FACTORS INFLUENCING ACADEMIC PERFOMANCE OF SELF-SPONSORED STUDENTS IN THE SCHOOL OF ENGINEERING, UNIVERSITY OF NAIROBI, KENYA

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This Research Project is Submitted in Partial Fulfillment of the Requirements for the Award of the Degree of Master of Arts in Project Planning and Management of the University of Nairobi.

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DECLARATION

This is my original work and has not been presented for examination in any university or any other institution of higher learning for examination.

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DEDICATION

This research is dedicated to my children Pauline and Mark for their patience and love during my period of study. To my supervisors Dr. Gakuu and Dr. Anne Aseey for their innumerable advice and guidance, to my friend Architect Erastus Abonyo for his guidance and for the facilitation and guidance, and finally to Prof. Ogeng'o for his support. May God bless you all.

LIST OF ABBREVIATIONS

KCSE Kenya Certificate of Secondary Education

SoE School of Engineering

CAE College of Architecture & Engineering

JAB Joint Admissions Board

UoN University of Nairobi

CCE - Civil and Construction Engineering

MME Mechanical and Manufacturing Engineering

EBE - Environmental and Bio Systems Engineering

EIE Electrical and Information Engineering

GST Geospatial & Space Technology

CGPA Cumulative Grade Point average

GPA Grade Point average

MCE Malaysian Certificate of Education

UN United Nations

UNESCO United Nations Educational, Scientific Cultural Organisation

UNES - University of Nairobi Enterprises Ltd

LIST OF TABLES

Table 1.1 Student population by departments in School of Engineering 4
Table 3.1 Sample size and distribution in the departments 20
Table 3. 2 Operational definition of variables: 24
Table 4.1 Test of reliability and consistency by Cronbach's alpha coefficient 25
Table 4. 2 Response rate 26
Table 4. 3 Performance of Students in engineering course 27
Table 4. 4 Comparison of performance between government and self-sponsored students 28
Table 4. 5 Significance test for performance of government and self-sponsored students 28
Table 4. 6 Place of residence 29
Table 4. 7 Cross tabulation of students studying in the library and residence 29
Table 4. 8 Comparison of student's performance against residence 30
Table 4. 9 Significant test for Performance versus place of residence 31
Table 4.10 Lecture Attendance 32
Table 4.11 Performance of students across groups of Class attendance 33
Table 4.12 Performance of students across groups of Class attendance 34
Table 4.13 KCSE entry grades 35
Table 4.14 Performance of students across groups against entry grades 36
Table 4.15 Significance comparison test between government and self-sponsored students both with entry grade of A 37
Table 4.16 Performance of students across groups for entry grades 38
Table 4.17 Adequacy of classroom space 38
Table 4.18 Adequate laboratory facilities for students 39
Table 4.19 Sufficiency of library books 40
Table 4. 20 Adequacy of computer facilities 40
Table 4. 21 Regression analysis of infrastructure 41
Table 4. 22 Corelation between Performance of engineering students and the independent variables 42
Table 4. 23 Model 43
Table 4. 24 Coefficients of the regression model 43

LIST OF FIGURES

Figure 2. Conceptual Framework

TABLE OF CONTENTS

DECLARATION i

DEDICATION "

LIST OF ABBREVIATIONS iii

LIST OF TABLES iv

LIST OF FIGURES v

TABLE OF CONTENTS vi

Abstract ix

CHAPTER ONE: INTRODUCTION 1

1.1 Background of the Study 1

1.1.2 Self sponsored programs in Kenya 1

1.1.3 The School of Engineering 2

1.2 Statement of the problem 4

1.3 Purpose of the Study 5

1.4 Justification of the study 5

1.5 Objectives of the study 5

1.6 Research questions 6

1.10 Basic Assumptions of the Study 7

1.11 Limitations of the Study 7

1.12 Scope of the study 7

1.13 Definition of significant terms 8

CHAPTER TWO: LITERATURE REVIEW 9

2.1 Introduction 9

2.2 Perspectives on Academic Achievement 9

2. Entry grades and academic performance 11

2.5 Residence and academic performance 12

2.6 Infrastructure and academic performance 14

2.7 Class attendance and academic performance 15

2.8 Conceptual Framework of the Study 17

2.8.1 Graphical Representation of the Factors influencing academic performance of Self sponsored students in the School of Engineering 18

Factors 18

CHAPTER THREE: RESEARCH METHODOLOGY 19

3.1 Introduction 19

3.2 Research Design 19

3.3 Target Population 19

3.4 Sampling design 20

3.5 Sample size and sampling procedure 20

3.6 Methods of Data Collection 21

3.7 Validity of the Instruments 21

3.7.1 Test of reliability 22

3.8 Data Analysis 22

3.9 Ethical Issues 23

3.10 Summary 23

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION 25

4.1 Introduction 25

4.2 Preliminary analysis 25

4.2.1 Reliability and Consistency of Instrument 25

4.3 Univariate Descriptive Analysis 27

4.3.1 Students Performance 27

4.4.1 Influence of residence on performance 30

4.5.1 Academic Performance and class attendance 33

4.6 Entry Grades and Academic Performance 35

4.6.1 Performance against Entry grades 36

4.8 Correlations 42

4.9 Regression Analysis 43

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 46

5.1 Introduction 46

5.2 Summary of findings 46

5.2.1 Influence of residence on academic performance 46

5.2.2 Influence of entry grades on academic performance 47

5.2.3 Influence of class attendance on academic performance 47
5.2.4 Influence of infrastructure on academic performance 48
5.3 Conclusions 48
5.4 Recommendations 51
5.5 Contribution to knowledge 51
5.6 Suggestions for Future Research 51
APPENDICES ..... **X**
Appendix 1: Introduction Letter to Respondents x
APPENDIX 2 : Questionnaire xi
APPENDIX 3 xv
Scatter Plot of Performance against Adequacy of infrastructure xv
APPENDIX 4 xvi
Performance statistics for cohorts of students admitted in 2004/2005 and 2005/2006 academic yrs.
COHORT ONE xvi
APPENDIX 5 xvii
1st year Admission statistics, School of Engineering xvii

Abstract

University education plays a crucial role in national development. Through self sponsored (module II) programmes, invaluable opportunity has been opened to hundreds of Kenyans and **non**-Kenyans, on a paying basis, who meet university admission requirements, but who have not been able to access university education due to restricted intake into the regular programmes that is determined by limited resource allocation by Government. The School of Engineering (SoE) is offers a 5-year fulltime degree course. Over the years, the results released to the students have indicated a higher percentage of failures among self sponsored students despite integration. This study sought to establish the reasons behind the disparity in performance between government and self sponsored students. The objectives of the study were to establish the extent to which residence, entry grades, class attendance and infrastructure influence the academic performance of self sponsored students in the School. A sample of 382 respondents was drawn from the self sponsored students in level 1-4 in the three largest departments of Civil, Mechanical and Electrical Engineering, using the systematic random sampling method. The study found that residence, entry grades, class attendance and adequacy of infrastructure had a significant influence on academic performance. The findings of the study agreed with studies conducted by different scholars across the globe. This findings will be useful to institutions of higher learning in assisting them to address the issues affecting academic programmes and further contribute to better management of the fast growing module II programmes which have become popular in all universities.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

University education plays a crucial role in national development. The Government's long-term policy is to provide a framework for a sustainable, competitive and autonomous national university system. Education is the best gift a country can bequeath its youth. This reality is in tandem with the UN Millennium Development Goal on universal access to education (GoK Sessional paper No.1, 2005). Access to university education therefore is a right for all Kenyans (KIM Conference Report, 2009).

This study focused on self sponsored education in the University of Nairobi and particularly the School of Engineering. This Chapter covers the statement of the problem, research objectives, research questions that the study seeks to answer, purpose of the study, significance of the study, limitations and scope of the study.

The University of Nairobi, was established by an Act of Parliament Cap 210 of the Laws of Kenya and is the pioneer institution of University education in Kenya and the region (UoN Academic Calendar, (2011).There are over 26 private and public universities in Kenya today (Ogechi et al (2010). A report from the University Public Relations office indicates that the university currently boasts a population of approximately 52,000 students as at 2010.In view of the rapid expansion and complexities in administration, the University underwent a major restructuring in 1983 resulting in creation of six (6) campus colleges among them the College of Architecture and Engineering.

1.1.2 Self sponsored programs in Kenya

The demand for higher education in Kenya has continued to rise unabated due to the ever increasing numbers of school leavers. This is attributed partly to free primary education and subsidized secondary education by the Government. This insatiable demand has compelled the universities to expand University education through introduction of module II programs (KIM Conference Report, 2009).

The self sponsored programs in Kenyan public universities were initiated in the late 90's. Public universities like the University of Nairobi are also referred to as state universities since they are funded by the exchequer, while private universities are those started by and fully run by private and/or religious organizations (Sang K, 2010). These students take their lectures separately in the evening and weekends or are intergrated with the regular students. According to UNESCO World Conference on Higher Education (1998), low funding from the exchequer, increased enrolment, limited access compared to the population level, lack of improvement in available facilities, gender inequality, and a low research capacity etc are some of the problems facing universities in the region. Self sponsored university education in Kenya is a wonderful innovation in terms of the provision of and facilitation of access of higher education in Kenya. All universities have different names that they use to refer to their students such as Module I and II, Regular and parallel, self sponsored Students (SSP), Privately Sponsored Students Program (PSSP) among others. These terms have been used interchangeably in this study to refer to this group of students. In 2011, all Kenyan public universities were set to admit 24,221 students to first year while 57000 qualified students will miss spaces owing to limited bed capacity (Daily Nation, Feb 24, 2011). This implies that the students would have to seek alternative ways of getting into university to pursue the much needed university education. Owing to capacity limitations, many students who are qualified and may not be willing to wait the one year delay therefore opt to join university through the self sponsored avenue. This implies that a portion of the self sponsored students have equal entry requirements with those in the government sponsored programme.

1.1.3 The School of Engineering

The School of Engineering (SoE) is a constituent School of the College of Architecture & Engineering (CAE). It is located in the main campus of the University, along Harry Thuku Road. The School is one of the oldest in the University, having been started way back in 1956 in the then Royal Technical College. Presently, the School consists of five departments each offering a distinct Bachelor of Science degree:

- Geospatial & Space Technology (GST)
- Civil and Construction Engineering (CCE)

- Mechanical and Manufacturing Engineering (MME)
- Environmental and Bio systems Engineering (EBE)
- Electrical and Information Engineering (EIE)

The School of Engineering offers 5-year fulltime degree courses whose academic year runs from October to September. Every year consists of two semesters and results are released at the end of semester two, comprising of 16 course units for the entire year. By the close of 2010 it had a total population of 2157 undergraduate students (Table 1.l).The students are integrated during learning. Government sponsored students are admitted by the Joint admissions Board while the self-sponsored students apply directly and are admitted through a vetting process with the final recommendation made by senate. All government sponsored students are admitted by the Joint Admissions Board (JAB) which sets the cut off points for both boys and girls who are eligible. Currently there exists time lag of one year meaning that students admitted to university in 2011 sat for their Kenya certificate of secondary Education (KCSE) in 2009.Most of the government students admitted to the School of Engineering through JAB usually have an aggregate score of an A which is the highest score possible in the KCSE. An estimated 400 students are admitted to the School of engineering every year. The general entry requirements for engineering course at School of Engineering are an aggregate C+ grade at Kenya Certificate of Secondary Examination (KCSE) level or a Credit pass for those with a Diploma in engineering. This criteria is used when selecting self sponsored applicants. Any applicant who has scored above the required C+ in KCSE is eligible for admission under the self sponsored programme. The students are also required to have achieved certain minimum points in Mathematics, Physics and Chemistry since these are the foundational courses of the engineering curriculum (UoN Academic Calendar (2011). However owing to the limited spaces available, majority of the students admitted under the module II programme have an average of B score and above.

