

**THE CHALLENGES FEMALE STUDENTS IN ENGINEERING COURSES FACE AT  
THE UNIVERSITY OF NAIROBI.**

**BY**

**HELLEN WANGECHI MUGO**

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**A PROJECT PAPER SUBMITTED IN PARTIAL FULFILLMENT OF THE  
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## DECLARATION

This project paper is my original work and it has not been presented to any other institution for academic examination.

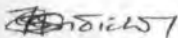


**Hellen Wangechi Mugo**

12/11/12

**Date**

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



**Dr. Tom Ondicho**

31/10/2012

**Date**

## **DEDICATION**

This is dedicated to the Almighty God for enabling me to complete this research. To my loving parents, siblings and friends for their encouragement and support- God bless you all!

## **ACKNOWLEDGEMENTS**

I wish to express my heartfelt gratitude to all the individuals who in one way or another helped and supported me in my studies. Without their support I could have not completed this research project.

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## ABSTRACT

This study examined the challenges female students in engineering courses face at the University of Nairobi. Central to the study was the analysis of the factors that motivate female students to select engineering as their area of study, the issues that affect female students in their studies and their suggestions on what should be done to enhance their academic performance. Both primary and secondary data were collected using survey and interview methods in September, 2012. A survey was conducted at the School of Engineering, University of Nairobi with thirty female students as respondents.

There is a large disparity in the ratio of men to women studying Science, Engineering and Technology courses in public universities in Kenya generally. There are many efforts taken by the Government of Kenya, the universities and other stakeholders to increase the number of women in these sectors and though these efforts are yielding fruits the change is slow. The study was guided by the Gender and Development theory.

The study found that there has been an upward trend in the number of female students enrolled in engineering courses at the University of Nairobi and their academic performance was good. The findings reveal that most the challenges female students in engineering are similar in several respects to those faced by male students. The study further revealed that most female engineering students selected the course because they attained good grades in their end of high school examinations, and because engineering is a prestigious and well-paying career. The findings also indicate that many female students find engineering studies demanding because of its heavy workload and inadequate learning facilities. The study further revealed that availing better learning material and improving facilities overall would go a long way to improve the learning environment and performance of female students. Most of the challenges reported by female

students during this study were not gender-specific. The female students said they had not been victims of sexual harassment. The study concludes that the main problems female students face are not unique to them as women but are experienced by male students too. The study recommends that continuous implementation of affirmative action in admissions should be adopted and the learning facilities and resources at the university should be improved to enhance the educational experience of students.

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# **CHAPTER ONE**

## **Introduction and Problem Statement**

### **1.0 Introduction**

This chapter provides a background to the study. It points out the existence of gender disparities in higher education and the efforts that are being made to increase the number of female students since there are less female than male students as one goes higher up in the education system. The chapter also presents the problem statement and objectives of the study; general and specific. It also gives the justification for the study as well as its scope and limitations.

The specific objectives of this study were: To find out what motivates female students to take engineering courses at the University of Nairobi, to find out what factors affect female students in engineering at the University of Nairobi and to find out what strategies can be put in place to address these challenges. The study sought to answer these questions: What motivates women to study engineering at the University of Nairobi, what factors affect the performance of female engineering students at the University of Nairobi and what strategies can be put in place to improve the performance and completion rates of female engineering students. The study endeavored to meet these objectives and answer the questions mainly by speaking to female students in engineering at the University of Nairobi.

### **1.1 Background to the Study**

The Kenyan education system has vast gender disparities. Since its inception, it has always tended to favour male students both at the national and regional levels. Formal education was introduced in Kenya by missionaries who were mainly European. The missionaries' aim was to spread Christianity and education made this easier since it gave them the opportunity to teach the

students to read Holy Scriptures (Wosyanju, 2008). During this time, majority of the students were male. Women hardly took part in formal education because their main role in society was to work around the household. They performed duties like child care, cooking, cleaning and farming. The few women who went to school during the pre-colonial and colonial eras only acquired basic education and those who managed to get higher education mainly focused on courses that would help them play their gender roles better (Chege and Sifuna, 2006). As a result, there was a huge gap by gender in the education sector with under representation of women especially in science subjects.

The gender gap persists to date and widens as one goes higher up the educational ladder. The gender disparities in higher education are particularly visible in science-related subjects (Kenya, 2007). The Commission of the Advancement of Women and Minorities in Science and Technology Development (2000), states that until 1970, African women had never featured prominently in science and technology. In order to close this gender gap, the government of Kenya working with other stakeholders has taken a number of steps to increase the number of women accessing education at all levels. Among other efforts to increase the number of women accessing higher education in Kenya has been the introduction of affirmative action. Since 2001 female students have been admitted into public universities with one mark less than male students. This applies for all courses including engineering. The affirmative action policy is applied in admission through the Joint Admissions Board (JAB) and it is the board that sets the cut off points depending on overall performance by students in their final high school examinations. This has slowly increased the ratio of men to women studying at public universities, but the number of women remains lower than that of men in science and technical

courses. For example, according to the 2010 National Council for Science and Technology (NCST) and UNESCO report on gender mainstreaming, in JKUAT; one of the seven public universities in Kenya women only constituted 17.5% in the ICT-related courses for JAB-admitted students in the 4-5 year related courses and 14.6% in admissions to shorter courses.

