

**SCHOOL ENVIRONMENT AND DROPOUT RATE OF STUDENTS IN
SECONDARY SCHOOLS IN TRANSMARA DISTRICT,
KENYA**

A Thesis

Presented to the faculty of Education

Kampala International University

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In Partial Fulfillment of the Requirements for the Degree of
Bachelor of science with Education

By:

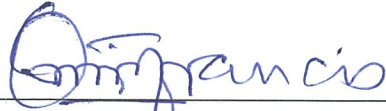
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DECLARATION A

"This thesis is my original work and has not been presented for a Degree or any other academic award in any University or Institution of Learning".

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Name and Signature of Candidate

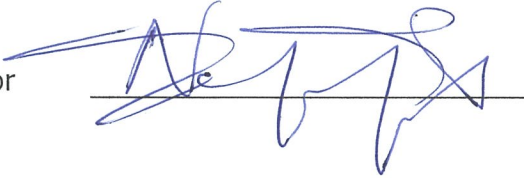
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DECLARATION B

"I/We confirm that the work reported in this thesis was carried out by the candidate under my/our supervision".

Name and Signature of Supervisor

A handwritten signature in blue ink, consisting of several loops and strokes, positioned over a horizontal line.

Mr. Tindi Seje

Date

DEDICATION

This book is dedicated to my beloved parents Mr. John Mamura Olekaka and Mrs. Mary Noorbarisho Kaka for the love and support during the period of the study.

ACKNOWLEDGEMENT

First of all I give thanks to the almighty God for his mercy and grace granted to me during this time of my degree course and through this research project.

I would like to thank my supervisors Mr. Tindi Seje for being there for me whenever I needed them and also offering their Valued professional advice where necessary.

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I would also like to thank the respondents who returned the questionnaires and those who were cooperative to me.

May God bless you all.

ABSTRACT

The study set out to investigate the effect of school environment on dropout rate of students in selected secondary schools of Transmara District, Kenya. The specific objectives of the study were to investigate the level of class size and levels of student drop out and finally the relationship between school environment and academic dropout of students in Transmara District. The study used a descriptive correlative survey research design. The methods of data collection was questionnaires. The findings revealed that school environment affects the dropout of students. Class size also has a significant effect on dropout of students. The study recommended that School facilities should be provided in schools so that children understand what they are taught. More teachers should be trained to cater for the growing number of students due to free secondary education scheme. The school environment should be made conducive for the students for example a clean environment should be emphasized and security provided. Parents should be sensitized on the importance of participating in their children's education and school activities.

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CHAPTER ONE

THE PROBLEM AND ITS SCOPE

Background of the Study

School environment refers to the community in which the school is located, such as a village, hamlet or rural area (fewer than 3000 people), a small town, a town, a city, close to the centre of a city with over 1000000 people or elsewhere in a city with over 1000000 people.(Education at a Glance, OECD, Paris, 2002)

Education is a basic human right and has been recognized as such since the 1948 adoption of the Universal Declaration on Human Rights. Since then, numerous human rights treaties have reaffirmed this right and have supported entitlement to free, compulsory secondary education for all children.(UNESCO, 2010)

The UN Special Initiative on Africa stresses the need to improve opportunities for those most likely to be deprived of education in particular girls and women. Nineteen sub-Saharan African countries have female literacy rates below 30 percent and less than half of 6-11 year old girls are estimated to be in school of which 80 percent do not progress further due to environment hazards. These negative trends persist, despite the overwhelming evidence that investing in female education has a high return in greater earning ability for families, reduced fertility and infant mortality, and increased levels of public health.

UNESCO, UNICEF and the World Bank are all actively working to promote greater access and progress to education for girls. One interesting effort is collaboration with the Forum of African Women Educationalists (FAWE), a pan-African non-governmental organization based in Nairobi, Kenya.

In most developing countries, girls do not receive the same educational opportunities as boys. Even when given the opportunity to be educated, the girls typically face formidable barriers to the completion of their studies. For example, while virtually all girls in Kenya are initially enrolled in secondary school, approximately 65% of them dropout before completing Standard 8 (source: Forum for African Women Educationalists). Many of the barriers that girls face in striving to stay in school are either directly or indirectly related to reproductive health, sexual behavior, and maturation. Some of the causes of school dropout in Kenya include early marriage, pregnancy, lack of gender appropriate facilities in schools (such as latrines), low self-esteem, lack of money, harassment by male teachers and fellow students, and the low value placed on the education of girls by their parents and society in general (Ministry of Education 2010).

The rate of transition from primary to secondary education increased to about 60 percent in 2010 (from 46 percent in 2003). But as at the secondary level, regional disparities in overall enrollment rates exist in secondary schools. In 2009, the secondary gross enrollment rate (number of enrolled children as a percent of the number of children in the official school-age group) was 6.3 percent in the Northeastern province (8.6 percent of boys and 3.6 percent of girls), compared with a national average of 32.2 percent (34.6 percent of boys and 29.9 percent of girls). Moreover, girls' gross enrollment rates are lower than boys' across regions, and the relatively high gender ratios achieved at the secondary level in certain regions are not maintained as many girls dropout of school (Republic of Kenya 2008).

At the university level, women remain underrepresented, forming about 40 percent of the total student population in 2010 (Republic of Kenya 2008). Women's low rates of attendance at the university level reflect the cumulative effect of factors hindering their progression in education from the time they enter school at the pre-secondary level. Women's representation remains low despite the fact that the government has lowered girls' required university entry points (calculated based on

grades and difficulty of courses taken at the secondary level) by one point to improve women's access to university education (Committee on the Elimination of Discrimination Against Women 2009). The effects of this low representation in education are reflected in the labor market, where women represent only 30 percent of all wage employees in the modern sector (Republic of Kenya 2008).

Statement of the Problem

Different schools are faced with different challenges depending on the school environment and yet the factor of environment is not considered as a cause for low levels of progression among students. However research has found out that today, Transmara District is among the highest rated areas with high dropout rates in Kenya. High level of drop out from school is threatening the academic fiber of Kenya since many youths who have dropped out from school end up becoming social misfit in the society. It is therefore prudent to examine the possible causes of students drop out if this problem is to be addressed. It is against such background that the study sought to find out the relationship between school environment on dropout of students.

Purpose of the Study

The purpose of the study was to assess the relationship between school environment and dropout rate of students in selected secondary schools of Transmara District, Kenya.

Research Objectives

1. To determine the demographic characteristics of respondents
in respect to Age, Gender, level of education and Education qualification
2. To determine the levels of School environment in secondary schools in Transmara District.
3. To determine the levels of students' dropout rate in Transmara District.

4. To determine whether there is a significant relationship between the levels of school environment and students' dropout rates.

Research Questions

1. What are the demographic characteristics of respondents in respect to Teachers' Age, Gender and experience and Education qualification?.
2. What is the level of School environment and Dropout rate in secondary schools in Transmara District?
3. What is the level of students' dropout rate in secondary schools in Transmara District?
4. Is there a significant relationship between the levels of environment and students dropout rates?

Hypothesis

1. There is no significant relationship between the school environment and students' dropout rate in Transmara District.

Scope

Geographical scope; The study took place in Transmara District. District is located in the Rift Valley province.

Content scope; The study limited itself to investigating the relationship between school environment and dropout rate of secondary school students in Transmara District. The study was limited to the objectives of the study.

Time scope; The study took place for a period of four months starting in April to december 2011.

Theoretical scope; This study was underpinned by Heider (1958)'s attribution Theory. Heider discussed what he called "naïve" or "commonsense" psychology. In his view,

people were like amateur scientists, trying to understand other people's behavior by piecing together information until they arrived at a reasonable explanation or cause.

Significance of the Study

The study findings might be of value to the following;

Policy makers; The study findings is of importance because it would accord policy makers to make policies that will help consider school related problems according to their environments.

Government; It would also help the Government understand the different problems certain schools face because of their environment and therefore allocate appropriately school resources. The study would enlighten the government on the need to provide funding for school infrastructure in order to solve the problem of class size.

Parents; In the past parents have been choosing schools for their students with out counseling on which choice of school to choose. The study findings might guide parents on how to make school choices that are perfect for their children.

Head teachers and teachers; Sometimes do not deal with the problem appropriately due to lack of understanding for the real cause and poor performance; the research will help them to know how to deal with the different problems that their schools face.

Operational Definitions of Key Terms

For the purpose of the study the following terms were defined.

School Environment : with regard to this study, the school environment refers to aspects that students interact with in their school surrounding , majorly classified in to school facilities, class size and teacher quality.

School drop out: the number of students who enroll in a school during a year but leave the school before the end of their four year course.

School Enrolment; the act of registering in to a school with the purpose of being a student therein.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Concepts, Ideas, Opinions from authors/ experts

School Environment.

The physical school environment encompasses the school building and all its contents including physical structures, infrastructure, furniture, and the use and presence of chemicals and biological agents; the site on which a school is located; the surrounding environment including the air, water, and materials with which children may come into contact, as well as nearby land uses, roadways and other hazards. The physical school environment has a strong influence on children's health for several reasons. First, the environment is one of the primary determinants of children's health: contaminated water supplies can result in diarrhoeal disease; air pollution can worsen acute respiratory infections and trigger asthma attacks; and exposure to lead, arsenic, solvents, and pesticides can cause a variety of health effects and even death.

