefficient alpha is a useful estimate of reliability. They then state that the values of coefficient alpha above .70 are considered to represent "acceptable" reliability, above .80 "good reliability", and above .90 to represent "excellent" reliability. However, Pallant (2005: 90) asserted that with short scales (e.g. scales with fewer than ten items); it is common to find quite low Cronbach values, for example, .50. In this study, the values of coefficient alpha ranged was.75, indicating an acceptable and good reliability (Gregory cited in Manning & Munro, 2006)

3.6 Data Collection Procedures

Permission to carry out the study was sought after presentation of study proposal to the supervisors at the University of Nairobi. The nature and purpose of the study was explained to the respondents by the researcher. The researcher filled application form for a research permit and submitted two copies of approved study proposal, a banks cheque of one thousand shillings, curriculum vitae, two photo passports and a photocopy of the National identity card to the Council for Science and Technology in regard to University's ethical considerations. After two weeks the researcher received the permit to carry out the research.

3.7 Data Analysis Techniques

Some researchers report that there are two broad categories of statistical approaches in quantitative research, namely, descriptive (Creswell, 2005; Spatz, 2005; Salkind, 2004; McMillan & Schumacher, 2001). Descriptive statistics are used to summarize, organize, and describe the characteristics of a data collection. Inferential statistics is the most fundamental way to summarize data and it is a prerequisite for interpreting the results of quantitative research, while descriptive statistics are

Commonly used in reporting results (McMillan & Schumacher, 2001). Similarly, in the context of analyzing quantitative data using statistical techniques, Creswell (2005: 181) explains that descriptive statistics summarize a single variable in a data set or compare how one score relates to all others, while inferential statistical tests are used to assess the differences, relationships, and correlations among variables in the data set. The data collected was edited, coded and analyzed using inferential statistics. This involved use of measurers of distributions (chi-Square) and presentation of information in APA tables.

3.8 Ethical Considerations

Permission to carry out the study was sought after presentation of study proposal to the supervisors at the University of Nairobi. The nature and purpose of the study was explained to the respondents by the researcher. The researcher treated all the information given by the respondents with a lot of confidentiality to safeguard the respondent's personal integrity in regard to University's ethical considerations. In line with human ethics procedures established by the University of Nairobi, the researcher submitted the questionnaire, which was constructed in English to the National Council for Science and Technology (NCST). It was aimed at seeking approval and ensuring the ethical acceptability of the research involving human participants. Accordingly, the pre-testing and pilot study was conducted after obtaining the approval of the NCST.

3.9 Operational Definition of Variables

Indicators are shown by the main variables under the study to ensure that they are measurable.

Objective	Type of variable	Indicators	Source	Scale of measurement
To establish how peer group prior achievement influenced form one girl academic performance	**Independent:** peer group prior achievement	Good grades	Secondary girl students	Nominal Ordinal
	Dependent: academic Performance	End of form one marks	Secondary girl students	Nominal Ordinal
To investigate how peer group composition influenced form one girl student academic performance	**Independent:** Peer group composition	Money spend Family background	Secondary girl students	Ordinal Nominal
	Dependent: academic Performance	End of form one marks	Secondary girl students	Nominal Ordinal
To examine how peer group learning environment influenced form one girl student academic performance	**Independent:** Peer group teaching environment	Exams taken No. counseled	Secondary girl students	Ordinal
	Dependent academic Performance	End of form one marks	Secondary girl students	Nominal

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1Introduction

This chapter is divided into three sections: section one presents the response return rate, the second section gives demographic information of respondents covering age, and gender and the third section provides results and discussions based on the three research objectives.

4.2 Response Return Rate

From the response return rates, the study was able to get a general return rate response from all the 95 respondents. The study received 100% (95). According to Gay, (1981), ten percent of the accessible population is enough for a descriptive study and therefore this return rate of 100% has helped boost the reliability of the study.

4.3 Demographic information of the respondents

Two demographic characteristics of respondents were studied. These were age and gender.

4.3.1 Distribution of the respondents by age

The age of the respondents was thought to be of importance to the study therefore the researcher sought to establish the age of the respondents. This is shown in the table 4.1.

Table 4.1 Distribution of respondents by age

Age	Frequency	Percentage
15-25 yrs	90	94.73
26-45 yrs	4	4.21
46 and above	1	1.06
Total/Average	**95**	**100**

Distribution of respondents by age

The findings revealed that 94.73%(90) of the respondents were between 15 to 25 years old and 4.21%(4) were between 26 to 45 years old, while 1.06% were above 46 years. The findings showed that majority of respondents were mainly students.