Public universities admit government sponsored students by declaring bed capacities which are therefore taken up fully by government sponsored students meaning that no self sponsored student resides within campus. They therefore have to commute daily to the University to attend lectures. Nairobi city like most other cities in Africa is plagued by traffic jams especially in the morning and evenings which are the peak hours. Lectures in the School of Engineering begin at

8.00 am and end at 5.00 pm (SoE teaching timetables 2010-2011). This implies that students travelling to class for lectures may be caught up in the morning and evening traffic jams. This poses several questions regarding the self sponsored student i.e does the student make it to the lecture on time? Does the student participate in out -of-class discussions with other students? Does the student get enough time to peruse library materials and study privately?

Table 1.1 Student population by departments in School of Engineering

Department	**MME**		**EBE**		**CCE**		**EIE**		**GST**		
Total BSc students	**Mod i**	**Mod ii**	**Mod i**	**Mod ii**	**Mod i**	**Mod ii**	**Mod i**	**Mod ii**	**Mod i**	**Mod ii**	**Totals**
Totals	**239**	**215**	**181**	**32**	**304**	**338**	**324**	**337**	**164**	**23**	
Grand totals	454		213		642		661		187		**2157**

(Source: (SoE Progress report, Nov 2010)

According to the School of Engineering 2010 progress report, 44% of the student population in the School of Engineering are in the Module II programme *(see appendix).*Being an integrated program, all the students are taught similar course units save for 5^{lh} year which has a few electives. Examinations are administered and moderated using common regulations. In the award of a degree, the School uses a Weighted Average Score given as a percentage for the three final years of studying the ratio of 1:2:3. The final score of each student is given at the end of the academic year. Marks for students are scored using an average of the total course units taken in the year. No score is given for students who fail to take the total course units prescribed in the year (UoN Academic Calendar: 2011 (280-282).

1.2 Statement of the problem

Ihrough module II programmes, invaluable opportunity has been opened to hundreds of Kenyans and non-Kenyans on a paying basis, who meet university admission requirements, but who have not been able to access university education due to restricted intake into the regular programmes that is determined by limited resource allocation by Government (Chacha, 2004). The numbers have continued to grow tremendously especially in the recent years as shown

below as shown in appendix 5. Over the years, the results released to the students have indicated a higher percentage of failures among Module II students. This is despite the fact the students are integrated and are taught by same lecturers, attend same labs as well as sit the same examinations which are graded using similar criteria.

Statistics from appendix 4 indicate that in the year 2004/2005 for example, whereas only 27% of Module I students failed, 81% of mod II who sat the same examination failed yet their number was less than their counterparts in that class. The same trend is notable in the other academic years. The reasons for such a disparity had not been studied. This study therefore sought to establish the factors influencing the performance of Module II students in the School of Engineering and focused on 2010/2011 academic year's performance as the baseline by considering results for level 1-4.

1.3 Purpose of the Study

The purpose of the study was to provide information on the reasons behind the disparity in performance between Module I and Module II students in the School of Engineering.

1.4 Justification of the study

The School of Engineering was chosen as the focus of study since background research indicates that no such study has been carried out on the student's performance in the School. Additionally, it runs an integrated programme of schooling thus the disparity in performance would easily be singled out.

1.5 Objectives of the study

The study was guided by the following objectives:

1. To establish whether students on off campus residence influences performance of module **II** students in School of Engineering.
2. To establish the extent to which students academic entry grades influence performance of module II students in School of Engineering.
3. To assess the extent to which infrastructure influences performance of module II students in the School of Engineering.
4. To determine to what extent class attendance influences performance of module II students in the School of Engineering.

1.6 Research questions

The research sought to answer the following questions:

1. To what extent does student's off campus residence influence performance of module II students in School of Engineering?
2. To what extent do the student's entry grades influence performance of module II students in School of Engineering?
3. To what extent does class attendance influence performance of module II student's in the School of Engineering.
4. To what extent does infrastructure influence performance of module II student's in the School of Engineering?

1.7 Hypothesis of the study

Ho: The academic performance of self sponsored students in the School of Engineering is not influenced by place of residence, entry grades, class attendance and infrastructure.

1.8 Significance of the Study

The findings of this study will be useful to the College Management Board to assist in formulation of strategies to address the issues affecting the student's performance based on the study outcomes. The findings will be of use to the students who will now focus on improving the areas of concern. The study will contribute to the development of further knowledge on the management of the fast growing module II programmes which have become popular in all universities. It will also provide an insight to the parents as they seek to enroll their children in various self sponsored programmes of the university. The study will also provide information to the Ministry of Higher Education that will aid in decision making as it seeks to make changes in the admission of students into public universities, with special focus on Module II programs.

1.9 Delimitations of the study

T he survey was concentrated at the School of Engineering, Deans office since all the records from the departments and other offices end up getting filed here.

1.10 Basic Assumptions of the Study

It was assumed that the respondents were truthful in responding to the questions and that the sample size chosen was adequate to represent the population to help in drawing valid conclusions. Also that data collection instruments were valid enough to measure the desired constructs. By virtue of University policy, self sponsored students are not provided with accommodation by .the university hence the underlying assumption of this research was that all of them were housed outside the university.

1.11 Limitations of the Study

The research intended to cover four variables among them class attendance. However no secondary data was available since the lecturers have not been submitting class attendance registers back to the Chairman's office as required . This study was restricted to the School of Engineering and may therefore not be generalized for other courses offered in the University of Nairobi.

1.12 Scope of the study

The primary focus of the study was to draw respondents from the School of Engineering, University of Nairobi. Performance in the Departments of Geospatial Engineering and Enviromental and Bio systems Engineering are within acceptable levels and thus the two departments were omitted from this study. The sample of respondents was drawn from the departments with the largest intake and notable poor performance trends namely Electrical and Information Engineering, Civil & Construction Engineering and Mechanical & Manufacturing Engineering. The study limited itself to the performance of students in level 1-4 and the performance data used focused on the final grades of students in the first examination attempt for both module I and II students in the academic year 2010-2011.

Results for students who were sitting examinations other than the first attempt were not considered as this would have resulted in skewed data. The fifth year students were omitted from the survey because they had already left university at the time of the survey.

1.13 Definition of significant terms

Academic Performance: Refers to the academic achievement of a student gauged by the aggregate mark scored in a given academic year which is then classified as pass or fail.

Examination Score: Refers to the final aggregate score averaged from the individual exam scores of a student in an examination.

Infrastructure: refers to the facilities that enhance student learning e.g library, computers, laboratories etc.

Self sponsored/Module II Students/ Parallel: refers to the students who are not sponsored by the government and hence pay school fees for themselves.

Place of residence: refers to accommodation of students outside university which could be in private hostels or at home

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This Chapter contains the discussion on the history of module II programs in Kenyan public universities. It discusses the perspectives of academic performance as well as the analysis of the various factors that affect performance of students in higher education institutions across the globe with particular focus on infrastructure, entry grades, place of residence and class attendance.

2.2 Perspectives on Academic Achievement

The analysis of the factors associated with academic performance has been a major focus of research work in the last decade. Much of the research has concentrated on the educational attainment of pupils in compulsory schooling years of primary and secondary levels, with less attention on higher education (Smith J,et al 2007). According to this scholar, the motivation for analyzing contributory factors influencing academic performance in institutions of higher education arises out of their nature which is fundamentally different than those characterizing earlier-stages of cognitive development. Obviously there is greater student autonomy during study. More generally, the modes of study of students are less prescribed than in compulsory education: the responsibility for the efficient allocation of study time lies largely with the student. The performance of students in universities should be a concern not only to the administrators and educators, but also to corporations in the labor market since is one of the main factors considered by the employer in recruiting workers especially the fresh graduates (Norhidayah A. 2007). He asserts that students are main assets of universities and therefore their performance (academic achievement) plays an important role in producing the best quality graduates who will become not only great leaders but also manpower for the country thus responsible for the country's economic and social development. According to Norhidayah, A et al (2007) there are several ways used to determine student academic performance which are cumulative grade point average (CGPA), grade point average (GPA), practicals, percentage score etc. For example the American system of education uses the Grade Point Average while

Malaysian universities use the Cumulative Grade Point Average (CGPA). CGPA shows the overall students' academic performance where it considers the average of all examinations' grade for all semesters during the tenure in university. In the School of Engineering, student academic performance is based on an Average Percentage Score calculated from the sum of the individual scores in the examinations. Most of the research done in other'countries used GPA as a measurement of academic performance probably because they are studying the student performance for that particular semester. Some other researcher use test results since they are studying performance for the specific subject (Hijazi and Naqvi, 2006).

The Kenyan university education system is a colonial legacy hence it is based on the UK model. Academic performance in the School of Engineering is measured using a Percentage Score calculated out of 100% , for every course unit. The final overall score for the year is calculated by getting an overall average score using the sum of the total individual scores. A student is deemed to have failed if a student scores below 40% in any of the individual course units.
The award of the degree is based on the performance of the candidate in the last three years of study with relative weights of 1:2:3 (University of Nairobi Academic Calendar, 2010-2011 pg 280-281).

Research has in the past been carried out to establish factors that are deemed to affect academic performance of students in higher education institutions around the world. They have focused on among others residence ,Turley and Wodtke, (2010), class attendance ,Hijazi and Naqvi (2006), demographic factors, active learning, students' attendance and involvement in extracurricular activities, Norhidayah, et al (2009), physical facilities (Fabiyi and Uzoka ,2009) among others. Poor academic performance has been shown to negatively impact student's persistence levels, initiatives which enhance academic performance likely to improve retention Amenkhienan and Kogan, (2004).

While reviewing past research on factors influencing academic performance of students, studies documenting the correlation of those factors and the academic performance of students in a self sponsored programme in Kenyan universities were found to be lacking in the public domain and which becomes the motivation of this study. Many factors could act as barriers to students

attaining and maintaining a high scores that reflects their overall academic performance during their tenure in college. These factors could be targeted by the college or School of engineering faculty members in developing strategies to improve student learning and improve their academic performance. Status of infrastructure, entry grades, student's perception and class attendance are some of the factors that affect an individuals' academic performance and was the focus of this study.