Second, children may be more susceptible to the adverse health effects of chemical, physical, and biological hazards than adults. Reduced immunity, immaturity of organs and functions, and rapid growth and development can make children more vulnerable to the toxic effects of environmental hazards than adults. Relative to their body weight, they breathe more air, consume more food and drink more water than adults. Their exposure to any contaminant in air, water, or food will therefore be higher than experienced by adults. Children spend much of their day within school environments during critical developmental stages. Third, children's behavioural patterns are distinctively different from adults and place them at risk from exposure to environmental threats that adults may not face. These behaviours include placing fingers and other objects in the mouth and not washing hands before eating. Children

lack the experience to judge risks associated with their behaviours. Adolescents, in particular, are more likely to take risks, such as climbing and jumping from unstable structures. Why increase efforts to improve the physical environment at schools?

The physical school environment has a strong influence on children's health for several reasons. First, the environment is one of the primary determinants of children's health: contaminated water supplies can result in diarrhoeal disease; air pollution can worsen acute respiratory infections and trigger asthma attacks; and exposure to lead, arsenic, solvents, and pesticides can cause a variety of health effects and even death. Second, children may be more susceptible to the adverse health effects of chemical, physical, and biological hazards than adults. Reduced immunity, immaturity of organs and functions, and rapid growth and development can make children more vulnerable to the toxic effects of environmental hazards than adults. Relative to their body weight, they breathe more air, consume more food and drink more water than adults. Their exposure

to any contaminant in air, water, or food will therefore be higher than experienced by adults. Children spend much of their day within school environments during critical developmental stages.

Third, children's behavioural patterns are distinctively different from adults and place them at risk from exposure to environmental threats that adults may not face. These behaviours include placing fingers and other objects in the mouth and not washing hands before eating. Children lack the experience to judge risks associated with their behaviours.

Adolescents, in particular, are more likely to take risks, such as climbing and jumping from unstable structures.

Why focus efforts through schools?

Most children throughout the world attend primary school. It is important to the health of these children that they have clean water to drink, enough water to use for hygiene, adequate sanitation facilities, clean air to breathe, safe and nutritious food, and a safe place to learn and play. A contaminated environment can cause or exacerbate health problems. These include short-term health effects such as infectious diseases, respiratory infections or asthma that can reduce school attendance and learning ability. Health effects such as cancer or neurological diseases may be delayed until much later in life.

A healthy school environment can directly improve children's health and effective learning and thereby contribute to the development of healthy adults as skilled and productive members of society. Furthermore, schools act as an example for the community. Students, school employees, families, and community members should all learn to recognize environmental health threats that may be present in schools and homes. As members of the school community become aware of environmental risks at school they will recognize ways to make home and community environments safer. In addition, students who learn about the link between the environment and health will be able to recognize and reduce health threats in their own homes.

School facilities

School facilities have always had changing needs. Enrollments fluctuate. New program initiatives are regularly conceived. The relationship between schools and their communities is constantly evolving. Technology has altered the potential and, in some cases, the delivery of education. It would be difficult to find any school building over five years old with every space utilized as originally intended. For buildings over forty years old, it would be impossible.

The challenge to educators and educational planners is simply this: facilities are expected to last forty years without major retrofit, but the programs they serve may

change several times in that time period. Once a new building is built, nobody (not the taxpayers, not the politicians) wants to hear about revised facility needs for the life of the building. We must create school buildings poised for change.

Unfortunately, we tend to think of educational needs as cast in a single slice of time. Most taxpaying adults are "experts" on schools because they attended school once; their thoughts of school facilities are highly conditioned by their experiences as students. Most teachers, when interviewed about their vision of ideal school needs, create lists of all the things they haven't had for the last twenty years. Most architects, and even educational planners, focus attention in their planning processes on current practices and needs. All of this is historic thinking. We need futurist thinking. The biggest challenge is to anticipate needs of the future. Planning for the long-term success of a new building requires a certain faith that current trends will endure. While we cannot believe absolutely in current trends, there are two truths that we must accept:

- The long-term future will not be like it is today. Education will continue to evolve and may make facilities as we know them obsolete.
- Schools will continue to be under-resourced.

The first point may be debatable, but the second is a truism in education. The combination of the two demands a search for legitimate flexibility. The future of education will be defined by the interaction of the following factors. A well-planned building will anticipate these factors and facilitate them.

The last fifteen years have been exciting times in education and educational planning, as the traditional industrial model of education has been challenged by numerous restructuring concepts. Many of these initiatives are very provocative: small schools, schools within schools, team teaching, teacher-as-guide. They show great promise through outcomes such as increased graduation rates, greater student participation, increased staff satisfaction, more meaningful connections between staff and students,

stronger relationships to neighborhoods and business communities, and more relevant modeling of the world outside school.

Yet these restructuring initiatives, as provocative and promising as they are, currently represent only a tiny percentage of our K-12 schools. If their impact lives up to their initial promise, these concepts will pervade existing school curriculums over the next several decades, placing significant stress on our stock of older, industrial-model school facilities. This stress will also apply to many buildings designed today but not yet built since many are tailor-made to serve practices that may soon change.

Enrollments

School buildings generally outlast enrollment cycles. After two decades of slow growth to an all-time high, national pre-high school enrollments will drop slowly over the next decade. High school enrollments will follow this same pattern, trailing by several years. Planning buildings to anticipate enrollment drops may create new opportunities to meet school program or community needs. Not planning for enrollment drops may simply result in underutilized buildings.

Class size

There appears to be no single definition of what constitutes a large class. Many scholars from different backgrounds have viewed it from different perspectives. For example, senior academics attending a UNESCO Regional Workshop at Moi University, Kenya, had the following views about a large class.

- A large class is one with more students than available facilities can support”.
- “Large classes have more than 100 students enrolled”.
- There is no fixed number. The large class depends on the discipline; A smaller number for science-based subjects and larger numbers for the arts, humanities and social sciences.
- “There is nothing like a large class. The large class is only in the mind of the orthodox teacher”.

In many contexts, any class over 40 students has generally been considered to be large. For purposes of this study, large classes to be studied will be of 80 and above students, taking into consideration that many schools in Kenya are characterised by class sizes close to this figure.

In the study, fifty effective US teachers and the materials they used were studied to determine what effective teachers did to promote learning in reading and mathematics. Of the 50 teachers, 43 had small classes or large classes with an aide (Any class with over 40 students was regarded large). Seven teachers had large classes without an aide. Admittedly the majority of effective teachers were effective in smaller classes. But the study also showed that effective teaching was possible in large classes as well, as showed by the seven teachers who had no aide. Effective teachers reflected the following traits:

- a) high expectations for student learning;
- b) provided clear and focused instruction;
- c) closely monitored student learning process;
- d) re-taught using alternative strategies when children did not learn;
- e) used incentives and rewards to promote learning;
- f) were highly efficient in their classroom routine;
- g) set and enforced high standards for classroom behaviour;
- h) maintained excellent personal interaction with students;
- i) Reflected enthusiasm in the form of acting, demonstration and role playing.

Similarly, a smaller study conducted in East Africa that involved 3 teachers (A, B & C), all teaching small and large classes at the same level of education in very closely similar contexts showed that the teacher's pedagogy was the critically determining factor in the quality of what (or if) students learnt (Maged 1997). Teacher A was generally effective during class teaching irrespective of the size of the class. Similarly Teacher C was less effective irrespective of the size of the class. The large class of Teacher A achieved

significantly better academic results than the small class of Teacher C and the large class of Teacher A had significantly fewer failures than the small class of Teacher C.

From the preceding preliminary literature, it is evident that sufficient research has been done to bring in focus the reasons why smaller classes may lead to improved students outcome than large classes. But there is also evidence that effective teaching is possible in large classes. The required research now is to investigate possible forms of class organisation and teaching styles, which are suitable for mediating learning in large classes in various contexts. This is particularly necessary in Kenya, where the problem of large classes is likely to prevail for some time due to the massive resources that need to be invested into the system to bring the student-teacher ratio to 40:1 and below. Large classes are also likely to continue to exist given that Universal Post-Secondary and Education Training (UPPET) is soon starting. Studies into the drop-out issue in Kenya indicated that many children had dropped out of school because they had no hope of continuing to the post-secondary level (Annual Education Abstracts).

Overall, much previous research has not had designs strong enough to draw reliable conclusions (Blatchford, Goldstein, & Mortimore, 1998). It has long been recognized, for example, that simple correlational designs, which examine associations between a measure of class size or student-teacher ratios, on the one hand, and measures of student attainment on the other are misleading because researchers often do not know whether the results can be explained by another factor, for example, that poorer performing students are placed in smaller classes. To arrive at more valid evidence two kinds of research design have been used.

A cohort of students and teachers at kindergarten through third grade were assigned at random to three types of class within the same school: a small class (around 17 students), a regular (typical) class (around 23 students), and a regular class with a teacher-aide. In brief, the researchers found that in both reading and mathematics students in small classes performed significantly better than students in regular classes,

and children from minority ethnic group backgrounds benefited most from small classes (Finn & Achilles, 1999; Nye, Hedges, & Konstantopoulos, 2000). In fourth grade the students returned to regular classes and the experiment ended, but gains were still evident after the following three years, that is, grades 4–6 (Word, Johnston, Bain, & Fulton, 1990).

The study found a clear effect of class size differences on children's academic attainment over the first year (4–5 years) in both literacy and mathematics. The effect size was comparable to that reported by the STAR project, and this trend is therefore supported by both experimental and non-experimental research designs. Small classes (fewer than 25) worked best in literacy for children with the lowest school entry scores who had most ground to make up. Effects of class size in the first year were still evident on literacy progress at the end of the second year of school, though by the end of the third year the effects were not clear. There were no clear longer-term effects of class size differences on mathematics dropout. Though this result indicates that the early benefits disappear after two years in school, there were no restrictions in terms of which size of class they moved to from year to year (in contrast with the STAR project).