4.3.2 Gender of the respondents

The gender of the respondents was sought and the results are given in table 4.2.

Table 4.2 Gender of respondents

Gender	Frequency	Percentage
Male	3	3.16
Female	92	96.84
Total/Average	**95**	**100**

The findings show that gender distribution of the respondents revealed that 96.84 (92) were female while 3.16 (3) were male. This was generally because the study targeted girl students in Girls Boarding secondary schools in kanduyi constituency.

4.4 Influence of peer group prior achievement on academic performance of form one students in girl boarding secondary school in Kanduyi constituency

The study sought to establish the influence of peer group prior achievement on student academic performance in public secondary schools under the following themes.

4.4.1 Influence of Peer group members prior grades on academic performance

The study sought to establish the influence of peer group membership of former school mates who scored good marks in KCPE on academic performance. The findings are shown in table 4.3.

Table 4.3 influence of peer group prior grades on academic performance

KCPE	Performance		Total	Chi-square
Marks	Good: 500-1100mks	Poor: Below 500mks		
400-500	18	2	20	1.25
300-399	32	10	42	0.381
200-299	22	6	28	0.035
Total	**72**	**18**	**90**	**1.666**

The findings revealed a calculated chi-square of 1.666 which was below the table chi-square of 7.815 at a probability level of 0.05 (5% significant level) hence the expected results were significant to the observed results. It was deduced that the expected results were consistent with the observed results as chi-square calculated was lower than the chi-square table thus peer group members who scored good marks in KCPE had positive influence on girl student academic performance in girl secondary schools. My reading of this result was Students seemed to do better in their early stages of Secondary school when their new Schoolmates had a good record of prior achievement. There was also some form of social interaction between students that promoted higher attainments. The findings were in line with other previous findings by (Epple and Romano, 2000) who asserted that Schools seem often to be judged on the kind of children they enroll, rather than on the quality of their teaching or the other facilities they offer. This observation led many to argue that the background and abilities of a pupil's school-mate have an important influence on his or her own achievements at school. Motivated by this, a rich international literature evolved to try to model and measure the consequences of social interactions between pupils – so called 'peer-group effects' – spanning the economics, education, sociological and psychological fields.

4.4.2 Influence of peer group learning resources on girl student academic performance in boarding secondary schools

The study sought to determine the extent to which peer group learning resources influenced the academic performance of girl students in girls boarding secondary schools. The sampled students were asked to rate the influence of text book ratio on girl student performance and the findings are in the table 4.4.

Table 4.4 Influence of text book ratio on girl student academic performance in boarding secondary schools

Text books	Performance		Total	Chi-square
Student ratio	Good: 500-1100mks, poor: Below 500mks			
1-2	32	4	36	3.45
1-3	20	6	26	0.02
1-4	12	8	20	2.76
1-5	4	4	8	2.84
Total	**68**	**22**	**90**	**9.07**

The chi-square calculated was 9.07 and is greater than the chi-square table of 7.815 at probability level of 0.05 (5% significant level) hence the expected results were insignificant to the observed results. From the table above it was asserted text books had no significant influence on girl student performance in boarding girl secondary schools. Therefore performance is not influenced by text book student ratio because students can perform well due to group discussions or using their notes given by their teachers. This view is also shared by previous studies by Coleman.(1966), Understanding the nature and the magnitude of peer group effects in education is crucial for the "productivity" of educational processes and the organizational design of school systems. for example, in order to improve student outcomes, it is important to know which inputs influence their performance most and the relative importance of peer effects compared to other inputs, such as

teacher quality or school resources. More importantly, the nature of peer effects also has fundamental implications in a family's choice with regards whether parents consider that their offspring would benefit from schools which sort students according to their abilities.

4.5 Influence of peer group composition on girl student academic performance in secondary schools.

The study sought to investigate whether peer group economic stability had boosted girl student academic performance under the following indicators.

4.5.1. Influences of peer group pocket money spent per month on girl student academic performance in secondary schools.

The study sought to reveal the extent to which peer group pocket money spent per month had influenced the academic performance of girl students in girls boarding in secondary schools. The sampled students were asked to rate the following given statements as the indicators the: 0-499, 500-999, 1000-1999, and the findings are in the table 4.5.

Table 4.5 Influence of peer group pocket money spent per month on girl student academic performance in secondary schools.