2. Entry grades and academic performance

Ismail and Othman (2006) in their study have argued that factors influencing academic achievement can be grouped into three categories which are student aptitude, instruction and environment. In their study carried out at the University Malaya in Malaysia, the objective of the research was to investigate the effect of past performance on students at three faculties. Students' prior achievements included their entry scores or points in English language proficiency and mathematics at the Malaysian Certificate of Education (MCE) level. Their research results showed that entry points were an important factor in influencing students' achievement in all three faculties. It was also found that performance of mathematics at the MCE level was one of the influential factors for academic achievement in business and accounting which like engineering requires good prior knowledge of mathematics.

Ali (2008) also carried out a study to determine the relationship between admission criteria used to select students and their subsequent academic performance in general nursing diploma programme in Pakistan. Using a descriptive co-relational study design, data was collected retrospectively from records of the entire nursing student's batch. Results identified a significant relationship between admission criteria and subsequent academic performance of the students. Significant among them were entry qualifications and previous academic performance.

I he study concluded that academic factors considered in the admission criteria were better predictors of students' academic performance than the non academic factors. They recommended that these factors should be considered in the admission criteria for general nursing diploma programme. The nursing course bears similar characteristics to the engineering course in that besides being a professional course like engineering, it is also science based and relies heavily on competence in some core courses mostly Mathematics, Chemistry, Physics, English etc.

which are outlined in the admission criteria. It was therefore imperative to see whether the findings of the above study may have some relevance in our current study. This study sought to **investigate** the predictive ability of admission criteria in relation to the subsequent academic **performance** of the students.

2.5 Residence and academic performance

A study by Burtner and Tincher (1979) on problems experienced by non-resident students at Auburn University in the U.S.A showed that the grade point average of non-resident and resident students were almost identical. The residential students performed better than non-residential students due to the fact that the former had greater access to learning facilities as compared to the latter. In the comparison of resident and non-resident students' academic performance, they noted that the grade points average of non-resident and resident students were almost identical. This implied that there was no significant difference in their academic performance. Also, non-resident students were less likely to form close friendships with students they did not know before coming to the university and that they dated less frequently than resident students. The authors further noted that it appeared that non-resident students were less satisfied than resident students with their social lives at the university and also do not participate much in campus activities as compared to resident students.

Research has documented that students living on campus are more likely to interact with faculty, than those living off campus, participate in extracurricular activities, and use institutional resources Astin, (1984). He examined the connection between learning and students' involvement, and presented his theory of student development - that students learn by becoming involved hence his assertion than students who resided on campus had significantly better GPA's possibly due to the higher level of involvement outside classroom. Pascarella et al, **(1994)** argues that one possible explanation why students living in residence halls may not perform significantly better academically than students living off campus is that residence halls are primarily social settings in which students encounter more opportunities for social rather than academic involvement. Social involvement consists of peer socialization activities, whereas academic involvement comprises activities with a scholastic focus, such as studying with peers, interacting with faculty, or using campus resources (e.g., libraries and computers). Living on

campus in a residence hall, then, is an important environmental factor associated with increased student involvement, which in turn is a determinant of improved critical thinking ability, intellectual growth, persistence to graduation and satisfaction with college , Gellin, (2003). In **Ghana** for example, the steady increase in enrolment of students over the years has created a much larger non-resident student population than ever anticipated. In almost all the public universities in Ghana, students have increased to the extent that the in-out-out-out policy has been introduced. This policy is a system in which freshmen and women are given accommodation for a year in the halls of residence after which they are no longer eligible for campus accommodation. This policy has been established to enable all interested students experience campus residential life and have a fair usage of the institution's facilities , Hogry and Broni, (2010).

Although previous research suggests that living on campus promotes a variety of desirable academic outcomes by enhancing students' involvement and engagement with their institutions, research on academic performance frequently ignores the possibility that different groups of students are differentially affected by their living environments, (Turley and Wodtke, 2010). In their study done on first year students, found for most students in most institutions, the type of residence during college does not have a significant effect on lst-year academic performance. However, among Black students, those who live on campus have significantly higher GPAs than similar students at the same institution who live off campus with family. Among students attending liberal arts institutions, those who live on campus also have significantly higher GPAs than comparable students at the same institution who live off campus with family. Therefore, given the positive relationship between living on campus, student involvement, and several outcomes closely linked to academic performance, it is quite reasonable to argue that students who live on campus will also earn higher grades than their counterparts living elsewhere. However, the weight of the evidence on this topic with regard to our current study needs further exploration. These findings have raised concern in the tertiary institutions as to why in some cases residential students do better than non-residential students or sometimes the two groups seem to have similar grade point averages, Anthony (2010). This study focused on the influence of residence on academic performance to ascertain whether this maybe a factor causing the disparity in performance between self sponsored and government

sponsored students in the School of Engineering.

2.6 Infrastructure and academic performance

It is well known that a comfortable and healthy environment is an important component of successful teaching and learning. According to Earthman and Schneider (2002), school building design features and components have been proven to have a measurable influence on student's learning. Among the influential features and components are those impacting temperature, lighting, acoustics and age. Researchers have found a negative impact upon student performance in buildings where deficiencies in any of these features exist. In addition, overcrowded school buildings and classrooms have been found to be a negative influence on student's performance. The overall impact a school building has on students can be either positive or negative, depending on the condition of the building. In cases where students attend school in substandard buildings they are definitely handicapped in their academic achievement. A correlational study showed a strong and positive relationship between overall building conditions and students' achievement.

The results of a study conducted by Fabiyi and Uzoka (2009) on Nigerian universities, results showed that availability of facilities had a relationship with their academic performance. The inadequacy of such physical resources like lecture halls, halls of residence, laboratories, libraries and other academic resources translates to poor results because it breeds over crowdedness. Again, they observed that the planning and design of educational facilities for schools, colleges and universities have impact on educational outcomes. Ethnographic and perception studies indicated that poor school facilities negatively impact teacher effectiveness and performance, and therefore have a negative impact on student performance (Jago & Tanner, 2009). In their research they concluded that lighting, colour choices and windows play a significant role in the achievement of students. Researchers have repeatedly found a difference of between 5-17 percentile points between achievement of students in poor buildings and those students in **standard** buildings (Earthman 2002 cited by Hogry and Boni (2010). In a study of the relationship between facilities and academic performance of residential and non-residential **students,** the results obtained showed that there was a significant relationship between the

facilities used by students and their academic performance. This may be due to the fact that as students are on campus and some staying around campus, academic facilities such as library, lecture halls, computer laboratories may be of utmost need to them since it is there that they seek for information and have group teachings and discussions They recommended that as academic facilities and residential facilities relate to academic performance of students, all stakeholders should come to the aid of universities by reviewing and increasing the funds allocated to tertiary institutions. They further argued that since residential facilities was a better predictor of academic performance than academic facilities, management should provide more incentives in the halls of residence and also refurbish and provide more incentives in the lecture halls, libraries and the computer centers to boost learning. This study sought to examine the influence of physical infrastructure on academic perfomance of students in the School of Engineering.

2.7 Class attendance and academic performance.

Class attendance has repeatedly been shown to be correlated with grades across a wide range of disciplines. A lot of the studies conducted in this area have looked at attendance rates in universities in relatively affluent societies i.e., the United States, the United Kingdom, and Australia. Marburger (2001) investigated a Principles of Microeconomics course and found that students were more likely to answer incorrectly to multiple choice test questions relating to material covered when they were absent in class. Moore (2003) studied two sections of an introductory Biology course, in one of which the value of class attendance was stressed while the other was not. The section in which attendance was stressed was found to have a higher rate of attendance as well as higher average grades in comparison to the section in which attendance was not stressed. Van Walbeek, (2004) postulates that missing sufficient numbers of lectures could possibly result in comprehension deficits or it could be that students with high ability also have high attendance habits. He further notes that naturally, academic performance is not only a function of attendance levels but also individual factors such as ability ,prior knowledge and motivation and adds that this also play a significant role in predicting academic performance and in influencing attendance levels.

The attendance factors for students from disadvantaged backgrounds in a relatively poorer society (e.g., financial constraints, travelling distance, part-time employment, etc.) have not been

systematically investigated (Thatcher, Fridjhon and Cockcroft 2007). In their study,they demonstrated that students who 'always' attend lectures show statistically significant academic performance advantages over students who 'seldom' or 'never' attend lectures. Purcell (2007) has shown that, in the 2nd and 3rd year Civil Engineering programme, every 10% increase in class attendance was seen to improve examination performance by about 3%. Seung C. K (2009) argues that students attending classes in one way or another perform better on assessment than those skipping lectures. This is a widely held notion by many scholars who have studied this aspect and its relation to student academic achievement. The primary mode of teaching and learning delivery at the School of Engineering is full-time with contact lectures running from 8.00am to 6.00pm and supported by contact tutorials. This mode of delivery implies that students regularly attend face-to-face activities such as lectures, tutorials, and seminars etc. Regulations require that a student must have attended over two-thirds of all lectures to be allowed to sit examinations making class attendance almost compulsory (UoN academic calendar 2011). Many of the teaching and learning interventions that have been implemented in engineering, however, have been based on the assumption that students attend lectures regularly. Evidence from class attendance registers has suggested that, while course attendance for such a course is paramount, in there are students who miss lectures regularly. Results suggest that the frequency of lecture attendance is significantly, but moderately, related to better academic performance and that 'always' attending lectures is the best indicator of academic performance. Similar correlations between class attendance and student performance were found in more recent studies in Engineering Education.

There are a number of possible reasons why students may fail to attend lectures. These reasons include undertaking part-time (or even full-time) work, transport problems, financial problems, accommodation problems, illness, family commitments, boring lectures or lecturers, congestion in the lecture halls etc. The self sponsored students in the school of Engineering are full time students hence do not undertake part time jobs However, financial constraints in terms of bus fare, travelling distance etc could be some of the challenges affecting their class attendance since they do not reside within the university hostels. Teaching in the School of Engineering is characterized by large class sizes (often in excess of 120 students per class) and therefore sitting spaces are on first-come, first-served basis. The main problem in assessing the effects of