The CSPAR's naturalistic design captured changes in class sizes from year to year. An important disruption effect on children's educational progress was found, that is, moving to a class of a different size, especially a larger class, had a negative effect on progress.

Teacher quality

Teachers are central to any consideration of schools, and a majority of education policy discussions focus directly or indirectly on the role of teachers. There is a *prima facie* case for the concentration on teachers, because they are the largest single budgetary element in schools. Moreover, parents, teachers, and administrators emphasize repeatedly the fundamental role that teachers play in the determination of school

quality. Yet there remains little consensus among researchers on the characteristics of a good teacher, let alone on the importance of teachers in comparison to other determinants of academic performance.

The extent of any teacher quality decline remains unclear and depends in large part on the correlation between teaching skill and the skills rewarded in the non teacher labor market. In a simple uni dimensional skill framework in which non pecuniary factors play no role, the substantial decline in relative salary would be expected to lead to a large fall in teacher quality. However, a more complex and realistic framework in which the skill set of teachers differs from that of other professionals suggests the possibility of a more muted response to the salary changes. For example, if teaching places greater emphasis on a set of communication and interpersonal relation skills than the general labor market, the salaries relative to all college graduates may not provide a particularly good index of teacher quality. These concerns about the congruence of skills in different sectors point to a priority area for further research. The discussion in the following sections offers some insights into possible separation of the various markets, but that evidence also remains indirect.

Another important determinant of the elasticity of teacher quality with respect to salary is the responsiveness of current and prospective teachers to salary changes. There is reason to believe that teachers may be less responsive than other professionals. Specifically, the "family friendly" nature of teacher employment (with, for example, hours and vacations coinciding with those of kids).

Theoretical perspective

This study was underpinned by Heider (1958)'s attribution Theory. Heider discussed what he called "naïve" or "commonsense" psychology. In his view, people were like amateur scientists, trying to understand other people's behavior by piecing together information until they arrived at a reasonable explanation or cause. Attribution theory is

concerned with how individuals interpret events and how this relates to their thinking and behavior. Attribution theory assumes that people try to determine why people do what they do. A person seeking to understand why another person did something may attribute one or more causes to that behavior. According to Heider a person can make two attributions 1) internal attribution, the inference that a person is behaving in a certain way because of something about the person, such as attitude, character or personality. 2) external attribution, the inference that a person is behaving a certain way because of something about the situation he or she is in.

Our attributions are also significantly driven by our emotional and motivational drives. Blaming other people and avoiding personal recrimination are very real self-serving attributions. We will also make attributions to defend what we perceive as attacks. We will point to injustice in an unfair world. We will even tend to blame victims (of us and of others) for their fate as we seek to distance ourselves from thoughts of suffering the same plight. We will also tend to ascribe less variability to other people than ourselves, seeing ourselves as more multifaceted and less predictable than others. This may well be because we can see more of what is inside ourselves

Attribution theory has been used to explain the difference in motivation between high and low achievers. According to attribution theory, high achievers will approach rather than avoid tasks related to succeeding, because they believe success is due to high ability and effort which they are confident of. Failure is thought to be caused by bad luck or a poor exam and is not their fault. Thus, failure doesn't affect their self-esteem but success builds pride and confidence. On the other hand, low achievers avoid success-related chores because they tend to (a) doubt their ability and/or (b) assume success is related to luck or to "who you know" or to other factors beyond their control. Thus, even when successful, it isn't as rewarding to the low achiever because he/she doesn't feel responsible, it doesn't increase his/her pride and confidence.

Related studies

School environment and dropout rate of students

Adepoju (2002) in a study on environment factors, private cost and dropout rate of secondary school students in Oyo State, Nigeria found that a significant difference existed in the dropout rate of students in urban and rural secondary schools particularly in English Language and Mathematics using a stepwise regression analysis (backward procedure) method. The result of the study also revealed that environment factors as a group did not contribute significantly to the dropout rate in English Language and Mathematics.

Fagbamiye (1977) in a study on secondary schools in Lagos State also discovered that although school factors are stronger determinants of school dropout rate, they are only offshoots of the socio-economic factors as far as Nigeria is concerned. He maintained further that because children from more privileged homes usually attend private secondary institutions where all round educational foundation is ensured, they thus end up in secondary schools with adequate educational resources and a record of good dropout rate. Such fortunate children cannot but perform better in their final examinations

Rural schools often have higher drop-out rates than urban schools as it is witnessed too in Kenya. An interesting tracer study in China looked into what happened to rural and urban children who dropped out of school. Among the secondary school drop -outs in rural areas, nearly half (47.5 percent) worked on farms, while 7.5 percent were in part-time or other employment, compared with 27.3 percent of the urban drop -outs who were in part time employment. In both cases over one-third were staying at home (UNESCO 1998).

Ojoawo (1989) and Adepoju (2002) both found in their separate studies that environment of schools in Oyo State had significant effect on school dropout rate and

that there was a significant difference in performance between rural and urban schools. Owoeye (2000) in his study revealed that school facilities were found to be the most potent determinant of academic dropout in SSCE when taken together, whereas, Ofoegbu (1998) found that school -home distance affects students dropout rate and teachers' classroom management and instruction. Banks and Finlayson (1973) were of the view that a student's dropout can be influenced by various factors such as socio-economic status of parents, family size, aspiration of parents, the quality of the school and characteristics of the student, such as ability, motivation and some personality traits.

Poor families force their children especially in the rural areas spend more time in contributing directly or indirectly to household income especially the girl child than other children. As a result they are less likely to spend this time on school work, are more likely to be absent from school during periods at peak labor demand and are more likely to be tired and ill prepared to learn when they are in the classroom (World bank 2003).

Students from poor geographical located areas like mountainous and hilly, areas are more likely to have lower educational outcomes in terms of dropout rate and retention rates that student from areas where the topography allows near schools construction (Cheers, 1990; HREOC, 2000). Despite an adequate number of educational facilities in rural and remote areas, school children from these areas remain disadvantaged by walking long distances to school every day and reach school at late. This causes a delay in curriculum or other late students being left behind by others. In addition, inequity exists with regard to the quality of the education that rural students receive, often as a result of restricted and limited subject choice. Furthermore, students may also have limited recreational and educational facilities within their school (HREOC, 2000) In urban schools discipline problems are one of the major reasons for school dropouts.

In many African countries, teachers prefer to teach in urban areas. As a result, rural schools may be left with empty posts, or have longer delays in filling posts (Rust et al 1990). Even if posts are filled, rural schools may have fewer qualified teachers, if

the better qualified teachers have a greater choice of jobs. Sometimes the rural schools have less experienced teachers, as the more experienced teachers find ways to move to the more desired schools. (Yarrow et al 1999)

There are a number of rational reasons why teachers may prefer urban postings. One of the concerns is that the quality of life may not be as good. Teachers have expressed concerns about the quality of accommodation, the classroom facilities, the school resources and the access to leisure activities. (ADEA Biennale 2009) Teachers may also perceive that living in rural areas involves a greater risk of disease, and less access to healthcare.

Teachers may also see rural areas as offering fewer opportunities for professional advancement. Urban areas offer easier access to further education (Hedges, 2000). Teachers in rural areas are less likely to have opportunities to engage other developmental activities, or in national consultation or representative organizations. They may even find it more difficult to secure their entitlements from regional educational administrations, sometimes to the extent of having to put up with obstacles or corruption by officials.

The inadequate number of teachers available in schools is a key factor contributing to unfulfilled learning needs of children. (Craig et al 1998). Teachers are faced with many challenges including, poor remuneration, inequitable distribution of teachers with very low student teacher ratio in rural and other areas with low population density; high student teacher ratios in urban areas (Picus, L.O., Bhimani, M. 1993) and informal settlements; and equipping teachers with skills on how to teach but not on how to give instruction. (ADEA Biennale 2009)

Teachers in rural schools may teach less than their counterparts in urban areas. Any trip away from the rural area, to visit a doctor, to collect pay, to engage in in-service training, or to visit family may involve long journeys and involve missed school

days. In addition, where teachers walk long distances to school, they may tend to start late, and finish early. As transport difficulties often make supervision visits from inspectors less frequent in isolated schools, there is little to prevent a gradual erosion of the school year. (Rust et al 1990).

Even when teachers are teaching, the quality of their work may be lower. Rural teachers often have less access to support services than their urban counterparts, and fewer opportunities to attend in-service courses. In some cases they also have difficulty in accessing books and materials. In addition, because the parents tend, in general, to be less educated, they are less likely to monitor the quality of teaching, or to take action if the teaching is of poor quality. (Yarrow et al 1999)

Many people, according to Rugh, (2000) consider education to be one of the best investments in international development. An association exists between improvements in national development indicators and an increase in the number of girls receiving formal schooling, independent of improvements in academic quality

He opined that students who complete their education are more likely to lead productive lives, support their families, take good care of their children, and practice healthy behaviors than women with little or no education. Because of these benefits, strong interest exists in girls' education programs, specifically within the global reproductive health sector. Reproductive health programs identified the importance of educating young girls before their sexual debut through participatory, community-based approaches.