Pocket money	**Performance**		**Total**	**Chi-square**
Spend per month	**Good: 500-1100mks, Poor: Below 500mks**			
000-499	19	2	21	1.68
500-999	30	12	42	1.4
1000-1999	22	5	27	0.10
Total	**71**	**19**	**90**	**3.18**

The chi-square calculated was 3.18 and is less than the chi-square table of 7.815 at probability level of 0.05 (5% significant level) hence the expected results were consistent with the observed results. The findings showed that majority of respondents indicated that little pocket money spend per month had a positive influence to girl student performance. This showed that low money spent by peers was

an important ‘contextual’ influence on student attainments because too much money distracts the attention of the students towards education causing poor academic performance. The findings were also in line with other previous findings which asserted that Parents recognized the importance of peer groups and – through their choice of neighborhoods, schools, and activities regardless of their economic backgrounds (Haynie, South and Bose 2006; Lareau 2003; Mouw and Entwisle 2006) – parents attempt to guide and direct their Children’s friendship selections, which can be increasingly challenging during adolescence. Regardless of socioeconomic status, parents want their children to be surrounded by the best possible social networks, especially during adolescence, when youth are increasingly independent from parents. During these formative years, educational goals take form, and youth make a series of decisions that shape their educational trajectories, even as their friendship networks gain influence upon these decisions.

4.5.2 Influence of peer group family background on girl student academic performance in secondary schools.

The study sought to reveal the extent to which peer group family background had influenced the academic performance of girl students in girls boarding in secondary schools. The sampled students were asked to rate the following given statements as the indicators starting with a rich family background and then a poor family background under the following indicators, influence, no influence, little influence and undecided and table 4.6 shows the study findings.

Table 4.6 Influence of peer group family background on girl student academic performance in secondary schools

Family Background	Performance		Total	Chi-square
	Good: 500-1100mks	Poor: Below 500mks		
Rich	44	5	49	4.08
Poor	26	15	41	4.88
Total	**70**	**20**	**90**	**8.96**

The chi-square calculated was 8.96 and was higher than the chi-square from the table which is 7.815 at a probability level of 0.05(5% significant level) hence the expected results were insignificant to observed results, Therefore it was deduced that neither a rich family background nor a poor family background had any significant influence on girl student academic performance, the findings were in contrary with other findings by Duflo and Saez (2000) whose reflection seemed very likely that students from rich backgrounds tended to perform better compared to others from poor backgrounds. However, the more interesting possibility was that rich peer group behaviour or attributes could modify individual actions in relation to important social and economic decisions that would affect their life chances – especially achievement in education.

4.6 Influence of peer group teacher/ student learning environment on girl student academic performance in secondary schools.

The study sought to establish the Influence of peer group teacher/ student learning environment on girl student academic performance in secondary schools under the following indicators.

4.6.1 Influence of career counselors on girl student academic performance in secondary schools

The study sought to reveal the extent to which career counselors had influenced the academic performance of girl students in girls boarding in secondary schools. The sampled students were asked to rate the following given statements as the indicators on whether the number of times a student has

been counseled had any influence on their academic performance. Starting from 1-2 times per term, 3-5, and 6-7; table 4.7 shows the study findings.

Table 4.7 Influence of number of times a student was counselled on girl student academic performance in secondary schools

No of times Counselled	Performance		Total	Chi-square
	Good: 500-1100mks	Poor: Below 500mks		
01-02	18	2	20	1.25
03-05	32	10	32	0.381
06-07	22	6	28	0.035
Total	**72**	**18**	**90**	**1.666**

The calculated chi-square was 1.666 which was less than chi-square in the table which: 7.815 at probability level of 0.05 (5% significant level) hence it was deduced that a low number of time counselled influence the academic performance of girl students. The research concludes that the fewer the number the student was counseled indicated the discipline of the student that positively influenced the academic performance. This finding were in line with other previous findings by Fennema and Sherman (1995) found that students of teachers who were well- organized, achievement-oriented and enthusiastic tended to have more positive attitudes towards education. In support of other studies concerning the influence of career counselors, the students mentioned the teacher, in both personality and interrelationships with students as a crucial variable in academic performance (Bolaji Caleb, 1996). Teacher personality, relations and interactions with students' classroom activities, rewards, assignments and students work are all controlled by the teachers. The results from this study suggested the need for the teachers to develop positive relations with students, to stress classroom activities which involve active- teaching process and student participation and to engage students meaningfully in the subject, so that a fruitful and satisfying results is assured.