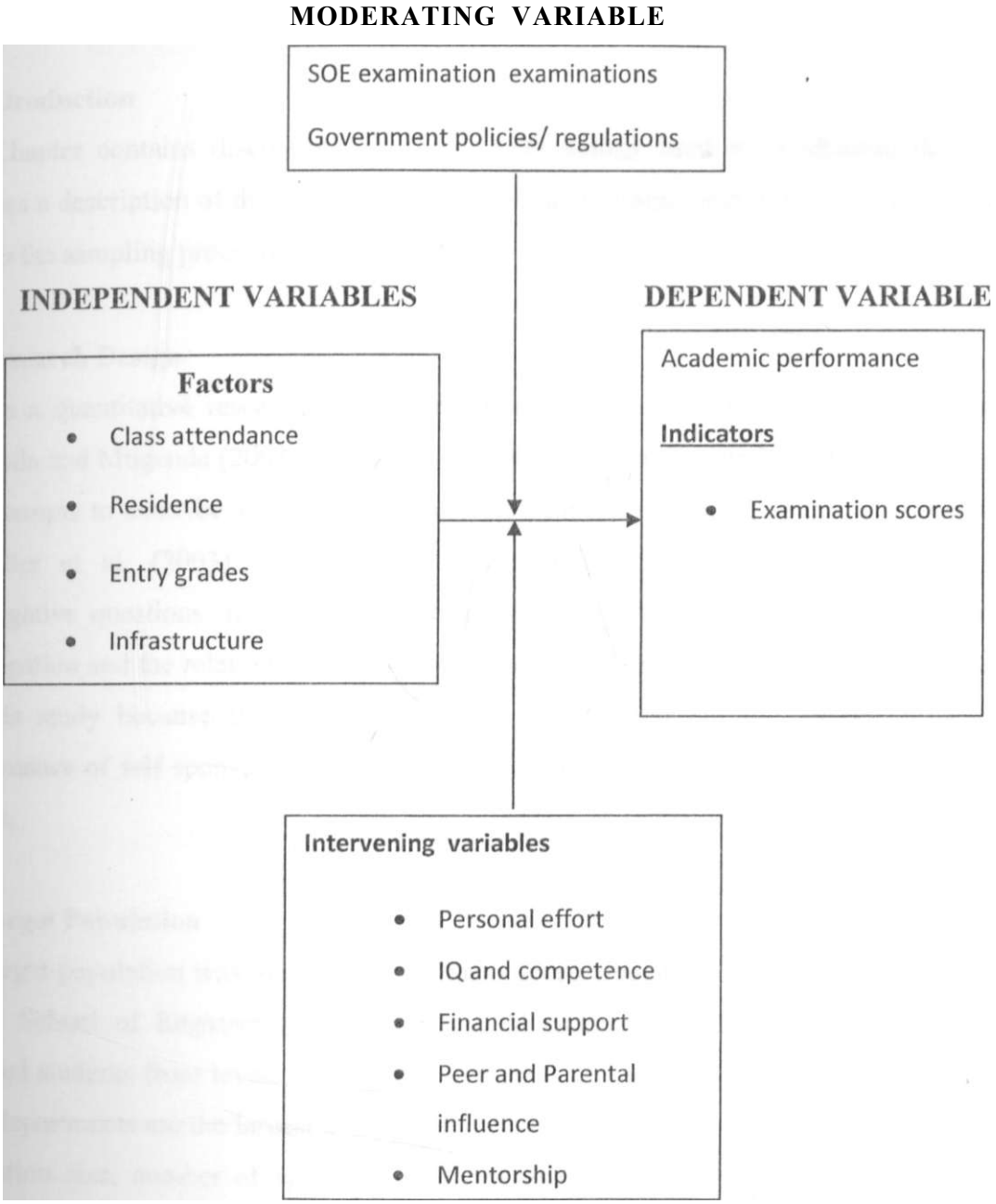
attendance on academic performance is that attendance levels are not exogenous, given that students choose whether to attend lectures and classes, and that this choice is affected by unobservable individual characteristics, such as ability, effort and motivation, that are also likely to determine performance: better students, who are more able, work harder or are more motivated, tend to have higher attendance levels, other things being equal. This implies that estimates of the impact of attendance on academic performance are likely to be subject to omitted variable bias. This research endeavored to determine the influence of class attendance on academic performance by examining class attendance records available in the departments sampled as well as responses in the questionnaire and compared them with class performance to establish any trends.

2.8 Conceptual Framework of the Study.

The main objective of the study was to analyze the factors influencing the academic performance of self sponsored students in the School of Engineering. The research adopted the conceptual framework illustrated in Figure 2.8.1. The dependent variable is academic performance, which varies due to the influence of various factors namely student entry grades, place of residence, adequacy of infrastructure and class attendance and are thought to influence the academic performance of self sponsored students in the School of Engineering.

Equally important are moderating which directly influence the dependent variable and include, the government policies and university examination regulations. The antecedent variables has indirect influence which include Personal effort, IQ and competence ,likely drug and substance abuse ,peer and parental influence and level of mentorship.

i 8 1 Graphical Representation of the Factors influencing acadcmic performance of Self sponsored students in the School of Engineering.



I' igure 2. Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The Chapter contains discussions on the methodology used in conducting the study and includes a description of the target population, research design, methods of data collection as well as the sampling procedures.

3.2 Research Design

This is a quantitative research which used descriptive survey research design. According to Mugenda and Mugenda (2003), a descriptive research determines and reports the way things are and attempts to describe such things as possible behavior, attitudes, values and characteristics. Schindler et al, (2003) says that descriptive studies are structured with clearly stated investigative questions. It also helps in describing the state of affairs of the problem under investigation and the relationship between the variables. Descriptive research design was chosen for this study because the aim of the study was to find out the factors influencing the performance of self sponsored students and to establish any relationship between the identified factors.

3.3 Target Population

The target population was the group of self sponsored students in the three largest departments of the School of Engineering namely Civil, Mechanical and Electrical Engineering and included students from levels 1 - 4. The population was preferred for this study because these three departments are the largest and the degree courses remain the most popular judging by the population size, number of applicants received every year and number of students admitted thereafter every year. The total population contained approximately 792 students (Table 3.1). The concentrations are high in 1 st and 2nd year levels with the numbers dwindling in 4th and 5th year.

3.4 Sampling design

The study used the probability sampling method to select the sample. Using stratified sampling, the students were first stratified into module I and II. A sampling frame was arrived at using class lists from the departments to identify the number of module II students in each level. Every level in each department has a class representative who acted as the field assistant during this exercise. The field assistants randomly selected their targets and distributed the questionnaires to the Module II students present in classes during the one month window. This was done to avert the possible problem of low response rate as well as prevent bias arising from repetition.

3.5 Sample size and sampling procedure

The study aimed at surveying 40% of the student population. A total of 382 questionnaires were distributed to the respondents through the class representatives. In instances where a particular level contained less than 40 module II students, the entire group formed the sample and thus each got a questionnaire. A total of 261 questionnaires were returned giving a response rate of 68%. In a descriptive study, 10% of accessible population is enough (Mugenda & Mugenda 2003).

Table 3. 1 Sample size and distribution in the departments

	No of self sponsored students per level (year 2011							
Department	**Year 1**	**sampled**	**Yr 2**	**sampled**	**yr 3**	**sampled**	**Yr 4**	**sampled**
Mechanical Engineering	**90**	*36*	**37**	*37*	**20**	*20*	**14**	*14*
Electrical Engineering	**70**	*28*	**109**	*44*	**73**	*30*	**61**	*25*
Civil .Engineering	**86**	*35*	**108**	*44*	**93**	*38*	**31**	*31*
Total	**246**	*99*	**254**	*125*	**186**	*88*	**106**	*70*
Total respondents	**792**							
To tajsarn jile	**~382**							

3.6 Methods of Data Collection

This study used primary and secondary data. The researcher also used document and content analysis. The examination results for the year 2010-2011 were used to get the performance scores of the students. Questionnaires were used as the main instruments of data collection to collect data from the students. The questionnaire was structured to have both open and close-ended questions. The close-ended questions aimed at getting quantitative data while the open-ended questions provided qualitative data. The class representatives were used as field assistants and distributed the questionnaires to the respondents. The class attendance registers were to be used to collect data on class attendance but this was impossible since lecturers had failed to return them this particular year. The questionnaire contained several sections:

Section A : Biographical data: This collected the basic information of the respondent; age, sex, religion, year of study, department, nature of family, hobbies.

Section B: Residence: This section collected data on area of residence, distance from CBD, mode of transport used, reliability of mode used, security in the area etc and its implication on student performance.

Section C: Class attendance: This section aimed at finding out the number of lectures per week, no. attended, reasons for missing classes if any and their implication on the student performance.

Section D: Entry grades: This section contained questions regarding the students entry grades, high school back ground and degree choice, family/friends influence on degree choice.

Section E : Infrastructure: This section was in the form of a Likert Scale and contained questions regarding availability of resources required for good academic performance namely class environment, departmental environment (mentorship), teaching facilities, space for private study, style and methods of teaching, library resources, ICT facilities, security, peer influence, influence of city life.

1 he questionnaires were distributed on a take and fill basis where every student who received was asked to fill and return within the lesson time, to avert the possibility of respondents not returning them.

3.7 Validity of the Instruments

Validity of a questionnaire refers to the extent to which it measures what it claims to measure (Mugenda & Mugenda, 2003). It refers to the extent to which the scores and the conclusions

based on these scores can be used for the intended purpose of the questionnaire. In other words, validity is the degree to which results obtained from the analysis of the data actually represents the phenomena under the study. In this study, the researcher amended the questionnaire in consultation with the supervisors to ensure that they addressed all the possible areas of the study appropriately and accurately. The pilot questionnaire was scrutinized' to identify items that seemed unclear or ambiguous to the students. Such items were reviewed and reworded, thereby improving the face validity of the instrument. The questionnaire was pre-tested by administering it to a sub-sample of 38 respondents, which was 10 % of the sample population.

3.7.1 Test of reliability

It indicates the stability and consistency with which the data collection instrument measures the concept. In this study, the researcher established the reliability of the instrument by use of Cronbach Alpha method. This method involves a single administration of the instrument therefore giving it greater internal consistency. This was done after piloting the instrument and modifying some of the items where need arose. It was measured through test-retest technique, where the questionnaire was administered to a group of respondents with similar characteristics as the actual sample. The tests were repeated after one week interval. The scores obtained from both tests were correlated to get the coefficient of reliability. The Spearman's Rank Correlation Coefficient of 0.7 was obtained which meant that the instrument was 70% reliable. Therefore, the research instrument was suitable to answer the research questions of the study.

3.8 Data Analysis

Quantitative and qualitative techniques was used to analyze the data. Coding and summarizing of the data from the questionnaire was done using SPSS to come up e up with frequency distributions, variability, percentages and correlations. A regression model was developed to statistically determine with significance the extent of influence each independent variable has on the dependent variable. The model used the ordinary least squares regression technique.
Where;

^{Y} is the independent variable;

'. . . . .^{are} the independent variables

p. are the coefficients of the independent variables, and (3o the constant term

e/ is the *error term.* The formula used to describe this regression model is illustrated as follows:

$y = \beta_0 + \beta x_1 + \beta x_2 + \beta x_3 + \beta x_4 + e,$

3.9 Ethical Issues

Before undertaking the research in the School, an informed consent was obtained from the **respondents** through the class representatives, allowing them to participate voluntarily in the study. The aims and objectives of the research were explained before undertaking the research, which helped in attaining an informed consent from the respondents. The researcher also maintained utmost confidentiality about the respondents and information obtained from any documents. The researcher facilitated the process during the entire exercise.

3.10 Summary

This Chapter will form the most important part of this research as it will come up with data that will help make progress in the next chapter.