In Africa, the enrolment and retention of students in school is lower than that of boys. The under-representation of girls tends to be greatest in rural areas and among the most disadvantaged communities. While a number of measures can be shown to have an impact on the retention in school, one of the important factors is the presence

of teachers in the school (Bernard, 2002). The presence of female teachers in a school can help to make the school environment a safer place for girls especially in rural areas. Many students in Africa are forced to dropout of school because school administrators are insensitive to gender issues, including sexual abuse and intimidation (PANA, 2003).

According to FAWE magazine titled "the education of girls and women", females constitute nearly 50% of the children in grade one in Kenya, Zambia and Nigeria. However the enrolment decreases the higher one ascends the education hierarchy. In the sub Sahara region, girl's gross enrolment ratios at primary level rose from 22% in 1961 to more than 61% in the 21st century. FAWE (2000)

It is estimated that over 36 million of African students, most of whom residing in rural areas are out of school, either having never enrolled or having dropped out of the education system. If the poverty rate rises in some societies, the number is expected to rise. World Bank (2000) Girls, especially those in rural areas, fail to enroll in or to complete primary schooling because their parents themselves are uneducated /illiterate. There is also a 'myth' among most illiterate parents that "boys are generally clever and hard working in school.

School Facilities and dropout rate of students

"Learning is a complex activity that puts students' motivation and physical condition to the test" (Lyons, 2002, p. 10). It has been a long-held assumption that curriculum and teaching have an impact on learning. However, it is becoming more apparent that the physical condition of our schools can influence student dropout. Earthman, Cash and Van Berkum (1996) recently found that 11th grade students in above standard buildings scored higher as measured by the Comprehensive Test of Basic Skills than did their counterparts attending class in substandard facilities. The National Priorities Project (2000) report indicates that Texas students follow the trend found in the study conducted by Earthman et al. (1996).

In a Virginia study, Cash (1993) developed research that examined the impact of various factors of building condition on student dropout in a manner that controlled for socio-economic status of the students. Cash (1993) found that when socio-economic factors were constant, facility condition had a significant correlation with student dropout. Specifically, Cash (1993) found that air conditioning, absence of graffiti, condition of science laboratories, locker accommodations, condition of classroom furniture, wall color and acoustic levels correlated with student dropout at a significant level when controlling for socio-economic status of students.

Chan (1996) conducted a similar study of the impact of physical environment on student success. This study classified 165 Georgia schools into one of three categories: Modern Learning, Obsolete Learning, or Half Modern Learning Environment. Other than building age, differences in the three categories included lighting, color schemes, air control and acoustic levels (Chan, 1996). As one might expect, Chan (1996) found student dropout to be highest in Modern Learning Environments and lowest in Obsolete Learning Environments. Chan (1996) concluded that technologies and adaptabilities of modern environments better equipped students for success and that to ignore that fact was to disregard the physical difficulties of learning.

Building Age and Student Dropout rate

Such studies regarding differences in student performance based upon building condition have focused on many factors of facility quality. With the average American school building maturing to 45 years old (Deweese, 1999), facility age is a common discrepancy of building condition that is studied in correlation with student dropout. Bowers and Burkett (1989) studied differences in dropout between secondary students in two buildings, one built in 1939 and one built in 1983. In this study, all other building variables were consistent between the two schools. Bowers and Burkett's (1989) study revealed that the students in the modern building scored significantly higher in reading, language and mathematics than their counterparts in the older building.

The age of a building can influence many of the individual factors used in evaluating the condition of an educational facility (Earthman & Lemasters, 1996). Earthman and Lemasters (1996) noted that in each case of their study, age of the building had significant impact on student dropout and behavior. Furthermore, the study indicated that age was a surrogate for other variables of building condition such as lighting, temperature control, proper lighting, sound control, support facilities, laboratory condition and aesthetic values (Earthman & Lemasters, 1996).

The development of curriculum or instructional strategies can exaggerate the differences in building age. Chan (1996) found that many building had become obsolete despite their structural soundness. Chan's (1996) study found an impact of building age similar to that of the aforementioned studies. However, his key conclusion was that many of these facilities have become obsolete because their failure to adjust to or accommodate innovations in curriculum development, instructional strategies and content development (Chan, 1996). For instance, new instructional models call for accommodations such as modular furniture, flexible floor plans, mobile technology, electronic chalkboards and expandable networking (Lyons, 2002).

Cornell University joined forces with the Council of Educational Facility Planners International to conduct a study of the renovation of Syracuse City Schools and how that renovation impacted student dropout (Moore & Warner, 1998). Rather than the typical correlation study, the Cornell study provided a valuable before-and-after look at dropout in schools that were renovated. Significant impact was found in student dropout after facilities in these Syracuse schools were refurbished. Most significant was the improvement in mathematics scores of sixth grade students (Moore & Warner, 1998).

The correlation between building age and student dropout has been found to be significant in Texas studies. O'Neill and Oates (2001) report that building age had the highest correlation with student dropout of all building factors investigated in a 1999

study of middle schools in Central Texas. The study indicated that the strongest relationship between building age and student dropout existed in the area of eighth grade students passing reading. O'Neill and Oates (2001) found this correlation to be consistent with numerous other studies that linked building age with factors establishing student dropout, such as the research conducted by Bower and Burkett (1989).

As school buildings age, they not only provide hurdles for teachers and students. Older buildings have been found to actually cause the loss of instructional time (Stricherz, 2000). In his *Education Week* article, Stricherz (2000) notes that a Florida study found that 96 teaching days were lost in Virginia schools in 1998 due to poor building conditions complicated by age. The Virginia study found that half of the teaching days lost was due to air conditioning failures.

School Size and Student Dropout

Knowing that building age can contribute to the deterioration of facility conditions does not, in itself, assist practitioners in the improvement of student dropout. Many other factors of facility design have been linked to academic success of students. As enrollment numbers climb, the issue of school size becomes relevant to the task of improving student performance. School size questions came to the forefront after the Columbine disaster, where two students designed and carried out a violent plan undetected by the adults in the school (Kennedy, 2003a). Kennedy (2003a) notes that educators have been battling this disconnectedness that seems more prevalent at larger schools. Smaller schools have shown a greater capacity to develop personal connections among students and staff that tend to prevent violent or antisocial behavior (Yaunches, 2002).

An issue related to school size is the ability for students and staff to establish personal links with one another and with the physical environment. This notion has been adopted by school designers as they design entire campuses or as they lay out classroom plans that allow for small-group or individualized instruction (Cook, 2002).

Bryk (1994) found that students in smaller learning environments achieved at higher levels than their cohorts in larger schools. This University of Chicago study (Bryk, 1994) supported suggestions that smaller high schools not only provided a safer environment than their large counterparts but they also promoted advanced academic dropout. In an examination of hundreds of such studies, the Educational Research Information Clearinghouse commissioned a report that supported the assumption that smaller schools provide more attention to and support for individual student success (Raywid, 1999).

Despite the wealth of research espousing the benefit of smaller schools, statistics indicate that districts continue to erect larger campuses (Viadero, 2001). *Education Week* reports that a majority of our nation's students attend schools with enrollments of 750 or more, while seven states report average high school sizes of more than 1,000 students (Viadero, 2001). Hofstra University's Mary Anne Raywid (1999) reports that educational leaders continue to ignore the impact of school size on student dropout. Raywid (1999) suggests that policy makers and scholars have turned a deaf ear to the debate of school size, favoring a focus on curriculum and pedagogy. This trend seems to follow suit with parents and teachers. A recent New York City survey indicates that less than half of teachers and parents would favor dividing large high schools into those with enrollments of less than 500 (Viadero, 2001).

Why would educators, school board members and politicians continue to promote the construction of larger schools? Much of the research suggests that there are financial motives. *American School and University* magazine reports that restricted funding and lack of available land encourage districts to continue to trend of constructing larger school facilities (Kennedy, 2001b). The ability to serve more students with common facilities such as cafeterias, libraries and other physical plant features makes the larger school appear much more cost efficient on a cost-per-student basis (Nathan, 2002a).

However, studies based upon cost-per-graduate instead of cost-per-student indicate that smaller schools are as efficient financially as their larger counterparts (Nathan, 2002a). School systems promoting smaller campuses have also found that the sharing of student-support facilities such as libraries and gymnasiums have lowered the construction and operating costs of decreasing school size (Nathan, 2002b). Supplemental funding for the construction and maintenance of smaller schools has also become available in the wake of school size research. The Gates Foundation, along with the Carnegie Foundation, provided more than \$38 million in support of building smaller schools (Kennedy, 2001b). Under the Clinton Administration, the United States Department of Education established the Smaller Learning Communities program with \$45 million in grants for program participants.

Arguments other than cost efficiency exist in reluctance to build smaller schools. Some of this resistance finds its roots in more affluent communities, where research indicates that the link between school size and student dropout is not as strong (Howley & Bickel, 2002). Support for larger schools is also based upon the premise of student choice. Proponents of large schools, especially large high schools, base their position upon the assumption that larger schools provide a wide range of curricular choices such as advanced classes and fine arts. (Viadero, 2001). The size and variety of course offerings also affords larger schools the luxury of employing more specialized and diverse staff members (Stevenson & Pellicer, 1998). Similar arguments for larger schools espouse the ability of large schools to support extracurricular programs such as athletic teams, theatrical productions student clubs and competitions (Viadero, 2001).