4.6.2 Influence of the number of exams taken by peer group on student academic performancein girl secondary schools

The study sought to establish the extent to which the number of exams taken by peer group together had influence on student academic performance in girl secondary schools. The sampled students were asked to rate the number of exams taken together in relation to their peer group academic performance. The findings are shown in the table 4.8.

Table 4.8 Influence of the number of exams taken together by peer group members on student academic performance in girl secondary schools

No. of exams	Performance		Total	Chi-square
Taken	Good: 500-1100mks	Poor: Below 500mks		
5 Times	19	2	21	1.68
4 Times	30	12	42	1.4
3 Times	22	5	27	0.1
Total	**71**	**19**	**90**	**3.18**

The calculated chi-square was 3.18 which was less than chi-square in the table which is 7.815 at probability level of 0.05 (5% significant level) hence it showed that the expected results were consistent with the observed results since they were significant. Therefore it was deduced that the number of exams taken by a peer group together had a positive influence on girl student academic performance. From the study the researcher concluded that the student's interaction and discussions improves student's academic performance. The findings were in line with other previous findings by Foster, (2006) who asserted that apart from peer effects related to the classroom environment, students belonging to the same class tend to study and revise the subject together, so generating important externalities. Clearly, friendly teacher/student relationships boosted academic achievements of all members of a class. In fact, students who continually do exams in the same session with one another are often students who study together, sharing course material and information. We looked at

the students teaching environment as having had a big influence to their performance and we used this information to define a second measure of peer group quality, which weight the abilities of each student according to the number of exams taken together.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter provides a summary of findings as deduced by the study, it also presents Conclusions, Recommendations of the study and areas for further research.

5.4 Summary of findings

The purpose of this study was to investigate peer group influence on girl student academic performance in girl boarding schools in Kanduyi constituency, Bungoma County.

On the influence of peer group prior achievement on student academic performance in public secondary schools, The findings revealed that 1.666 chi-square indicated that peer group members who scored 400-500 marks in KCPE had a positive influence on girl student academic performance, The findings also show that text book ratio had no significant influence on girl student performance in boarding girl secondary schools with a chi-square of 9.08 at probability level of 0.05 (5% significant level).

Concerning the influence of peer group composition on girl student academic performance in secondary schools the findings showed that little pocket money spend per month had a positive influence to girl student performance with a chi-square of 3.18. The findings also revealed that a rich nor a poor family background had no significant influence on girl student academic performance by a chi-square 8.96.

Investigation on the influence of peer group teacher/ student learning environment on girl student academic performance in secondary schools showed that a low number of times counselled influenced the academic performance of girl students by a chi-square of 1.666. The findings also showed that the number of exams taken by a peer group together had a positive influence on girl student academic performance with a chi-square of 3.18.

5.5 Conclusions.

It was deduced that peer group members who scored good marks in KCPE had positive influence on girl student academic performance in girl secondary schools. Students seemed to do better in their early stages of Secondary school when their new Schoolmates had a good record of prior achievement. My reading of this result was that there was some form of social interaction between students that promoted higher attainments. And lastly it was asserted that peer group text book ratio had no significant influence on girl student performance in boarding girl secondary schools.

Concerning influence of peer group composition on girl student academic performance in secondary schools, The findings showed that little pocket money spend per month had a positive influence to girl student performance. This showed that low money spend by peers is an important 'contextual' influence on student attainments. It was deduced that neither a rich nor a poor family background had any significant influence on girl student academic performance, the findings were contrary with other findings by (Duflo and Saez 2000) whose reflection seemed very likely that students from rich backgrounds tended to perform better compared to those from poor backgrounds. However, the more interesting possibility is that rich peer group behaviour or attributes could modify individual actions in relation to important social and economic decisions that could affect their life chances – especially achievement in education.

Investigation on the influence of peer group student learning environment on girl student academic performance in secondary schools showed that the less the time a student was counselled the more the influence on student academic performance. It was deduced that students learning environment had a positive influence on girl student academic performance.

5.4 Recommendations of the Study

On the basis of the findings and conclusions above, the following section presents the recommendations of the study**.**

1. Students and school stakeholders should be made a ware of the benefits of peer group prior achievements as it greatly influences academic performance of students in secondary schools.

2. Schools administration and other stakeholders should advise the parents on the amount of money to give to their daughters as pocket money as it has influence on the academic performance of the students in secondary schools.