Tabic 3. 2 Operational definition of variables:

OBJECTIVE	VARIABLE	INDICATORS	MEASUREMENT	TOOLS OF ANALYSIS	Data collection method
Extent to which residence affects academic performance	Residence	• Mode of transport • Place of residence • Distance from School	• Distance from CBD • Library hours • Involvement in discussion groups	Correlational	Survey
Extent to which class attendance influences academic performance	Class attendance	choice of degree University policy Class registers	• presence or absence from class • Mentorship • Class registers	Correlational	survey
Extent to which entry grades influences academic performance	Entry grades	Admission qualification/Grade	Entry grades	Correlational	Survey, records
Extent to which infrastructure influences academic performance	Infrastructure	Adequacy of Learning resources e,g theatres, labs, library, books etc	• Congestion in the facilities • Computers/student ratio • Mentorship • Adequacy of library facilities	Correlational	Survey, Observation' Records' Personal interviews

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

Chapter four presents the responses from the Self sponsored Students in the School of Engineering who formed the sample of the study. It presents the summary of the analyzed data. The results are presented based on the objectives of the study, which aimed at finding out the factors that affect the performance of module II students in the School of Engineering, University of Nairobi. In order to put the results of the study in perspective, the findings were organized under the following categories; residence, entry grades, class attendance and availability of infrastructure. The data was analyzed using descriptive statistics with the help of statistical package for social sciences (SPSS). The data analyzed is presented using frequency tables, percentages and graphs.

4.2 Preliminary analysis

This section contains an analysis of the data collected and shows the frequency tables of the responses from the instrument. It also displays the reliability value of the instrument used to collect the data.

4.2.1 Reliability and Consistency of Instrument

The questionnaire used was reviewed and tested statistically using Cronbach's alpha method, from Table 4.1 above the questionnaire/ instrument showed consistency and reliability for use in the research. The tests returned a high cronbach alpha values above 0.7 for all the items tested. 1 his is the acceptable value for reliability and consistency of a research instrument..

The questionnaire was therefore validly used as the data collection tool

Table 4.1 Test of reliability and consistency by Cronbach's alpha coefficient

Item	Cronbach's Alpha	Number of items
Residence	0.705	9
Class attendance	0.834	9
Entry grades and academic performance	0.875	9
Infrastructure	0.711	9

Source: **SPSS**

4.2.2 Response rate

Of the 382 questionnaires issued, 261 were returned giving a response rate of 68%. This was a good response rate considering that the researcher targeted 30% of the population although in descriptive study 10% of accessible population is enough (Mugenda & Mugenda 2003).

The sample population was drawn from three departments in the School and the response rates are as shown in Table 4.2. This response rate has followed the population distribution trend in the three departments with Civil Department known to have the highest number of student numbers having most respondents. The results of gender distribution indicated that 77% of the respondents were male and 23% were female. The study therefore established that the gender distribution in the School is skewed towards male students than female students. However, the trend is likely to change following the affirmative action policies currently embedded in all sectors of government.

Table 4. 2 Response rate

Department Sample sector	Expected sample	Observed Frequency	Percent of field total
Civil and construction	148	111	43%
Mechanicaland Manufacturing	107	63	24%
Electrical and electronics	127	87	33%
Total	382	261	100.0

Source : SPSS

4.3 Univariate Descriptive Analysis

A univariate descriptive analysis was done to explore the descriptive characteristics of each **variable.** Questions answered by the respondents were analyzed and results presented using frequency tables to show results of the indicators of the independent variables as described below.

4.3.1 Students Performance

The performance of the students was analyzed from the examination results documents and presented here below. From Table 4.2, the mean performance of the respondents is 51.5% with a 95% confidence interval. The true mean performance lies between 49.96 % (lower bound) and **53.04** % (upper bound) and a standard deviation of 12.6192.

Table 4. 3 Performance of Students in engineering course

			Statistic	Std. Error
Student performance in engineering course	Mean		51.5023	0.78111
	95% Confidence Interval for Mean	Lower Bound	49.9642	
		Upper Bound	53.0404	
	Median		52	
	Std. Deviation		12.6192	
	Minimum		14.86	
	Maximum		77	
	Skewness		-0.305	0.151

Source: SPSS

A comparison has been made between the two groups to demonstrate the disparity . From the **table 4.4,** the mean performance of government sponsored students is 59 % t which is higher **than the** performance of the self- sponsored students which is 51.5%. The standard deviation for **government** sponsored students is 9.1 which is lower than the standard deviation for self-**sponsored** students. A lower standard deviation shows a lower risk which implies that the **government** sponsored students have a lower risk of failing than the privately sponsored

students. The maximum score from the group of government sponsored students is 100% while the maximum for the self-sponsored students is only 77%. Both groups have negatively skewed performance but the government sponsored students have a more negatively skewed performance than the self-sponsored students which shows that the government students performance better than the self-sponsored students.

Table 4. 4 Comparison of performance between government and self-sponsored students

	Government sponsored students	Parallel program students
Mean	59	51.5023
Std deviation	9.169443	12.6192
Max	100	77
Minimum	25	14.86
Skew	-0.30717	-0.305

Source : SPSS

The Levene's test for equal variances assumes that the variance of student's performance are equal between the two groups of students (Table 4.5) The t- statistic value is 3.37 with a significance of 0.001 which shows that the mean performances are different between the two groups and that there is a significant difference between the performance of self-sponsored students and government students.

Table 4. 5 Significance test for performance of government and self-sponsored students

	t-test for Equality of Means		
	~~t	df	Sig. (2-tailed)
Equal variances assumed	3.372	421	0.001
Equal variances not assumed	3.631	411.565	0

Source : SPSS

4.4 Residence

Thi

section will present the analysis of data on place of residence of the respondents and a discussion on the influence on performance if any. Majority (83 %) of the self sponsored students reside at home

while 15% live in private hostels near the university while another 2 % live in other places (Table 4.6). There was 1.5 percent none response to this question. The university does not provide accommodation for self sponsored students. However, further analysis shows that 74 % of the respondents live 5 - 40km away with a large chunk (27%) of them living 10-20kms away from the School. Having in mind that 83% of these respondents live at home, it would be prudent to infer that this scenario definitely has an effect on the study life of the respondents. With increasing traffic congestion during peak hours in Nairobi, such travel distances are likely to affect a student's performance since those living far away from Central Business District may possibly miss lectures or report late for lectures which can in turn affect their performance.

Table 4. 6 Place of residence

	n	Percent
Home	**212**	**81.2**
Hostel	**39**	**14.9**
Other	**6**	**2.3**
No response	**4**	**1.5**
Total	**261**	**100**

Source : SPSS

Table 4.7 shows the results of a cross tabulation between place of residence and access to library. Results indicated that 67 respondents out of the 261 do not study in the library, 53 of them (79 %) commute to college from home while only 12 (18%) are staying in the private hostels. This indicates that the place of residence may affect a student's access to important university facilities like the library which are very important in boosting a student's performance. Having in mind that 83% of these respondents live at home, it would be prudent to infer that this scenario definitely has an effect on the study life of the respondents.

Table 4. 7 Cross tabulation of students studying in the library and residence

		Study in library			Total
		Yes	No	No response	
Residence	Home	157	53	2	212
	Private Hostel	25	12	2	39
	Other	5	1	0	6
	No response	2	1	1	4
Total		189	67	5	261

Source : SPSS

4.4.1 Influence of residence on performance

A statistical analysis was done to explore the relationship between performance of students and residence and the results are presented in the section below. Table 4.8 shows a comparison of students' performance between those who reside at the private hostels and those who live at home or other. It's evident that those who live at home do not perform well when compared to those who stay in private hostels. This is depicted by the means of their performance where those who reside at private hostels have a mean of 65.16 % while those who reside at home have a mean of 49.1%. This shows that those students who stay at the private hostel perform far better than those who reside in their homes or other. This could be attributed to factors such as amount of private study time which could be higher for those who reside in private hostels as compared. It is a well known fact that private hostels are almost always situated near campus and thus use of facilities like libraries, computers etc is higher than for those living at home and which impacts their performance negatively.

i

Tabic 4. 8 Comparison of student's performance against residence

	Residence			Statistic	Std. Error
Student performance in engineering course	Home or Other residence	Mean		49.1023	0.77419
		95% Confidence Interval for Mean	Lower Bound	47.5766	
			Upper Bound	50.6281	
		Median		49.585	
		Std. Deviation		11.5352	
		Minimum		14.86	
		Maximum		68	
		Skewness		-0.311	0.163
	Hostel	Mean		65.1633	1.52354
		95% Confidence Interval for Mean	Lower Bound	62.0791	
			Upper Bound	68.2476	
		Median		67	
		Std. Deviation		9.51451	
		Minimum		27.07	
		Maximum		77	
		Skewness		-2.549	0.378

Source: SPSS

The performance of those living in the private hostels the performance for those living in private hostels is more negatively skewed than those living at home or other places but has a higher mean but a lower standard deviation. The lower standard deviation implies that the students living in hostels have a lower chance of failing than those living at home. A comparison of student's performance between the two groups using Levene's test for equal variances shows that the variance of student's performance are equal for those living at home and those living in the hostels. The t- statistic value is 8.21 with a significance of 0.00 which shows that the mean performances are different between the two groups and implies that there is a significant relationship between a student's performance and student's place of residence (Table 4.9).

Table 4. 9 Significant test for Performance versus place of residence

	t-test for Equality of Means				
	t	df	Sig. (2-taiied)	Mean Difference	Std. Error Difference
Equal variances assumed	8.214	259	0	16.06099	1.95526
Equal variances not assumed	9.398	59.477	0	16.06099	1.70896

Source : SPSS

4.5 Class Attendance

The section below describes the respondents rate of lecture attendance. From Table 4.10, 55 % of the respondents attend all lectures, while 45 % agreed that they miss some lectures. Comparatively, the level of non attendance is very high considering the intensity of the engineering courses. (University Calendar ,2012 pg 298) The researcher concluded that a student's performance is directly and positively correlated to class attendance.

Table 4.10 Lecture Attendance

	n	Percent
Yes	140	53.6
No	115	44.1
No response	6	2.3
Total	261	100

Source : SPSS

A tabulation of the reasons given by students for none attendance. Majority (50%) miss lectures because of transport problems, while 30.7% of the respondents find the classes congested thus can't find ample learning space, while 19 % of respondents miss for other reasons. These reasons give a pointer to the possible effect of living off campus. Earlier results had indicated that 79% of those who commute to School do not use library facilities and it would be prudent to argue that if 50% of them miss lectures, this definitely affects their performance. Only 21 of the 261 respondents (8 %) attend other courses apart from engineering. TVI' ls ls ne gbgible and illustrates that none attendance of lectures by most student's is due to

other reasons and not attendance of other courses. Van Walbeek, (2004) postulated that missing sufficient numbers of lectures could possibly result in comprehension deficits or it could be that students with high ability also have high attendance habits. This findings therefore implies that poor class attendance arising from place of residence indeed has a negative influence on performance. Further analysis of the responses indicated that 83.1 % of the respondents chose the course by themselves without undue influence. It is only in 13.1 % of the respondents where parents influenced . To a very small extent did family friends, brothers and sisters, peers and other people influence the respondents' choice of degree. From this results the researcher deduced that poor performance here cannot be attributed to parental influence on course selection since majority of the respondents chose the course themselves.

4.5.1 Academic Performance and class attendance

This analysis was done to explore the relationship academic performance has with class attendance. Table 4.11 shows a comparison of the means of those who attend and those who miss lectures. Those who attend all lectures perform better than those who do not attend all lectures with a mean of 56.22 % while those who do not attend all lectures have a mean of 46.05 %. Both means are negatively skewed but the findings support the earlier argument that attending lectures positively contributes to good performance at the School of Engineering. The number of students attending all lectures and those not attending all lectures are virtually equal. The frequency tabulation done earlier however showed that more students (51 %) attend all lectures and that performances for both groups' were negatively skewed.