The small-school movement is an issue that is not solely addressed by building more schools in attempts to keep campus enrollment down. The high school setting in particular has provided a number of alternative design methods that aid in establishing smaller learning communities. One such method is the schools-within-schools, where larger campuses are broken up into smaller groups of student and teachers assigned to interdisciplinary teams (Raywid, 2002). Modern schools are being designed by architects

in attempts to accommodate small groups such as "houses," "families," "clusters" and other small learning communities (Cook, 2002). Some high schools are allowing students to attend schools-within-schools arranged to fit a particular curriculum theme (Gewertz, 2001). Gewertz (2001) reports that these smaller themed learning communities utilize the original campus layout with renovations allowing for specialized laboratories in each smaller sub-school.

As the research builds in support of smaller schools, states and local governments are carefully considering this issue as a way to address educational reform and academic dropout. Private foundations and governmental entities are providing financial incentives for the construction of smaller learning communities in an attempt to offset any disadvantage of economy of scale that may occur with smaller schools (Krysiak & DiBella, 2002). Some state governments are rescinding policies that had, in the past, encouraged or mandated the consolidation of smaller schools (Cutshall, 2003). While policies and funding are assisting districts in creating smaller learning communities, educational leaders are still faced with the task of identifying physical environmental factors that impact academic dropout of their students. Within any size of school setting, it is important that students are given a clean and bright surrounding so that learning can take place in an optimal setting.

Lighting and Student Dropout rate

Just as empirical research exists linking school size and age with student performance, a growing list of studies is finding a relationship between classroom lighting and academic dropout. Our reactions, motivations, moods and sense of well-being are greatly impacted from the illumination of our surrounding environment (Ruck, 1989). Ruck (1989) noted that the issue of illumination has driven building design for centuries as evidenced by ancient architecture and its attention to natural lighting. Differing degrees of illumination, namely natural lighting, can be used to stimulate productivity and increase creativity in offices and schools (Ruck, 1989).

An Orange County, California study showed a significant correlation between natural lighting and student success (Hale, 2002). Hale (2002) reports that students in the Capistrano Unified School District with natural lighting provided by windows or skylights scored 19 to 26 points higher on standardized tests than their cohorts with little or no natural lighting in their classrooms. This study (Hale, 2002) does not clearly assign whether the improvement in student performance was due to increased light, quality of light or the physiological effect of natural lighting.

In a middle school study, student performance was compared across three campuses. The study found that students in classrooms with large or high amounts of windows and skylights outperformed other students by five to 14 points on end-of-course tests (Rouk, 1997). Ruck (1989) stated that windowless environments generate a great amount of tension, especially when coupled with restricted spaces and monotonous tasks. Lackney (1994) found that windowless spaces contribute to negative attitudes on the part of students and teachers.

Natural lighting, or daylight, has shown to be effective in improving the quality and quantity of lighting in instructional areas. Daylight has been and is still the standard by which artificial light is measured (Fielding, 2000). Fielding (2000) reports that studies by Kuller and Lindsten (1992) and the Heschong Mahone Group (1999), indicate a positive correlation between day lighting and dropout rate. In Texas, districts have realized the academic benefit of natural lighting. The Austin Independent School District initiated a lighting program that increased natural lighting in instructional areas in order to increase student comfort, which would likely improve dropout rate across all subject areas (Clanton, 1999).

While the issue of lighting cannot singularly address all academic success variables, it is important to note that quality lighting increases the comfort of students and that comfort often translates into higher scores and increased performance (Rodgers, 1998). Design experts also promote the consideration of the developmental stages of students when establishing lighting systems (Bushweller, 1998). This effort on establishing

comfort is more than an exercise in providing luxury to children. Design factors such as lighting can create an atmosphere where students are physically supported to concentrate on academic endeavors. Recently, the focus on effective learning environments has shone on healthy physical surroundings.

Health facility and Student Dropout rate

Four decades ago, energy conservation became an important goal and had a profound impact upon building design. Resulting were facilities that were increasingly “tightened” against outside air infiltration in order to make them more energy efficient (O’Neill, 2000). This design approach has resulted in significant energy savings, yet it has been discovered that “tightening” buildings has led to higher levels of airborne gases from building materials and organic hazards such as bacteria and viruses (Witzling, Childress & Lackney, 1994). Witzling et al. (1994) have noted that this effort of energy efficiency has led to serious elements of sick building syndrome. Designers have recently increased efforts in the elimination of environmental problems such as noise, glare, mold, poor ventilation and temperature extremes (Rydeen, 2003). Rydeen (2003) noted that architects who design healthy schools that address the aforementioned concerns decrease distractions and allow students and staff to focus on the learning process. Buildings must not only be designed to be healthy. Districts must also maintain their facilities in an effective manner in order to provide a healthy learning environment (Kennedy, 2003a). For example, poorly maintained roofs may leak allowing moisture to enter the building and increase the growth conditions for mold. The presence of mold could cause respiratory problems for students and teachers or even lead to the closure of the classroom or entire building (Kennedy, 2003b).

Mold and other indoor air quality issues have become the most common concern of designers and administrators in dealing with building health. Issues regarding indoor air quality are increasingly challenging school board members and administrators across the nation (Colgan, 2003b). Colgan (2003b) notes that older schools are more susceptible to mold and indoor air quality problems, but warns that newer buildings are not immune from these effects. In previous decades, the concern over building health

was focused on antiquated building materials such as asbestos and lead-based paints. Laws and policies have now been established to protect students from exposure to these items. These laws have had a profound impact on how schools are built and maintained (Centifonti & Gerber, 1997).

As schools have been successful in eradicating asbestos, arsenic in drinking water and lead in paint, mold and its effect on indoor air quality have established a new challenge in maintaining a comfortable environment in which students can learn (Colgan, 2003b). Studies have shown that schools with indoor air quality problems experience a higher rate of health problems with students (Guarneiri, 2003). It then stands to reason that sick children will not be as likely to succeed academically. The research linking specific airborne pathogens with specific student health problems is still in the infancy stage (Smolkin, 2003). Smolkin (2003) reports that schools are working under the consultation of the Environmental Protection Agency to establish maintenance practices and educational programs to assist schools in maintaining healthy buildings while informing parents of the risks that are actually linked to poor indoor air quality. Schools that have adopted the Environmental Protection Agency's Tools for Schools program are beginning to see improved indoor air quality and a positive impact upon student dropout rate (Rosenblum & Spark, 2002). As facility health improves, educators find that dropout increases due to improved attendance of healthy, attentive and motivated students.

School Facilities and Student Attendance

Student attendance has long been linked to success in school. Therefore, it stands to reason that educational leaders and policy makers would be interested in the physical conditions that contribute to absenteeism. The Environmental Protection Agency reports that respiratory problems such as asthma are the leading cause of student absenteeism, leading to more than 10 million missed school days per year (Lyons, 2002). Lyons (2002) states that the Environmental Protection Agency's Science Advisory Board and the Cincinnati Asthma Prevention Study name indoor air pollutants as one of the top

causes of asthma complications. The U.S. General Accounting Office reported in 1995 that more than half of our nation's 91,000 public schools have conditions that adversely affect indoor air quality (Lyons, 2002).

Many facility conditions other than indoor air quality have been found to influence student attendance. A study of 139 Milwaukee public schools showed that, when controlled for socioeconomic status, students' attendance and dropout were positively correlated to facility quality (Lewis, 2001). School size, as mentioned earlier, has been found to affect student dropout. A portion of this impact can be greatly attributed to the influence that school size has upon student attendance. Education author Bracey (2001) notes that an abundance of research corroborates the belief that smaller high schools will improve attendance rates. Research in Oregon found better attendance rates in high schools with enrollments between 600 and 900 students (McComb, 2000). McComb (2000) writes that the benefits to attendance do not continue as enrollment dips below 500 students.

Increasing school size was seen as a method of enhancing curriculum offerings while lower per student costs. However, the benefits of larger schools have not been realized for many students, especially those from low-income families (Howley, 1994). The increase in size of these campuses has been connected with a decrease in student attendance rates (Raywid, 1996). Smaller schools have been found to foster instructional innovation that, in turn, engages students and provide motivation for class attendance (Irmsher, 1997).

Along with school size, the age of educational facilities can also contribute to attendance rates. Bowers and Burkett (1989) compared schools with ages differing by 44 years. The study found that students in the modern school had favorable attendance data when compared to the students in the older facility. In a study of Texas middle schools, building age had the highest correlation with student variables including student attendance (O'Neill & Oates, 2001).

The illumination of classrooms has also been found to have an impact on attendance as well as dropout. The Alberta Department of Education conducted research that compared children in classrooms with some natural lighting to those attending class with typical electric lighting. This study indicated that students who study under full-spectrum lighting attended school three days more per year than students attending schools in buildings with other lighting (Rouk, 1997). Higher levels of daylight illumination has been found to increase initiative and, in turn, raise motivation for attendance (Ruck, 1989). Schools have realized financial benefits parallel with the academic benefit of improved attendance through the enhancement of classroom lighting. Not only are modern lighting systems utilizing daylight more energy efficient. Schools participating in energy performance contracting have found that, by improving classroom lighting, attendance rates have risen leading to increased state funding (Birr, 2000).

Interior factors such as lighting and aesthetic features can affect student behavior and influence discipline referral rates. Evidence exists that fluorescent lighting may increase stress level and hyperactivity more so than full spectrum or incandescent lighting (King & Marans, 1979). Lackney (1994) found that students in rooms without windows had more negative attitudes than children exposed to natural light.