3. School administration and stakeholders should provide good teaching/ learning environment in order to achieve good academic performance

5.5 Recommendation for further research

The research recommended the following areas for further studies

A similar study on female academic performance be undertaken in other counties so as to compare the study findings

REFERENCES

Ammermueller, A. and Pischke, J., (2006), Peer Effects in European Primary Schools.

and William Tye, 436-68. Washington, DC: Brookings Institution.

Angrist, J. and Krueger A. (1999), Empirical Strategies in Labor Economics, *Handbook of*

Angrist, J. D. and K. Lang, (2004), Does School Integration Generate Peer Effects? Evidence

Arcidiacono, P. and S. Nicholson, (2005), Peer Effects in Medical School, *Journal of Public*

Arcidiacono, P., Foster, G., Goodpaster, N., Kinsler, J. (2005), Estimating Spillovers in the

Armor, David J. (1995) Forced justice: School desegregation and the law. New York: Oxford

Bayer, P., Hjalmarsson, R., Pozen, D. (2007), Building Criminal Capital behind Bars: Peer

Benabou, Roland. (1993) Workings of a city: Location, education, and production. Quarterly Journal of Economics 434, no. 3

Betts, J., and Morell, D., (1999), The Determinants of Undergraduate GPA: The Relative

Cambridge, MA: Health-Lexington. The trade-off between child quantity and quality.

Case, A., and Katz, L., (1991), The Company You Keep: The Effect of Family and

Caucutt, Elizabeth M. (1998) Educational policy when there are peer group effects. Department of

Center Conference, Achieving Universal Literacy, University of Texas at Dallas,

Classroom with Panel Data, mimeo *Duke University*.

Coleman, et al., (1966), Equality of Educational Opportunity, Washington, DC: U. S.

Coleman, James S.(1966) Equality of educational opportunity. Washington, D.C.: U.S. Government

company you keep. Evidence on peer effects in educational choices, *mimeo*.

Costrell, R., (1994), A Simple Model of Educational Standards. *American Economic Review,*

Countries, *Journal of Policy Analysis and Management*, 19

Crain, Robert L., and Rita E. (1978). Desegregation and black achievement: A revie w of the

Dallas,

De Bartolome, Charles A. M. (1990) Equilibrium and inefficiency in a community model with peer

De Giorgi, G., Pellizzari, M., Redaelli, S., (2006), Be as careful of the books you read as of the

Degree: Evidence from Tuition Discontinuities, *NBER Working Paper*, N. 12863.

Ding W. and Lehrer S. (2006), *Do Peers Affect Student Achievement in China's Secondary*

Does It Matter? Science. Economics of Education Review (forthcoming).

Economics, 89, Economics, University of Rochester (mimeo).

Economics, educational production functions. Ottawa, Canada: Economic

Council of Canada, 1976. Effects in Juvenile Corrections, *NBER Working Paper* no. 12932.

Epple, D. and R. E. Romano, (1998), Competition between private and public schools,

Essays in transportation economics, edited by Clifford Winston, Jose A. Gomez-Ibanez

Evaluation in Education.

Evans, W, Oates, W. and Schwab, R. (1992), Measuring Peer Group Effects: A Study of

Evans, William, Wallace Oates, and Robert Schwab.(1992) Measuring peer group effects: A study

Evidence from PIRLS, *NBER Working Paper* no. 12180.

evidence from the Harvard/UTD Texas schools project. Paper presented at the Green

Experiment, *Review of Economics and Statistics*, 85

Fernandez, Raquel, and Richard Rogerson. (1996) Income distribution, communities, and the

Foster, G., (2006), It's not Your Peers, And It's Not Your Friends: Some Progress Toward

from Boston's Metco Program, *American Economic Review,* 94

Garibaldi, P., Giavazzi, F., Ichino, A., Rettore, E., 2007, College Cost and Time to Complete a

Government Printing Office. group effects. Journal of Political Economy.

Hanushek, E. A., J. F. Kain, J. M. Markman, and S. G. Rivkin, (2003), Does peer ability affect

Hanushek, Eric A. (1972) Education and race: an analysis of the educational production process.

Hanushek, Eric A., John F. Kain, and Steven G. Rivkin. (1998) Does special education raise

Henderson, Vernon, Peter Mieszkowski, and YvonSauvageau. Peer group effects and

Hopkins University (mimeo).

Hoxby, C., (2000), Peer effects in the classroom: Learning from gender and race variation,

Hoxby, Caroline Minter (1998). The effects of class size and composition on student achievement: Importance of Family Background, High School Resources, and Peer Group Effects, *Journal of Human Resources*, Journal of Political Economy.