Those attending all lectures had a higher mean than that of those missing some lectures. The standard deviations seem graphically equal but the lower standard deviation implies that the students attending all lectures have a lower risk of failing than those missing some lectures.

Table 4. 11 Performance of students across groups of Class attendance

	Attend all lectures			Statistic	Std. Error
Student performance in engineering course	No	Mean		46.0474	1.0899
		95% Confidence Interval for Mean	Lower Bound	43.8895	
			Upper Bound	48.2053	
		Median		46	
		Std. Deviation		11.9889	
		Minimum		14.86	
		Maximum		67.71	
		Skewness		-0.029	0.22
	Yes	Mean		56.2168	0.94677
		95% Confidence Interval for Mean	Lower Bound	54.3449	
			Upper Bound	58.0887	
		Median		58	
		Std. Deviation		11.2023	
		Minimum		25	
		Maximum		77	
		Skewness		-0.58	0.205

Source : SPSS

Table 4.12 compared students performance between the two groups based class attendance **The test for** equal variances shows that the variance of performance is unequal between the two **groups. The** means between the groups are therefore compared assuming unequal variances. The **t- statistic** value is 7.044 with a significance of 0.00. This shows clearly that the mean **performances** are different between the two groups, which implies that there is a significant **relationship** between performance and class attendance.

Table 4. 12 Performance of students across groups of Class attendance

Independent Samples Test

		t-test for Equality of Means				
		T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Student performance in engineering course	Equal variances assumed	7.079	259	0	10.16943	1.43656
	Equal variances not assumed	7.044	247.679	0	10.16943	1.44369

Source : SPSS

4.6 Entry Grades and Academic Performance

This section contains an analysis of the entry grades of the self sponsored students which have been compared to that of government sponsored to establish any differences and likely influence on performance. Table 4.13 is a tabulation of the KCSE entry grades possessed by the 1st year 2010/2011 class. This class was chosen to enable the researcher compare the performance data of the same class at the end of the academic year and to see whether there may be any correlations. Results indicate that majority of the self sponsored students (65%) had an average score of B while the government sponsored were admitted with an average score of A. (JAB 2010):

Table 4. 13 KCSE entry grades

	n	Percent
A plain	~24	*92*
A minus	52	19.9
B plus	83	31.8
B plain	78	29.9
Other	11	4.2
No response	13	5.0
Total	261	100.0

Source : SPSS

This clearly illustrates that a majority of students admitted at the School of Engineering were offered the course based on KCSE results and thus the entry grades may affect inferential analysis involving performance since 95.6% of the respondents had the same measure of qualification on entry.

4.6.1 Performance against Entry grades

This analysis was done to explore the relationship between performance entry grades used during admission to the course. From the analysis in Table 4.14 , students who joined with A Minus and above perform better compared to those who joined with B plus and below. They have a mean of 63.03 %, and a lower standard deviation of 7.25.Those who joined with a B plus and below have a higher standard deviation of 11.23 but a mean performance of 46.77%. The variation of these two groups is negatively skewed with those students who were admitted with A minus being more negatively skewed. Both groups' performances are negatively skewed but the performance for those admitted with A- and above are more negatively skewed than of those admitted with grades below A-. The performance of those admitted with A- and above is better than of those admitted with A- and below with a higher mean and lower standard deviation.

The lower standard deviation implies that the students admitted with A- and above have a lower risk of failing than those admitted with A- and below.

Tabic 4. 14 Performance of students across groups against entry grades

	Aggregate score, if KCSE			Statistic	Std. Error
Student performance in engineering course	B plus and Below	Mean		46.7659	0.82566
		95% Confidence Interval for Mean	Lower Bound	45.1369	
			Upper Bound	48.3948	
		Median		47	
		Std. Deviation		11.2303	
		Minimum		14.86	
		Maximum		70	
		Skewness		-0.058	0.179
	A minus and above	Mean		63.0317	0.83192
		95% Confidence Interval for Mean	Lower Bound	61.3744	
			Upper Bound	64.6889	
		Median		64	
		Std. Deviation		7.25249	
		Minimum		28.93	
		Maximum		77	
		Skewness		-1.683	0.276

Source : SPSS

Table 4.15 compares students performance of the two groups of student's against their KCSE entry grade. On comparing mean performance of those with an entry grade of A between the government and self-sponsored students, f- statistic of 21.50 with a significance of 0.00 which therefore assumes equal variances. The t- statistic is 0.002 which is significant and therefore implies that the means performance between the two groups are different.

Table 4. 15 Significance comparison test between government and self-sponsored students both with entry grade of A

	t-test for Equality of Means		
	~~t	df	Sig. (2-tailed)
Equal variances assumed	1.561	191	0.002
Equal variances not assumed	1.446	121.115	0.151

Source : SPSS

In Table 4.16, the test for equal variances shows that the variance of student's performance are equal between the two groups of students (that is those who scored A Minus and above and those who scored B Plus and below and were admitted to the School of Engineering). The means between the groups are compared assuming equal variances. The t- statistic value is 11.66 with a significance of 0.00 which shows clearly that the mean performances are different between the two groups and imply that there is a significant relationship between a student's performance at the School of Engineering and student KCSE entry grade considered during admission.

Table 4. 16 Performance of students across groups for entry grades

Independent Samples Test

		t-test for Equality of Means				
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Student performance in engineering course	Equal variances assumed	11.66	259	0	16.26581	1.39498
	Equal variances not assumed	13.878	211.771	0	16.26581	1.1721

Source : SPSS

4.7 Infrastructure

This section contains an analysis of the various components of infrastructure and a further discussion on their influence on performance. On adequacy of classroom space , Table 4.17 shows that 51% of the respondents posed that the school has inadequate classrooms to cater for the large number of students, however 14.1% of the respondents were indifferent on whether class rooms are adequate or not.

Table 4. 17 Adequacy of classroom space

	n	Percent
Strongly agree	33	12.6
Agree	56	21.5
Indifferent	36	13.8
Disagree	62	23.8
Strongly disagree	69	26.4
No response	5	1.9
Total	261	100

Source : SPSS

On adequacy of laboratory facilities, 59% of the respondents (Table 4.18) agreed that laboratory facilities are inadequate. Engineering is a technical course with a lot of practical courses combined with classroom teaching therefore inadequate laboratory facilities as stated by the majority of respondents will definitely affect their performance. However lack of laboratory facilities cannot alone affect performance but considering that 51 % of the respondents agreed to lack of adequate classroom space, then a combination of the two factors is likely to have an effect on performance.

Table 4. 18 Adequate laboratory facilities for students

	n	Percent
Strongly agree	18	6.9
Agree	42	16.1
Indifferent	45	17.2
Disagree	77	29.5
Strongly disagree	75	28.7
No response	4	1.5
Total	261	100.0

Source : SPSS

Further, majority of the respondents (48%) disagree that the library contains sufficient books in (Table 4.19) and 23.4 % are indifferent. This outcome is significant to this research as it agrees with the study conducted by Fabiyi and Uzoka (2009) on Nigerian universities which showed that availability of facilities had a relationship with their academic performance The inadequacy of such physical resources like lecture halls, halls of residence, laboratories, libraries and other

academic resources translates to poor results because it breeds over crowdedness. They also observed that the planning and design of educational facilities for schools, colleges and universities have impact on educational outcomes.

Table 4. 19 Sufficiency of library books

	n	Percent
Strongly agree	19	7.3
Agree	49	18.8
Indifferent	61	23.4
Disagree	66	25.3
Strongly disagree	59	22.6
No response	7	2.7
Total	261	100.0

Source: SPSS

On adequacy of computer facilities, 72% of the respondents disagreed that computer facilities are adequate for students (Table 4.20). In the School of Engineering, the approximate computer-student ratio stands at 1:12 (CAE PC report 2011) and considering that the intergrated program is run daytime only and that 83% of the students reside at home, they may not have time to adequately use the computer facilities.

Table 4. 20 Adequacy of computer facilities

	Frequency	Percent
Strongly agree	10	3.8
Agree	25	9.6
Indifferent	31	11.9
Disagree	82	31.4
Strongly disagree	106	40.6
No response	7	2.7
Total **	261	100.0

Source : SPSS

A regression analysis of the coefficients in Table 4.21 showed that all the five infrastructure variables have significant positive influence on the dependent variable (students performance). The coefficients of the independent variables in the model have significant p values which are all less than 0.05 hence positive. This shows that with 95% confidence the researcher is able to

conclude that a student performance is highly influenced by inadequacy of school mentorship programe, adequate classroom space, sufficient books in the library, adequate computer facilities for the students and adequate laboratory facilities in that order. A correlation coefficient R^2 analysis returned a value of 66.2% implying that variations in student's performance at the School of Engineering are influenced by the factors of infrastructure described above.

Table 4. 21 Regression analysis of infrastructure

	Coefficients		t	Sig.
	B	Std. Error		
(Constant)	24.755	2.23	11.101	0
Adequate classroom space for all students	1.853	0.573	3.235	0.001
Adequate laboratory facilities for all students	0.528	0.647	0.816	0.004
Library contains sufficient books for the course	1.823	0.616	2.959	0.003
Adequate mentorship programme in the school that students well	2.286	0.63	3.629	0
Computer facilities are adequate for the number of students	1.741	0.561	3.102	0.002

Source : SPSS

4.8 Correlations

This analysis was to determine with statistical significance, the relationship between performance and each of the independent variables. A correlation table was produced as below.

Table 4. 22 Correlation between Performance of engineering students and the independent variables

		Student performance in engineering course	Residence	Attend all lectures	Aggregate score, if KCSE	% Adequacy in infrastructure
Student performance in engineering course	Pearson Correlation	1	0.455	0.403	0.587	0.645
	Sig. (2-tailed)		0.00	0.00	0.00	0.00
	N	261	261	261	261	261
Residence	Pearson Correlation	0.455	1	0.196	0.37	0.343
	Sig. (2-tailed)	0.00		0.001	0.00	0.00
	N	261	261	261	261	261
Attend all lectures	Pearson Correlation	0.403	0.196	1	0.258	0.388
	Sig. (2-tailed)	0.00	0.001		0.00	0.00
	N	261	261	261	261	261
Aggregate score, if KCSE	Pearson Correlation	0.587	0.37	0.258	1	0.406
	Sig. (2-tailed)	0.00	0.00	0.00		0.00
	N	261	261	261	261	261
% Adequacy in infrastructure	Pearson Correlation	0.645	0.343	0.388	0.406	1
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	
	N	261	261	261	261	261

Source : SPSS

Table 4.22 shows that a student's performance is positively correlated with all the independent variables; class attendance, KCSE entry grade, and residence and adequacy in infrastructure. The percentage adequacy of infrastructure is strongly correlated to students performance at 0.645 aggregate KCSE Score moderately correlated at 0.58 to students performance, class attendance at 0.40 positively correlated to students performance while residence at 0.455 is positively correlated to students performance.