Studies have found that interior color also has an impact upon student attitudes and behavior. Early research on the impact of color took place in industrial settings. Earthman and Lemasters (1996) write of studies that determined certain colors that assist in increasing performance of workers in factory and office settings. Research regarding the impact of color has entered the educational arena and has found a link to teaching and learning. Color has been found to influence student attitude, behavior and learning (Sinofsky & Knirk, 1981). Certain researchers (Papadatos, 1973) have suggested that educators can manipulate atmosphere from constricting to engaging by changing color schemes in instructional areas. Papadatos (1973) suggests that such

changes would promote positive perceptions and behaviors as well as increase attendance.

While designers and educators strive to take proactive steps to improve the ambient environment of our classrooms, the sad reality exists that we live in a society that must be conscious of and prepared for violence from within and without our campuses. The occurrence of school violence has led to a collision of seemingly opposite forces of providing a warm, welcoming learning environment versus securing students and staff from attack or sabotage (Kosar & Ahmed, 2000). Kosar & Ahmed (2000) note the example of designing exterior doors that appear welcoming to students, staff and visitors while providing a safe barrier from intruders. Students and staff must be able to flow freely throughout the campus during the school day, yet the building must be protected from unwelcome visitors and unruly students (Kromkowski, 2003). Kromkowski (2003) tells us that architects must consider the security of the campus setting without compromising the flexible learning environment.

Establishing a safe learning environment consists of more than secure entrances and surveillance systems. One must also look at the proximate surroundings of the school (DePatta, 2003). Noted security expert Bill Sewell explained in an interview that, when assessing the safety of a school, one must examine the surrounding neighborhood to determine to what immediate risks the campus may be exposed (DePatta, 2003). DePatta (2003) also learned that a professional evaluation of school security must include interviews with staff and parents in order to ascertain the typical threats that may take place in that particular environment. One act of student misbehavior that has the most impact upon campus facilities and that is the most perplexing for school safety experts is that of vandalism. A 1998 report by the U.S. Department of Education listed vandalism as one of the top three crimes occurring on school property, along with fights and theft (Black, 2002). Of these three, vandalism obviously has the most physical impact upon school facilities. Due to this fact, designers must take vandalism into account when selecting building materials for school

construction (Kromkowski, 2003). While the appropriate building materials will endure vandalism, it is also important to design spaces that deter such misbehavior. Noted school architect Stephen Kromkowski (2003) indicates that areas must be well lit and highly visible in order to remove the blanket of darkness or blind spots that conceal vandals during this criminal act. The same criteria hold for exterior building design, which should eliminate blind areas and supply adequate exterior lighting (Kromkowski, 2003; Pappalardo, 2002).

Once again, the impact of school size surfaces in the discussion of student behavior. On the topic of vandalism, it is theorized by school sociologists that vandals are most likely to be students who are disconnected from fellow students and from educators in their schools (Black 2002). While some children vandalize simply for the thrill of it, it is also theorized that vandals are most likely to be students lacking the appropriate counseling to deal with issues of anger and frustration (Black, 2002). Black (2002) reports that when larger schools do not promptly replace or repair facilities damaged by vandalism, they send a message to students that vandalism is allowed. The anonymity that students experience at large schools runs much deeper than the topic of vandalism. Violent acts such as the Columbine tragedy are often carried out by students who feel disconnected and unwelcome in school, yet go undetected by the adults on our campuses (Kennedy, 2003e).

In the wake of recent acts of school violence, technological advances have been made in school security design. Schools have also begun to employ security measures that had previously been reserved for industrial and correctional facilities. Police departments, once seen as the responsibility of municipalities and other governmental entities, are now commissioned by school districts and universities throughout the country (Kennedy, 2003e). *American School and University* magazine author Mike Kennedy (2003e) writes of the millions of dollars included in school bond proposals to upgrade or install digital video surveillance systems designed to monitor student, staff and visitor actions during and after school hours. Surveillance is just one of the methods

used by schools to detect unwanted behaviors. Schools are also employing practices such requiring visible identification worn by all students, staff and visitors (Lupinacci, 2002). Electronic access systems have also been introduced to allow schools to limit and track who is given or obtains access to both exterior and interior entrances of the educational facility (Koziol, 2003).

No matter how much effort a school system employs to deter misbehaviors of a violent or disastrous nature, educators must also be prepared for the occurrence of such crimes. The attacks of September 11th have also shown that we are just as vulnerable from without as we are from within (Lehmuller & Switzer, 2002). Events ranging from "shooters" in the school to terrorist attacks to natural disasters have schools developing plans and practicing drills to transform learning environments into protective shelters (Jacobson, 2003). The importance of disaster preparedness is not lost on the federal government. Secretary of Education Rod Paige and Secretary of Homeland Security Tom Ridge recently unveiled a grant program through the Department of Education that provides \$30 million in grants to assist districts in preparing emergency-response and crisis management plans (Robelen, 2003). With improved technology and resources, it is incumbent upon schools to protect the children that occupy our classrooms and hallways.

CHAPTER THREE

METHODOLOGY

Research Design

Since the study was largely an evaluation one seeking opinions and attitudes and relationships, the researcher used a descriptive correlational survey research design, adopting a cross sectional survey. The study employed both qualitative and quantitative methods of data analysis. Most of the findings were analyzed qualitatively. The study was deemed correlational because it sought to establish the relationship between school environment and dropout rate of students in selected secondary schools. The study also used expos factor design since it got data on students' drop out from the school archives.

Research Population

Transmara District has a population of 20 secondary schools with a bout 300 secondary school teachers. The population of the study included students and teachers in all the 8 selected schools of Transmara District which had a population of 186 teachers.

Sample Size

The study employed Slovenes' formula (1978) for sample size determination. From the 186 teachers who were the direct respondents, a sample of 126 teachers was determined as follows.

$$n = \frac{N}{1 + N(e)^2}$$

Table 1; sample size

Category	Population	Sample size
Teachers	186	126
Schools	20	8

Sampling Procedure

Using a simple random sampling technique, a total of 126 teachers were selected for the study. Purposive sampling was further employed to get the 8 schools that were to participate in the study since she wanted schools that were within her reach to minimize on transport costs.

Research Instrument

A questionnaire structured to give information by way of content and purpose was the main instrument of data collection. A 5-point Likert Scale (1-strongly disagree, 2-disagree, 3-neutral 4-agree and 5-strongly agree) was used for the questionnaire. All questions were close ended to increase the response rate of the respondents. The study also employed a check list for collecting data on students' attrition.

Validity and Reliability of the Instrument

To establish the reliability of the questionnaire, the researcher used the method of expert judgment, which is recommended by Gay (1992) as the best method for reliability (Kimbowa, 2006). To affect this, after constructing the questionnaire, the researcher contacted the supervisor and two other experts, to ensure the reliability and validity of the research instruments. The researcher then made necessary adjustment to ensure the questionnaire was made to the advice of the experts. Pre-testing of the Questionnaires was then done: The researcher did this by going to the field and administering the questionnaires to 6 potential respondents who participated in the final study, this tested the content, language and response format of the questionnaire. To

prove the validity of the data collection instruments, the number of relevant question were divided by the total number of questions and the outcome was above optimal. The following scale was used; (Adopted from Dr. handy, 2007).

$$V = RQ/TQ = (20/28) = 0.715$$

Where V=Validity

RQ= Relevant Question

TQ= Total number of Questions

The number of relevant questions divided by the total number of questions was 0.715 which is above 0.5 hence valid.

Internal consistency coefficient of reliability (Cronbach's alpha coefficient) of the test for each section of the question.

Data Analysis

Data from each questionnaire was categorized and edited for accuracy and completeness of information. This was to ensure that all questions were answered. All the questions were pre coiled. After this process, the statistical package for social science (SPSS 12.0 version) computer programme was used to analyze the data. Objective one was analyzed using simple frequencies and percentages, objective two and three was done using means and standard deviations. Objective four was analyzed using co relational tools mainly pear sons' correlation coefficient.

Data Gathering Procedures

Before the administration of the questionnaires

1. An introduction letter was obtained from the School of Post Graduate Studies and Research for the researcher to solicit approval to conduct the study from respective heads of primary schools.

2. When approved, the researcher secured a list of the qualified respondents from the school authorities in charge and selected through systematic random sampling from this list to arrive at the minimum sample size.
3. The respondents were explained to about the study and were requested to sign the Informed Consent Form (Appendix 3).
4. Reproduced more than enough questionnaires for distribution.

During the administration of the questionnaires

1. The respondents were requested to answer completely and not to leave any part of the questionnaires unanswered.
2. The researcher and assistants emphasized retrieval of the questionnaires within five days from the date of distribution.
3. On retrieval, all returned questionnaires were checked if all were answered.

After the administration of the questionnaires

The data gathered was collated, encoded into the computer and statistically treated using the Statistical Package for Social Sciences (SPSS).

Ethical Considerations

To ensure confidentiality of the information provided by the respondents and to ascertain the practice of ethics in this study, the following activities were implemented by the researcher:

1. The respondents and schools were coded instead of reflecting the names.
2. Solicited permission through a written request to the concerned officials of the primary schools included in the study.
3. Requested the respondents to sign in the *Informed Consent Form* (Appendix 3)
4. Acknowledged the authors quoted in this study and the author of the standardized instrument through citations and referencing.
5. Presented the findings in a generalized manner.

Limitations of the Study

In view of the following threats to validity, the researcher claimed an allowable 5% margin of error at 0.05 level of significance. Measures were also indicated in order to minimize if not to eradicate the threats to the validity of the findings of this study.