Kain, John F., and Daniel M. O'Brien. (1998) A longitudinal assessment of reading achievement

Kremer, M., Miguel, E. and Thornton, R. (2007), Incentives to Learn, *mimeo*, Harvard *Labour Economics*, pp. 1277-1366.

Lazear, E., (2001), Educational Production, *Quarterly Journal of Economics*, Logit Approach, *Applied Economics*, 34, pp. 2031-41.

Manski, C., (1993), Identification of Endogenous Social Effects: The Reflection Problem

Manski, Charles F. (1993) Identification of endogenous social effects: The reflection problem.

Mayer, Susan E., and Christopher Jencks. (1989) Growing Up in Poor Neighborhoods: How Much

Moffitt, Robert A. (1998) Policy interventions, low-level equilibria, and social interactions. Johns

Moulton, B.R. (1990), An Illustration of a Pitfall in Estimating the Effects of Aggregate *NBER Working Paper* 7867. Neighborhood on Disadvantaged Youths, *NBER Working Paper* No. 3705. New evidence from natural population variation. National Bureau of Economics Research,

Oakes, Jeannie. (1985)Keeping track: How schools structure inequality. New Haven, CT: Yale of teenage behavior. Journal of Political Economy.

O'Regan, Katherine M., and John M. Quigley. (1999) Accessibility and economic opportunity. In Printing Office quality of public education. Quarterly Journal of Economics. Research, Working Paper No. 6690 research. Law and Contemporary Problems. Review of Economic Studies 60 (July 1993): *Review of Economic Studies*,

Rivkin, Steven G. (1998) Tiebout sorting, aggregation, and the estimation of peer group effects.

Rivkin, Steven G., Eric A. Hanushek, and John F. Kain. (1998) Teachers, schools, and academic Roommates, *Quarterly Journal of Economics*,

Rosenbaum, James E., and Susan J. Popkin. (1991) Employment and earnings of low-income Blacks

Sacerdote, B., (2001), Peer Effects with Random Assignment: Results for Dartmouth

Sanders, William L., and Sandra P. Horn. (1994) The Tennessee value-added assessment system

Sawkins, J., (2002), Examination Performance in Scottish Secondary Schools: An Ordered *School*? NBER Working Paper No. 12305.

science and math achievement across OECD, *Applied Economics*, 34, 1283-1290.

Stock, J. and M. Watson, (2003), *Introduction to Econometrics*, Pearson Education Inc.

student achievement?, *Journal of Applied Econometrics*,

Summers, Anita, and Barbara Wolfe. (1977) Do schools make a difference? American Economic Teenage Behavior, *Journal of Political Economy*,

U.S. Commission on Civil Rights. (1967)Racial isolation in the public schools. Washington, DC: Understanding the Educational Peer Effect Mechanism, *Journal of Public* University Press.

Vandenberghe V. (2002), Evaluating the magnitude and the stakes of peer effects analyzing Variables on Micro Units, *The Review of Economics and Statistics*,

vouchers, and peer-group effects, *American Economic Review,*

who move to middle-class suburbs. In The urban underclass, edited by Christopher Jencks and Paul E. Peterson. Washington, DC: Brookings Institution.

Working paper, (1999) Green Center for the Study of Science and Society, University of Texas at Working Paper.

Zimmer, R. W. and E. Toma, (2000), Peer effects in private and public schools across

Zimmerman, D., (2003) Peer Effects in Academic Outcomes: Evidence from a Natural

APPENDIX I: LETTER OF INTRODUCTION

Date …… 2013

To Whom It May Concern

Dear Sir/Madam

REF: REQUEST FOR COLLECTION OF DATA.

I, Mapesa Sophy, Reg. No. L50/84226/2012, I am a post graduate student at the school of continuing and a distance education, university of Nairobi. I am conducting a research study titled ***"Peer influence on Girl Students' academic performance in girls boarding secondary schools in Kanduyi constituency, Bungoma County"***.

You have been selected to form part of this study, kindly assist by filling in the attached questionnaire. The information given will be treated with strict confidence, and will be purely for academic purposes. Do not indicate your name or unwanted details on the questionnaire.

A copy of finding report will be availed upon your request. Your assistance and cooperation will be highly appreciated.