The percentage of adequacy in infrastructure affects students' performance to a greater extent as compared to other independent variables. All the p values from the analysis are significant (0.00) since the p value is less than 0.005.

Summary

In summary, the study has proven that all the independent variables (KCSE entry grade, adequacy in infrastructure, attending all lectures and residence) are positively correlated to the dependent variable (academic performance).

4.9 Regression Analysis

A regression model was found fit to determine with statistical significance , the extent of influence, each of the independent variables has on the dependent variable. The coefficients of the variables in the model would signify the extent of influence each variable has on performance. The correlation coefficient R^2 model returned a value of 58.1% implying that variations in student's performance are explained by independent variables in the model.

Table 4. 23 Model

R	R Square	Adjusted R Square	Std. Error of the Estimate
s.762[a]	0.581	0.575	8.22945

Source : SPSS

An analysis of variance showed that least one of the |3j had a value greater than zero because of the significant p value (0.00). Therefore the independent variables in the model were found to affect academic performance and thus adequately adopted for further analysis. The extent of influence of each of the variables is described using a coefficient (Table 4.24).

Table 4. 24 Coefficients of the regression model

	Coefficients		t	Sig.
	B	Std. Error		
(Constant)	28.763	1.895	15.176	0.000
Residence	5.998	1.581	3.794	0.000
Class attendance	3.243	1.117	2.903	0.004
Entry Grades	9.057	1.281	7.072	0.000
Infrastructure	0.281	0.033	8.469	0.000

Source : SPSS

Thus the coefficients of the formula described in Section 3.8 are substituted as follows :

$Y = \mathbf{28.763} + \mathbf{5.}\,998X_t + \mathbf{3.}\,247X_2 + \mathbf{9.057*3} + \mathbf{0.}\,281X_4 + £,$

An analysis of the beta coefficients in Table 4.24 of the regression model showed that all the four independent variables have significant positive influence on the dependent variable (performance). The constant term of the independent variables in the model is 28.763.Residence is 5.998 which means that at 95% confidence, a student staying in a university or private hostel will perform with 5.9 marks better than a student staying at home or other places. Class attendance is 3.2473 which implies that a student who attends all lectures performs better with 3.243 marks better than the students who only attends some of the lectures. For entry grades the coefficient was 9.057 which implies that a government student admitted with a score of A minus and above score performs better with 9.057 marks better than the self-sponsored student who is admitted to the programme with KCSE grade of less than A-.

For infrastructure, a coefficient of 0.281 means that increasing adequacy of infrastructure by 1% would increase the performance by 28.1%. All coefficients returned a significant p values of 0.000. The constant term is very high at 28.7 which implies that academic performance is likely to be affected by many other variables which may not be studied directly in this study but which influence performance.

4.9.1 Summary

With 95 percent confidence interval, the researcher concluded that each of the independent variables has a positive influence on the dependent variable and thus rightly concludes that each of the variables negatively affects performance of students in the School of Engineering.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, discussions and conclusions with respect to the research. Recommendations are also made, so that efficiencies to the current problem of under performance may further be improved.

5.2 Summary of findings

The study was conducted to establish the extent to which place of residence, class attendance, previous entry grades and adequacy of infrastructure influences performance of self sponsored students in School of Engineering. Three departments were picked for purposes of this study namely CCE, MME and EIE department. Analysis showed that all the four independent variables have significant influence on the academic performance. A comparison of performance between the two groups of students showed that government students perform better than the self - sponsored students with the mean performance of government sponsored students being higher. The standard deviation for government sponsored students was lower implying a lower risk of failing. Both groups had negatively skewed performance but the government sponsored students had a more negatively skewed performance. Majority of the respondents were male students.

5.2.1 Influence of residence on academic performance

The first objective of this research was to find out whether residence influences performance of self-sponsored students in School of Engineering. The findings indicate a positive relationship between place of residence and academic performance. Findings indicated that majority of self-sponsored students reside at home and less than 25% live in private hostels near the university within a radius of 5km.Those who reside at home travel a distance of between 10 - 40km every day from home to class. Those students who live in hostels and who also go to library were seen to have better performance than those residing at home. At 95% confidence the researcher established that a student staying in a university or private hostel performed with 5.9 marks better than a student staying at home or other places. A cross tabulation between place of residence and access to library showed that over half of those residing at home do not study in the library and this suggests that place of residence affects a student's access to important

university facilities like the library which are very important in boosting a student's performance. This findings confirm that indeed places residence influences performance of self sponsored students.

5.2.2 Influence of entry grades on academic performance

The second objective was to establish the extent to which academic entry grades influence performance of self sponsored students in School of Engineering. The study found that majority of self sponsored students were admitted with an average KCSE score of A- minus and below students while their counterparts were admitted with an average score of A- and above. Findings further showed that those who joined with an average KCSE score of A minus and above scored better than their counterparts. The researcher confirmed that indeed entry grades influenced academic performance of self sponsored students and contributed to the disparity in performance when compared with government sponsored students. Results of analysis showed that a government student admitted with such score performs better with 9.057 marks better than the self-sponsored student who was admitted to the programme with KCSE grade of less than A-.

5.2.3 Influence of class attendance on academic performance

The third objective of this study was to determine to what extent class attendance influences performance of self sponsored students in the School of Engineering. The findings indicate a positive relationship between class attendance and academic performance in that students who attended lectures perform better. Half of the respondents admitted that they regularly missed lectures citing transport problems as the major reason for this. The study found that a student who attends all lectures perform better with 3.243 marks better than the students who only attends some of the lectures. Findings also indicated that majority of the self sponsored students chose the course themselves and were not attending any other course at that moment, besides engineering. This confirmed that absence from class was not due to lack of interest or other

5.2.4 Influcncc of infrastructure on academic performance

The fourth objective was to assess the extent to which infrastructure influences performance of self-sponsored students in the School of Engineering. The findings showed a strong correlation between academic performance and adequacy of infrastructure. Over half of the respondents agreed that the School has inadequate classrooms , laboratory facilities arid that the library contains insufficient books to cater for the large number of students .The computer student ratio stood at 1:12 and this suggests that most students residing at home had no access due to overcrowding and lack of time. The inadequacy of such physical resources like lecture halls, laboratories, computers, libraries and other academic resources translates to poor results because it breeds over crowdedness. Analysis results indicated that increasing adequacy of infrastructure by 1% would increase the performance by 28.1%.

This study therefore rejects the null hypothesis of the study and adopts the alternate hypothesis as follows:

Hi : The academic performance of self sponsored students in the School of Engineering is influenced by place of residence, entry grades, class attendance and infrastructure.

5.3 Conclusions

The study established that the gender distribution in the School is skewed towards male students than female students. The engineering course has traditionally been a male domain and hence the disparity in enrollment could be attributed to the design of the curriculum and lack of role models. However, the College management needs to find a way of increasing the number of female student enrollment or tackle the causes behind their low enrollment in the School.

The study established a significant relationship between place of residence and academic performance and that students living in the hostels were found to perform better than those living at home .This could be attributed to the fact that huge travel distances are likely to affect students and those living far away from the School possibly miss lectures or report late for lectures not forgetting the poor infrastructure within Nairobi and its environs characterized by traffic congestion during peak hours, The social dynamics at home are also different. It maybe they are too exhausted to study privately or the environment is not conducive or that they lack peers to study with. Again, staying at home means that the students have other duties allocated to them

not forgetting the many distractions in that environment. This findings agree with studies conducted by Astin,(1984) and Pascarella et al, (1994) who asserted that students who resided on campus had significantly better GPA's possibly due to the higher level of involvement outside classroom and that academic involvement comprises of activities with a scholastic focus, such as studying with peers, interacting with faculty, or using campus resources e.g., libraries and computers. Hogry et al (2010) showed that there was a significant relationship between the facilities used by students and their academic performance. This is because for students who are on campus and some staying around campus, academic facilities are accessible and of utmost need since it is there that they have group teachings and discussions. Their findings confirm that since residential facilities was a predictor of academic performance, management should endeavor to provide halls of residence for all students. The place of residence affects a student's access to important university facilities like the libraries and computer facilities which are very important in boosting a student's performance.

Findings also showed that students admitted with higher entry grades performed better . This could be attributed to better prior mastery of Physics, Mathematics and Chemistry in high school which translates to good grades in Engineering course whose core courses happen to be same. Government students with an average A score will obviously have a better mastery of the core courses while in high school and this is carried over to the University. Ismail and Othman (2006) investigated the effect of past performance on students at three faculties and their results agree with this study. The results showed that entry points were an important factor in influencing students' achievement in all three faculties and that performance of mathematics at the MCE level was one of the influential factors for academic achievement in business and accounting which of course like engineering requires good prior knowledge of mathematics. The findings also agree with those of Ali (2008) whose study identified a significant relationship between entry qualifications and previous academic performance. This study concludes that previous academic performance is a strong determinant of academic performance.

The findings also indicated a positive relationship between class attendance and academic performance in that students who attended lectures were seen to perform better and confirmed that indeed class attendance directly affects academic performance. This could be attributed to

the fact that instruction in the School of Engineering is still largely face-face with minimal use of e-learning facilities by the lecturers. A student may miss classes due to lack of space in class (congestion). The students are required to make notes as the class progresses. This being a technical course, the effect of absence will definitely be felt and the same applies for missing lab practical sessions. The findings agree with those of Thatcher, Fridjh'on and Cockcroft, (2007) who demonstrated that students who 'always' attend lectures show statistically significant academic performance advantages over students who 'seldom' or 'never' attend lectures Results suggested that the frequency of lecture attendance is significantly, but moderately, related to better academic performance and that 'always' attending lectures is the best indicator of academic performance. Similar correlations between class attendance and student performance were found in more recent studies in Engineering education by Purcell (2007) who showed that, in the 2nd and 3rd year Civil Engineering programme, every 10% increase in class attendance was seen to improve examination performance by about 3%. Moore (2003) studied two sections of an introductory Biology course, in one of which the value of class attendance was stressed while the other was not. The section in which attendance was stressed was found to have a higher rate of attendance as well as higher average grades in comparison to the section in which attendance was not stressed. This study concluded that lecture attendance is key to good academic performance.

On infrastructure, the findings showed a very strong correlation between academic performance and adequacy of infrastructure. The inadequacy of such physical resources like lecture halls, halls of residence, laboratories, libraries and other academic resources translates to poor results because it breeds over crowdedness and may affect self sponsored students more because of the disadvantage of residence. The findings agree with those of Fabiyi and Uzoka (2009) who in their study on Nigerian universities showed that availability of facilities had a relationship with their academic performance. They observed that the planning and design of educational facilities for schools, colleges and universities have impact on educational outcomes. Earthman, and Schneider (2002) found that in addition, overcrowded school buildings and classrooms have been found to be a negative influence on student's performance. The overall impact a school building has on students can be either positive or negative, depending on the condition of the building. Researchers have repeatedly found a difference of between 5-17 percentile points

between achievement of students in poor buildings and those students in standard buildings. The effect on the Self sponsored students by virtue of their other disadvantages e.g larger numbers compared to government ones, living off campus etc, may be affected more by inadequate infrastructure.

In summary, this findings statistics have proven that all the independent' variables are positively correlated to academic performance.