1. *Extraneous variables* which were beyond the researcher's control such as respondents' honesty, personal biases and uncontrolled setting of the study.
2. *Instrumentation*: The research instruments on teaching strategies and language acquisition was self made. Therefore a validity and reliability test will be done to produce a credible measurement of the research variables.
3. *Testing*: The use of research assistants might have brought about inconsistency in the administration of the questionnaires in terms of time of administration, understanding of the items in the questionnaires and explanations given to the respondents. To minimize this threat, the research assistants were oriented and briefed on the procedures to be done in data collection.
4. *Attrition/Mortality*: Not all questionnaires were returned completely answered nor even retrieved back due to circumstances on the part of the respondents such as travels, sickness, hospitalization and refusal/withdrawal to participate. In anticipation to this, the researcher reserved more respondents by exceeding the minimum sample size. The respondents were also reminded not to leave any item in the questionnaires unanswered and were closely followed up as to the date of retrieval.

CHAPTER FOUR

FINDINGS AND INTERPRETATIONS

Introduction

In this chapter the results of the study are presented, analyzed and interpreted in the context of the purpose and research questions as they were formulated at the beginning of the study. The results are presented in form of tables, frequency counts and percentages. As earlier noted on chapter three of this work, much of this information was provided by both teachers and administrators who included the heads of departments.

Profile of the respondents

Table 1: Shows the profile of the respondents.

Respondents	Frequency	Percentage
Sex		
Male	50	56
Female	40	44
Total	90	100
Age		
19-24 yrs	25	28
25-30 yrs	35	39
31 and above	30	33
Total	90	100
Academic level		
Certificate	20	22
Diploma	30	33
Degree	40	44
Total	90	100

Source: field data

One hundred questionnaires 126 were distributed to the teachers and 90 were filled and returned .This therefore represents 90% of the total number of questionnaires that were distributed.

The study covered 90 selected teachers of whom 50 (56%) were male and 40 (44%) were female. From this statistic, we can see that the difference in sex between the males and females in employment is very low. This could imply that the society of the context of study has empowered women both academically and professionally.

The age category of the respondents was divided in three groups that is 19-24 years were 25 which was (28%), 25-30 we\re 35 (39%) and 31 and above were 30 representing (33%) of the respondents. Teachers within the age bracket of 25-30 formed the highest percentage at 39. This could imply that mobility rate is high in the area of study so that older teacher leave teaching for other better paying jobs.

The academic level of the respondents was divided in three categories that are certificate, diploma and degree. 20 (22%) of the respondents had certificates, 30 (33%) had diplomas and 40 (44%) had degrees. From this data we can infer that the area of study is generally empowered academically since most of the teachers are graduate teachers.

Determining the level of school environment

The independent variable in this study was teacher quality for which the second objective was directed to determine the level of school environment in the sampled school. School environment was broken down into three categories namely; school facilities, teacher quality and class size. Each of the three components was measured by identifying their specific aspects. Teachers were asked to rate the level of agreement with each element by ticking the right box. Responses were likert skaled ranging from 1-5, where 1= very inadequate, 2=inadequate, , 3=fairly adequate, 4=Adequate, 5 Very adequate.

Teachers responses were analyzed using means computed through statistical package for social science and are shown in table three below.

Level of school environment

Table 2

Types of school environment	Mean	Interpretation
School facilities		
The school is looked in a remote place	3.66	Adequate
The school has sufficient playground and games facilities	3.90	Adequate
There is adequate mobility space in the school	3.51	Adequate
The school is located in a place where there is easy means of transport	2.90	Fairly Adequate
There is enough furniture in the school	1.42	Very inadequate
The lavatories and toilets are clean and sufficient	1.49	Very inadequate
The school has enough classrooms	2.03	Inadequate
School buildings are well maintained and in good condition	1.92	Inadequate
Total	2.45	Inadequate
Class size		
large classes constrain teaching and learning,	1.17	Very inadequate
You have regular and in-depth discussions with students, timely and frequent feedback to students and active problem solving,	2.5	Fairly Adequate
The number of children in class is manageable	2.61	Fairly Adequate
Because of their number, it is easy to master the names of your students	2.85	Fairly Adequate
you have enough task time with students	2.39	inadequate

You have easier classroom management and control.	2.97	Fairly Adequate
Total	2.88	Fairly Adequate
Teacher quality		
Teachers in your school are generally well groomed, and smart all the time	3.46	Fairly Adequate
Teachers in your school have pleasant personality	3.40	Fairly Adequate
Most teachers in your school are degree holders	3.46	Fairly Adequate
Teachers in your school have high degree of experience	2.32	Fairly Adequate
Teachers in your school are highly motivated	3.22	Fairly Adequate
You consider yourself a person of high moral integrity	3.61	Adequate
Your devote much time to your students	2.85	Fairly adequate
Your student load is reasonable	2.70	Fairly adequate
Total	3.08	Fairly Adequate
Grand mean	3.36	Fairly Adequate

Source: field data

Results in table 3 indicate that the respondents agreed that school environment in the sampled schools was rather fairly adequate. This is indicated by the fact that most of the ratings are =3 which falls under fairly adequate in the likert scale. For example, level of school facilities in the table can be said to be in adequate (a total mean index of 2.45) the same almost applies to class size (total mean index of 2.88) . Teacher motivation in the sampled schools was on average found to be fairly adequate too (mean=3.08).

Although the total mean index for all the three aspects of school environment showed fairly adequate levels, some aspects of school environment were found to be very inadequate for example the table reveals that most of the respondents had said there is less furniture in the school with a mean of (1.42) , the laboratories and toilets were also indicated as few with a mean of (1.90) , the teachers also revealed that school buildings were not well maintained and thus were in poor condition (1.92). It is also evident that whether classrooms were spacious enough for learners was also rated as very inadequate with a mean of (1.17).

The only aspect of school environment with the highest rating was the aspect of teacher quality especially the fact that most of them were graduate teachers. This had a mean of (3.49) could be because the government of Kenya basically employ graduate teachers in secondary schools.

Those aspects of teacher quality that were found out to be fairly adequate included; most of them are generally well groomed, and smart all the time , a mean of 3.46, , they have pleasant personality a mean of 3.40, they also have high degree of experience with a mean of 2.32 among others. As concerns class size, most of those aspects that had a fairly adequate standing including; the fact that they class size could allow for the teacher to ; have regular and indepth discussion with students as well as timely frequent feedbacks and active problem solving (mean 2.5), the class size was such that the number of students is fairly manageable (2.61) it was easy to master the names of the learners because of their small number (2.85), teachers could have enough task time with their students (2.39) and finally, easier classroom management and control (2.97).

Though the general picture exhibits fairly adequate level of school environment, it is crucial to look at individual aspects because some aspects are thought of as more crucial than others and so their low levels may negatively impact on the teaching learning process. For example, if there is no enough resources like enough

furniture(1.42), laboratories and toilets (1.49) like the table 3 indicates, then quality of students welfare may be compromised. So the school administration has to seek for measures to mitigate such shortages either by procuring more furniture and making provisions for more toilets. Could be because of poor funding, school buildings are in a sorry state (mean 1.92) this further reiterates the essence of fund mobilization to be able to address such needs.

Students drop out rate

The dependent variable of the study was students drop out, conceptualized in terms of students failing to complete their 4 years secondary school years. This was measured in terms of students' dropout ranked as very high (80% and above), high (70-79), fairly high (60-69), moderate (50-59), low (40-49) and very low (below 40). Teachers were requested to indicate the number of students who left the school and rank them in the table, their answers were summerised using means as indicated in table 4 below.;

The dependent variable

The dependent variable of the study was students' drop out, conceptualized in terms of students leaving school before the completion of their 4 years course, which was measured in terms of students who left the school on yearly between 2007-2010 ranked as very low (1-5), low (6-11), high (12-17), very high (18-22). the raw data on student drop out was obtained from the school, their tendencies were summarized using means as indicated in table 4 below.;

Table 4; The Level of Students drop out rate

Rating	Rank
Very low (0-5)	4
Low (6-11)	3
High (12-17)	2

Very high (18-22)

1

Year	Enrolment	Number of drop out	Rate of drop out in %	Ranking
2007	2200			
2008	1956	244	10.9	3
2009	1897	59	3.0	4
2010	1782	115	6.1	3
Total	1693	89	4.5	4
Total		507	24.5	
Grand mean	%		6.125	3

Source; field data

Results from the table 4 above points to the fact that the rate of students drop out in the sampled schools is generally low. This is so evident in the above table where the rate of students drop out mostly lies within the rank of 0-5. For example, on average, annually, students drop out rate ranged between 3-4 in the decision rule. The total number of students who joined form 1 in 2007 was 2200 and by the end of that year, 244 had dropped out, when the same class joined form three, the population was 1897 and by the time that year was ending their population had reduced by 115 presumably because most of them failed to get good grades that could have them promoted to the candidate class, when they began form four, they were 1782 and yet by the end of that year they had reduced by 4.5% this could have been due to failure by most of these students to raise National examination registration fees. A closer look at the performance indicates that on average, the general students' drop out level in the sampled schools was reported to be generally low hence the need to understand the cause.

The relationship between the level of school environment and students' drop out rate

The purpose of this study was to establish whether there was a significant relationship between the level of school environment and students' drop out rate. School environment was categorized into three aspects namely; class size, school facilities and teacher quality. The adequacy of these aspects in each category was measured using means as shown in Table 4. In an attempt to determine whether there was a significant relationship between the two variables, the researcher used linear correlation coefficient to correlate the mean indices of the three aspects of school environment . Results on this test are shown on table 5 below.