Yours Sincerely,

Mapesa Sophy,

L50/84226/2012

Dr. Mbugua,

Lecturer

Department of Educational Studies

University of Nairobi

APPENDIX II: RESEARCH PERMIT FROM THE NATIONAL COUNCIL OF SCIENCE AND TECHNOLOGY

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THIS IS TO CERTIFY THAT:
Prof./Dr./Mr./Mrs./Miss/Institution
Sophy Mapesa Misanya
of (Address) University of Nairobi
P.O Box 422, Kakamega.
has been permitted to conduct research in
Bungoma South — Location
Western — Province
on the topic: Effect of peer influence on form one girl students academic performance in girls boarding secondary schools Kanduyi Constituency: Kenya.
for a period ending: 31st December, 2013.

Applicant's Signature

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Research Permit No. NCST/RCD/14/013/996
Date of issue 13th June, 2013
Fee received KSH. 1000

For Secretary
National Council for Science & Technology

APPENDIX III: QUESTIONNAIRE FOR THE FORM TWO STUDENT.

Thank you for your interest in participating in this survey.

The purpose of this study is to collect data on the Peer influence on girl student academic performance in girl boarding Secondary schools in kanduyi constituency; Kenya.

This Questionnaire is a part of Master of Arts in Project Planning and Management at the University of Nairobi, and is completely for academic purposes. Your answers will be treated with confidentiality. Please indicate the correct option as honestly and as correctly as possible by putting a tick (√) on one of the options. For the questions that require your opinion, please complete the blank space.

SECTION A: DEMOGRAPHIC DETAILS OF RESPONDENTS (PLEASE CHECK ALL THAT APPLY)

PARTICIPANT DETAILS	**DESCRIPTION**
Age	☐ 16 – 20 ☐ 20 – 25 ☐ >26
Sex	☐ Male ☐ Female
Level of your school	☐ District ☐ Province ☐ National
Type of your school	☐ Public ☐ Private
Role	☐ Leader ☐ Not Leader

SECTION B: INFLUENCE OF PEER GROUP PRIOR ACHIEVEMENT ON GIRL STUDENT ACADEMIC PERFORMANCE

On a scale of SD, DM, AM, SA, N, please tick one answer that best describe your response.

SD – Strongly Disagree, DM – Disagree Mildly, AM – Agree Mildly, SA – Strongly Agree and N – None.

2. I belong to a peer group

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

14 a) My peer group comprise of my former school mates who scored the following marks in k.c.p.e

400-500 ☐ 300-399 ☐ 200-299 ☐ 100-199 ☐

b) My peer group prior marks influenced my current academic performance in my end of year marks

SD ☐ MD ☐ AM ☐ SA ☐ N ☐

15 My peer group comprise of members who had previously scored good grades

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

16 The text book ratio in our school is as follows

1-1 ☐ 1-2 ☐ 1-3 ☐ 1-4 ☐ 1-5 ☐

17 The text book ratio has had great influence on my academic performance

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

SECTION C: INFLUENCE OF PEER GROUP COMPOSITION ON GIRL STUDENT ACADEMIC PERFORMANCE

18 a) How much pocket money do your peer group spend per month

000-499 ☐ 500-999 ☐ 1000-1999 ☐ 2000 and above ☐

b) Low amount of pocket money spend by my peer group influence my academic performance

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

c) High amount of pocket money spend by my peer group influenced my academic performance?

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

19 My peer group poor family background has boosted my academic performance

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

20 My peer group rich family background has influenced my academic perfomance

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

21 I am limited to my academic grades by my peer group family background

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

SECTION D: INFLUENCE OF PEER GROUP LEARNING ENVIRONMENT ON GIRL STUDENT ACADEMIC PERFORMANCE

22 How many times did your peer group counseled within your first year of secondary school?

1-5 ☐ 6-10 ☐ 11-15 ☐ 16 and above ☐

23 Does the number of times counseled have any influence to academic performance? Yes ☐ No ☐

24 If yes, explain how ……...……

25 Number of exams taken together by your peer group influence your academic performance of?

SD ☐ DM ☐ AM ☐ SA ☐ N ☐

14 Pleas rank the following factors by ticking: 1 strongly Agree 2.Agree 3.Neutral 4.Disagree 5.Strong Disagree.

Influence of learning environment on girl student performance	**1**	**2**	**3**	**4**	**5**
No. of exams taken together					
Freedom from noisy classes					
Student/Teachers interaction					
Freedom from drugs abuse					

APPENDIX IV: QUESTIONNAIRE FOR THE TEACHER IN-CHARGE OF STUDENT'S GUIDANCE AND COUNSELING

Thank you for your interest in participating in this survey.