5.4 Recommendations

The researcher recommends that the government in its policy should consider opening up hostels to all students so as to provide a level playing ground for all whether government or self sponsored. The study also presents opens an eye of opportunity for private investors to partner with the University of Nairobi and invest in building hostels considering that the institution has vast tracts of unutilized land. The University should consider investing in students housing as an alternative means of income generation and which will also benefit scores of self sponsored students. The School should come up with better ways of monitoring class attendance to enhance performance. Currently, lecturers use class registers but the School should consider using Biometric registers.

5.5 Contribution to knowledge

This study was able to document some of the factors causing the disparity in performance of self sponsored students in the School of Engineering. It is the first of its kind in the School as well as University of Nairobi and will help to bring out the challenges facing this students in the midst of a growing government ambition to provide university education to all.

5.6 Suggestions for Future Research

From this work, further research may be done in other Schools and Faculties running intergrated programmes for example the School of Medicine and Pharmacy to find out what influences academic performance in those units and if there are disparities. It may be replicated in other universities to establish if the trend is the same.

It would also be prudent to conduct studies in Schools that run non-intergrated programmes especially those with evening programmes. This will help shed light on challenges if any facing the self sponsored students and come up with ways of tackling them.

APPENDICES

Appendix 1: Introduction Letter to Respondents.

My name is Hannah Mukua, an MA Project Planning and Management student at the University of Nairobi, Extra Mural,Nairobi Centre.

I am conducting a research entitled factor influencing performance of self sponsored students in the School of Engineering, University Of Nairobi as part of the requirements of the award of a Masters Degree.

Your contribution in this regard will be of great assistance towards accomplishment of this project. Please give your answers honestly.

I promise to keep all the information given herein confidential.

Yours sincerely,

Hannah Mukua

L50/77712/2009

APPENDIX 2 : Questionnaire

A STUDENTS' QUESTIONNAIRE ON FACTORS INFLUENCING ACADEMIC PERFOMANCE OF SELF SPONSORED STUDENTS IN THE SCHOOL OF ENGINEERING

The School of Engineering offers five year degree courses in 5 disciplines of engineering: Civil, Electrical, Mechanical, EBE and Geospatial. According to the School of Engineering progress report 2010, 44% of the student population in the School of Engineering are in the self sponsored (Module **II)** programme .Over the years, the results released to the students have indicated a higher percentage of failures among Module II students. This is despite the fact the students are integrated and are taught by same lecturers, attend same labs as well as sit the same examinations which are graded using similar criteria.This study will seek to provide information on the reasons behind the disparity in performance between government sponsored (Module **I)** and Module **II** students in the School of Engineering.

I. BIOGRAPHICAL INFORMATION OF RESPONDENTS

1. Name (optional):
2. Reg. No
3. Sex: 1. Female 2. Male
4. Age (put actual age in years):
5. State your Department:
6. Name of degree course
7. Specify year of study: 1.First [ ] 2.Second [ ] 3.Third [] 4. Fourth [ ] 5. Fifth [ ]
8. Your religion: 1. Protestant [ ] 2.Catholic [ ] 3.Other Christian denomination (specify) 4. Muslim[ ] 5. Traditionalist [ ] 6.0ther (specify)[ ]

IV.RESIDENCE (tick as appropriate)

1. Where do you reside?
   1. Home [ ]
   2. Hostel [ ]
   3.Other (specify)

2. Name your Estate /Area

3. What is the approximate distance from your residence to the University
   1. l-5kms [ ]
   2. 5-10kms [ ]
   3. 10- 20 kms [ ]
   4. 20-40kms [ ]
   5. Other

4. Residence of your family:
   1. Nairobi [ ]
   2. Rural district [ ]
   4. Other places [ ]
5. Where were you raised or brought up?
   1 .Nairobi [ ]
   2. Other Urban Towns [ ]
   3. Rural areas [ ]
   4.Other [ ]

6 What is your mode of transport to Campus

   1. Public [ ] 2. Private [ ]

7 Do you belong to any discussion group? 1. Yes [ ] 2. No [ ]

8. If No, please explain why

9. If yes, state how often you meet.

   1. Daily [ ] 2. Twice a week [ ] 3.weekly [ ] 4.once in two weeks [ ] 5.monthly [ ]

10. Do you study privately on your own? 1 .Yes [ ] 2.No [ ]

11 .If' no, please explain why

12. If yes, how often? 1 Daily [ ] 2.Twice a week [ ] 3.During CATs[ ] 4.During exams[ ]

13.Do you study in the library? 1 .Yes [ ] 2. No [ ]

14. If yes, how often? 1. Daily [ ] 2.Twice a week [ ] 3.During CATs [ ] 4.During exams[ ]

5 Other [ ] 6.None [ ]

V. CLASS ATTENDANCE

1. Are you provided with attendance registers in class? 1.Yes [ ] 2. No [ ]
2. Are they regularly provided? 1 .Yes [ ] 2.No [ ]
3. Do you attend all lectures? 1.Yes [ ] 2 No [ ]
4. If no, how many have you ever missed?

   1)1-5 [] (2)6-10 [ ] (3) 10-15 [] (4) over 15 []
5. What was your reason for missing the lectures?

   1. Transport problem [ ] 2) Congestion in class [ ] 3) sickness [ ]

   4. Lack of finances [ ] 5. domestic problems[ ] 6.Other (specify) [ ].
5. Do you attend other course besides engineering course? Yes [ ] No [ ]
6. If yes, name the course
7. How many times in a week do you attend the course 1) 1-2 hrs [ ] 2)3-4 hrs [ ]
   3)4-6 [ ] 4) over 6hrs [ ]
8. In your opinion, does this extra course affect your class attendance? 1. Yes [ ]
   2. No [ ]
9. If yes state how?
10. Are you aware of any other classmates who attend other such courses? 1. Yes [ ]
    2. No [ ]

11. If yes, about how many students? 1) 1-5 [ ] (2) 5-10 [1 (3)10-15 [ ]
    (4) over 15 [ ]

VI. ENTRY GRADES AND ACADEMIC PERFOMANCE

1. Under what education system were you considered for admission to Engineering?
   1.KCSE [ ] 2) A level. [ ] Higher Diploma [ ] 4. Ordinary Diploma [ ]
   5. Other [ ]

2. If KCSE, what was your aggregate score. 1. A [ ] 2. A minus [ ] '3. Bplus [ ]
   4. B plain [ ] 5.Other []

3. Who influenced your choice of the degree course? 1. Self [ ] 2.Parents [ ]
   3) brother/sister [ ] 4) Family friends [ ] 5) Peers [[6.0ther [ ]

4. What type of high School did you attend 1. Public [ ] 2. Private [ ]

5. Are there any high school class mates who attend the same course with you?
   1 .Yes [ ] 2. No [ ]

6. Given another chance, would you still choose the same degree course?
   1. Yes [ ] 2) No [ ]

7. If Yes to question 6, state why

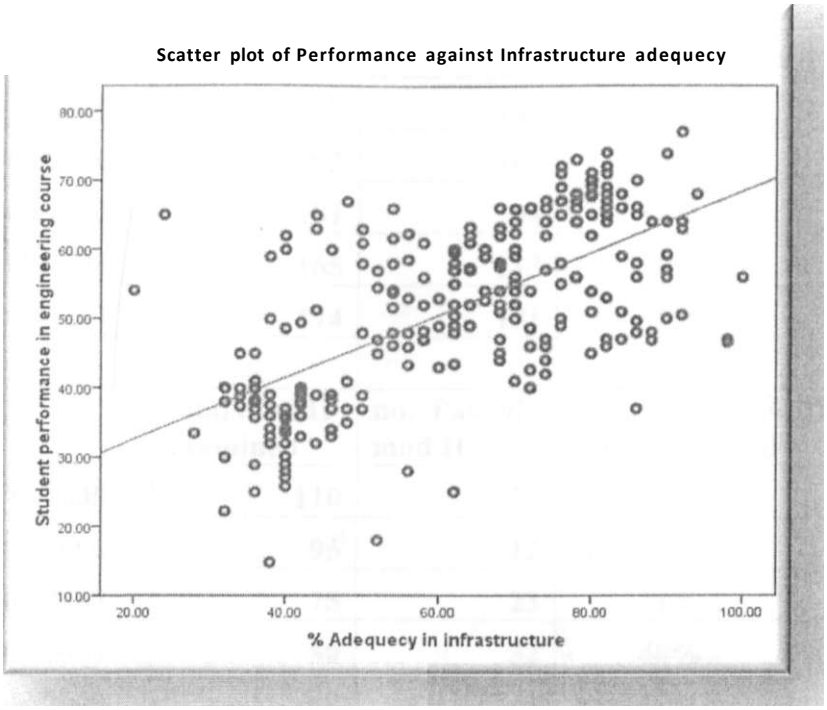
8. If No to question 6, state why?

9. Are you aware of mentorship programme in the School? 1. Yes [ ] 2. No [ ]

10. If yes, how often do you meet with your mentor? 1 Monthly [ ] 2.weekly [ ] 3.once a semester [ ] 4.when need arises [ ] 5.Never [ ]

11. In your opinion, are the meetings helpful to you as a student? 1. Yes [ ] 2.No.[ ] 3. I don't Know[ ] 4. None of the above [ ]

APPENDIX 3
Scatter Plot of Performance against Adequacy of infrastructure



APPENDIX 4

Performance statistics for cohorts of students admitted in 2004/2005 and 2005/2006 academic yrs. COHORT ONE

	total mod I examined	no. Passed mod I	% pass	mod I fail	% fail
2004/2005	158	116	73%	42	27%
2005/2006	183	107	58%	76	42%
2006/2007	181	94	52%	87	48%
2007/2008	165	113	68%	52	32%
2008/2009	174	131	75%	43	25%
	total mod II examined	no. Passed mod II	% pass	mod II fail	% fail
2004/2005	110	21	19%	89	81%
2005/2006	95	12	13%	83	87%
2006/2007	75	23	31%	52	69%
2007/2008	80	32	40%	48	60%
2008/2009	68	42	62%	26	38%

	total mod I examined	no. Passed mod I	% pass	mod I fail	% fail
2005/2006	160	151	94%	9	6%
2006/2007	179	157	88%	22	12%
2007/2008	176	155	88%	21	12%
2008/2009	179	123	69%	56	31%
2009/2010	173	147	85%	26	15%
	total mod II examined	no. Passed mod II	% pass	mod II fail	% fail
2005/2006	123	32	26%	91	74%
2006/2007	126	36	29%	90	71%
2007/2008	102	35	34%	67	66%
2008/2009	93	16	17%	77	83%
2009/2010	70	23	33%	47	66%

COHORT TWO Source: Dean's Office School of Engineering 2012

APPENDIX 5

1st year Admission statistics, School of Engineering

academic year	**Admissions**	
	mod I	**mod II**
2004/2005	**274**	**181**
2005/2006	**207**	**195**
2006/2007	**227**	**168**
2007/2008	**207**	**161**
2008/2009	**206**	**267**
2009/2010	**183**	**314**

Source; *Academic Registrar's office, UoN February 2011)*

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