Table 5; relationship between level of organizational culture and level of pupils drop out

Category	Mean	Computed r-value	Critical value	Decision	Interpretation
School environment Vs	3.36	0.714	0.000	Reject the null hypothesis	Positive Significant correlation
Students' Drop out	6.13				

Source; field data

From the above table according to Pearson's coefficient the relationship between school environment and dropout rate is strong and has the value of 0.714.

Computed r-value was generated from mean scores of the relationship between school environment and dropout rate of students in TransmaraDistrict secondary schools. The critical value was generated from books of statistics/r-values.

The above table gives the nature and type of relationship between the school environment and the students' drop out rate, the discrepancy between the computed value and the critical value reveals that there is a significant relationship between the level of school environment and the level of dropout rate.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Introduction

The major purpose of the study was to investigate relationship between school environment and students drop out rate in selected secondary schools of Transmara District of Kenya.

Discussion of the Findings

This study intended to examine the relationship between school environment and students drop out rate in Transmara District secondary schools. It was based on four research objectives which included determining 1) the profile of the respondents ii) the level of school environment iii) the level of students' drop out rate; and finding the relationship between school environment and students' drop out rate.

Analysis using frequencies and percentage distributions showed that of the 90 respondents, (56%) were male and 40 (44%) were female. From this statistic, we can see that the difference in sex between the males and females in employment is very low. This could imply that the society of the context of study has empowered women both academically and professionally.

The age category of the respondents was divided in three groups that is 19-24 years were 25 which was (28%), 25-30 were 35 (39%) and 31 and above were 30 representing (33%) of the respondents. Teachers within the age bracket of 25-30 formed the highest percentage at 39. This could imply that mobility rate is high in the area of study so that older teacher leave teaching for other better paying jobs.

The academic level of the respondents was divided in three categories that are certificate, diploma and degree. 20 (22%) of the respondents had certificates, 30 (33%) had diplomas and 40 (44%) had degrees. From this data we can infer that the

area of study is generally empowered academically since most of the teachers are graduate teachers.

Descriptive analysis showing means revealed that school environment in the sampled schools was fairly adequate(overall mean index = 3.36) and students drop out rate was generally ranked low (over 50/85 students who dropped out of school were below 50%). However, these results showed that of all the 3 aspects of school environment in this study, school facilities (mean=2.45) and class size (mean=2.88) were more inadequate than teacher quality (3.36). also within the teacher quality, it was found that their teaching load was not so reasonable (mean=2.70). Within class size , probably because of the big numbers, most of them had no enough task time with students and this had the lowest mean of 2.39. Within teacher school facilities, insufficient furniture scored the lowest with a mean of 1.42.

Data analysis using Pearson's linear correlation coefficient showed a positive significant relationship among all the three aspects of school environment and students drop out rate; the relationship between school environment and dropout rate is strong and has the value of 0.714.

Computed r-value was generated from mean scores of the relationship between school environment and dropout rate of students in Transmara District secondary schools. The critical value was generated from books of statistics/r-values. The discrepancy between the computed value and the critical value reveals that there is a significant relationship between the level of school environment and the level of dropout rate.

The finding is in line with Rugh (2000) to the effect that large classes constrain teaching and learning, and therefore, contribute to low student dropout. Among others, large classes limit regular and in-depth discussions with students, timely and frequent feedback to students and active problem solving, all which are key to facilitating meaningful learning

The findings of this study also echo Lyons, (2002, p. 10). "Learning is a complex activity that puts students' motivation and physical condition to the test" It has been a long-held assumption that curriculum and teaching have an impact on learning. However, it is becoming more apparent that the physical condition of our schools can influence student dropout

The study findings also supports Chan (1996) who conducted a similar study of the impact of physical environment on student success. This study classified 165 Georgia schools into one of three categories: Modern Learning, Obsolete Learning, or Half Modern Learning Environment. Other than building age, differences in the three categories included lighting, color schemes, air control and acoustic levels (Chan, 1996). As one might expect, Chan (1996) found student dropout to be highest in Modern Learning Environments and lowest in Obsolete Learning Environments. Chan (1996) concluded that technologies and adaptabilities of modern environments better equipped students for success and that to ignore that fact was to disregard the physical difficulties of learning.

The findings also corroborated Thias and Carnoy (1972)'s study in Kenya that found out that teacher experience is better predictor of examination performance than is the formal qualification of the teaching staff. They however hasten to add that this may not be due to the accumulated years of experience but probably due to the respect accorded to the older from the young generation in African societies and the fact that senior staffs are rarely transferred compared to the younger staffs.

According to World Bank (2000) urban schools have better infrastructure than rural schools. Most of the schools in rural areas have classrooms that are dilapidated, with floors that are not cemented and thus dusty. There are windows and doors with no shutters. Such classrooms have few desks for students and some of them seat on makeshift forms and/or stones.

CONCLUSIONS

Basing on the study findings, the following conclusions were made;

1. . Majority of the teachers in Transmara District are youth between the ages of 25-30 and majority are graduate teachers. There is generally low levels of teacher experience among the secondary school teachers in this district while teacher quality and class sizes are fairly adequate.
2. Students drop out rate is low in the district this could be attributed to factors like free secondary education coupled with the general wave of thirst for education that is sweeping across Kenya.
3. There is a strong positive correlation between school Environment and student's dropout rate.

RECOMMENDATIONS

From the ongoing discussion, the following are the recommendations that were made and observed;

Government should increase the funding of rural education to improve the existing infrastructure, payments and other teacher budgets.

School leaders should embrace school based management and develop the knowledge base associated with efficiency and effectiveness in school management for the purposes of achieving the educational goals for the students. Owing to the effects of poverty in provision of education, school governing structures should strategize on the school aspects which need more emphasis compared to others to meet the expectations and interests of the most important constituent – the student.

School facilities should be provided in schools so that children understand what they are taught.

School authorities, teachers and stake holders should identify the reasons for children's drop out and therefore deal with the problem.

Although student-to-staff ratio is a commonly used indicator of quality both in national and international comparisons, this might be a noisy measure of quality over this intermediate range of class sizes. Given the mechanisms our data rule out, there appear to be at least two ways that larger classes reduce students' performance. First, changes in student behaviour such as their attentiveness or participation. Second, reduced resource availability, such as library books or faculty time during office hours reduces students performance.

As the best students are the most affected, that could imply that large classes induce a reduction in tutoring activity rather than a substantial deterioration in classroom conditions. It is reasonable to expect that the best students are able to compensate classroom deterioration at least as well as other students. However, the best students are also those that benefit the most (in terms of both learning and motivation) from contact with teachers. They, therefore, suffer the most in terms of reduced performance when such contacts or tailored feedback is less frequent.

The school environment should be made conducive for the students for example a clean environment should be emphasized and security provided. Parents should be sensitized on the importance of participating in their children's education and school activities

Area for further research

Scholars can still carry out further research on other variables that may also affect students drop out e.g., Home environment, parents socio economic status, conflict and so on.

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APPENDIX IV A

FACE SHEET;

Code#.....

Date received by respondents.....

SECTION A: BACKGROUND CHARACTERISTICS

Please tick (✓) where applicable

1. **Initials** (optional) -----

2. 1. GENDER:

3. Male

Female

4. 2. AGE:

Below 25

25-35

36-45

46-55

Above 55

5. 3. Educational Background:

Certificate

Diploma

First Degree

Masters & above

6. 4. Teaching experience (Years):

1 year and below

2 - 5 Years

6-10 Years

11-above

APPENDIX IV B

SECTION B

Evaluation of how teachers rated 'school environment and dropout rate of students in selected secondary schools of Transmara District,' Kenya (Tick where applicable)

Response Mode	Rating	Interpretation
Strongly Agree	5	very adequate
Agree	4	adequate
Neutral	3	fairly adequate
Disagree	2	inadequate
Strongly disagree	1	very inadequate

B. Indicators of School environment

	Response	5	4	3	2	1
	School facilities					
1	The school is located in a remote place					
2	The school has sufficient playground and games facilities					
3	There is adequate mobility space in the school					
4	The school is located in a place where there is easy means of transport					
5	There is enough furniture in the school					
6	The laboratories and toilets are clean and sufficient					

APPENDIX V

Check list for students' drop out

Year	Enrolment	Number of drop out	Rate of drop out in %	Ranking
2007	2200			
2008	1956	244	10.9	3
2009	1897	59	3.0	4
2010	1782	115	6.1	3
Total	1693	89	4.5	4
Total		507	24.5	
Grand mean	%	6.125		3

Rating	Rank
Very low (0-5)	4
Low (6-11)	3
High (12-17)	2
Very high (18-22)	1

**APPENDIX VI
THE BUDGET**

ACTIVITY	ITEMS REQUIRED	COST (KSH)
Proposal writing	1 ream foolscap	400/=
	10 Bic pens	100/=
	Transport	15000/=
	Typesetting	3000/=
	Photocopying	5000/=
Sub-total		23,500/=
Data collection	Making copies of research instruments	10,000/=
	Transport to the field	10,000/=
	Refreshments to respondents	10,000/=
Sub-Total		30,000/=
Reporting of findings	Typesetting	8,000/=
	Binding 4 copies	9,000/=
	Contingency	2,000/=
Sub-Totals		19,000/=
Viva	Transport to and from university	5,000/=
	Accommodation	2,000/=
	Meals	1,000/=
Sub-Total		8,000/=
GRAND TOTAL		84,500/=