The purpose of this study is to collect data on the Peer influence on girl student academic performance in girls boarding Secondary schools in Kanduyi constituency; Kenya.

This Questionnaire is a part of Master of Arts in Project Planning and Management at the University of Nairobi, and is completely for academic purposes. Your answers will be treated with confidentiality. Please indicate the correct option as honestly and as correctly as possible by putting a tick (√) on one of the options. For the questions that require your opinion, please complete the blanks.

SECTION A: GENERAL DETAILS (PLEASE CHECK ALL THAT APPLY)

Participant details	**Description**
Age	☐ 25 – 34 ☐ 35 – 44 ☐ 45 – 54 ☐ 55 – 60
Sex	☐ Male ☐ Female
Level of your school	☐ District ☐ Provincial ☐ National
Type of your school	☐ Public ☐ Private

SECTION B. EFFECTS OF PEER INFLUENCE ON GIRL STUDENT PERFORMANCE IN KCSE IN PUBLIC SCHOOLS

6. Would you please state your role as guidance and counseling teacher?

   ……

   ……

7. How do you rate the effects of peer influence on girl student performance in KCSE from the most influential to the least influential?

Please rank the following factors by ticking: 1 strongly Agree 2.Agree 3.Neutral 4.Disagree 5.Strong Disagree.

Effects of peer influence on girl student performance in KCSE	**1**	**2**	**3**	**4**	**5**
Peer group prior achievements					
Peer group background					
Peer group composition					
Peer group teaching environment					
Peer group learning interactions					

8. In your opinion what are the peer group effects that influence girl student performance in KCSE that have come out to be so effective …….. (Please give an explanation)……..
9. As a guiding and counseling teacher, what motivates/steer you to intervene during peer group influence?

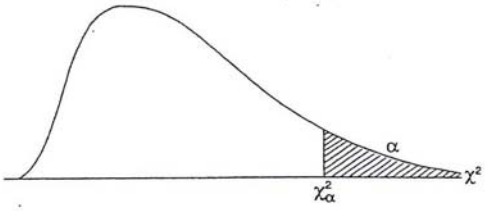
   .....
10. In your opinion, what effect of peer group influence girl student performance in KCSE that should be relied on when a student join peer group?

    ……

APPENDIX V: THE CHI-SQUARE TABLE

TABLE – 10
CHI-SQUARE DISTRIBUTION

The following table provides the values of χ_α^2 that correspond to a given upper-tail area χ and a specified number of degrees of freedom.



Degree of Freedom	Upper-Tail Area					
	.20	.10	.05	.02	.01	.001
1	1.642	2.706	3.841	5.412	6.635	10.827
2	3.219	4.605	5.991	7.824	9.210	13.815
3	4.642	6.251	7.815	9.837	11.345	16.268
4	4.989	7.779	9.488	11.668	13.277	18.465
5	7.289	9.236	11.070	13.388	15.086	20.517
6	8.558	10.645	12.592	15.033	16.812	22.457
7	9.083	12.017	14.067	16.622	18.475	24.322
8	11.030	13.362	15.507	18.168	20.090	26.125
9	12.242	14.648	16.919	19.679	21.666	27.877
10	13.442	15.987	18.307	21.161	23.209	29.588
11	14.631	17.275	19.675	22.618	24.725	31.264
12	15.812	18.549	21.026	24.054	26.217	32.909
13	16.985	19.812	22.362	25.472	27.688	34.528
14	18.151	21.064	23.685	26.873	29.141	36.123
15	19.311	22.307	24.996	28.259	30.578	37.697
16	20.465	23.542	26.296	29.633	32.000	39.252
17	21.615	24.769	27.587	30.995	33.409	40.790
18	22.760	25.989	28.869	32.346	34.805	42.312
19	23.900	27.204	30.144	33.687	36.191	43.820
20	25.038	28.412	31.410	35.020	37.566	45.315
21	26.171	29.615	32.671	36.343	38.932	46.797
22	27.301	30.813	33.924	37.659	40.289	48.268
23	28.429	32.007	35.172	38.968	41.638	49.728
24	29.553	33.196	36.415	40.270	42.980	51.179
25	30.675	34.382	37.652	41.566	44.314	52.620
26	31.795	35.563	38.885	42.856	45.642	54.052
27	32.912	36.741	40.113	44.140	46.963	55.476
28	34.027	37.916	41.337	45.419	48.278	56.893
29	35.139	39.087	42.557	46.693	49.588	58.302
30	36.250	40.256	43.773	47.962	50.892	59.703