Engineering is one of the areas of study that has over time had more male than female students.

This study looks at the challenges female students face while studying engineering at the University of Nairobi

## 1.2 Statement of the Problem

The number of female students admitted into public universities including the University of Nairobi to pursue Science, Engineering and Technical courses in Kenya is generally smaller than that of male students. In the 2011/2012 academic year at the University of Nairobi, the student population in all five engineering departments comprised of 382 women which translates to about 15% of the total population of 2570 in Modules I and II (UoN statistics, 2012). Table 1.1 below shows admission trends over number years; from 2002 to 2006.

**Table 1.1: K.C.S.E. candidates admitted at the UON for engineering courses, 2002-2006.**

COURSE	2002		2003		2004		2005		2006	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Agricultural Engineering	5	26	3	30	5	25	3	29	11	29
Civil Engineering	8	51	7	55	6	55	9	54	12	54
Electrical Engineering	9	57	6	54	6	61	8	55	10	63
Mechanical Engineering	7	39	3	42	3	43	1	46	5	47

Source: NCST and UNESCO (2010: Table 2).

There has also been a glaring disparity in the number of graduands by gender as indicated by graduation statistics from universities and it appears that many students have not been completing their courses. Science, Engineering and Technology (SET) graduation statistics at the University of Nairobi (UON) confirm that the number of students who graduate from the university is much smaller than the number of students admitted, suggesting that students encounter some challenges along the way in their studies. The university's SET graduation rate, taking account of the full period 2001-2007 was poor with only about 50% of students entering SET programmes expected to complete their qualifications (Bailey et al, 2011). Figures from the University of Nairobi's graduation records also confirm that the number of female graduands especially for SET students is much smaller than that of male graduands. Table 1.2 demonstrates this. It indicates the number of male and female graduands from the 46<sup>th</sup> graduation ceremony at UoN.

**Table 1.2: Graduation Summary, 46<sup>th</sup> graduation ceremony- UON.**

<b>COLLEGE OF ARCHITECTURE AND ENGINEERING SUMMARY</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
BACHELORS DEGREE AWARDS	49	6	55
MASTER DEGREE AWARDS	6	2	8
DOCTOR OF PHILOSOPHY DEGREE AWARDS	1	0	1
<b>TOTAL</b>	<b>56</b>	<b>8</b>	<b>64</b>

Source: 46th graduands summary by school/faculty/institute ([www.uonbi.ac.ke](http://www.uonbi.ac.ke)).

A number of challenges explain the persistent gender inequalities in university enrolment. They include: “lack of relevant policies, inadequate curriculum content knowledge and teaching and learning strategies, poor didactic materials and negative culture and attitudes, which discourage women from training and/or working as scientists, technologists or engineers” (UNESCO, 2011:1). Women tend to stay away from the field of science and technology mainly because of their gender; not their physiological make up (Kimani and Muikamba, 2010).

Efforts made to motivate and increase participation of women in science engineering and technology such as affirmative action seem to be gradually bearing fruit. There has been improvement in performance and higher completion rates among female students. However, the existing gender disparities are taking too long to reduce and women remain largely underrepresented in SET education. This study endeavors to find out what motivates women to study engineering and why the number of women studying SET courses remains low. It also sets out to understand the challenges female engineering students face in their learning environment at the university and what strategies can be put in place to address them. While previous studies on marginalization of women in SET courses in universities have mainly focused on university administration and lecturers, this study will focus on female students themselves to obtain their views and recommendations.

## **1.3 Research Objectives**

### **1.3.1 General Objective**

The general objective of the study is to find out the challenges faced by female students in engineering courses at the University of Nairobi.

### **1.3.2 Specific Objectives**

The specific objectives of the study are:

1. To find out what motivates female students to take engineering courses at the University of Nairobi.
2. To find out what factors affect female students in engineering at the University of Nairobi.
3. To find out what strategies can be put in place to address the challenges faced by female students in engineering courses at the University of Nairobi.

### **1.4 Research Questions**

- i) What motivates women to study engineering at the University of Nairobi?
- ii) What factors affect the performance of female engineering students at the University of Nairobi?
- iii) What strategies can be put in place to improve the performance and completion rates of female engineering students?

### **1.5 Justification of the Study**

The Ministry of Education's 2007 Gender Policy on Education indicates that a lot of research on gender and education originates from Western Countries, hence creating need for more studies from Africa as a region in general, and Kenya in particular (Kenya, 2007). Findings from research done in other countries cannot be generalized since it may provide a very different picture from the reality in Africa and Kenya in particular. This study will provide a more situated and context-specific understanding of the challenges faced by female students in engineering at the tertiary level in Kenya.

The findings from this study will be of interest and use to tertiary education policymakers, service providers, planners, scholars and researchers, gender experts, university administrators and other stakeholders who are at forefront in the championing equal opportunities for both men and women in education in Kenya. It can be of help in filling the knowledge gap by providing a better understanding of the gender disparity situation in the higher education sector.

This study may also provide insights on the need for stakeholders in education to put more emphasis on implementation of gender friendly policies to enable more female students enroll in engineering and enhance completion rates. It may provide more situated insights on the need for university administration and other stakeholders to put in place targeted policies to improve the learning experiences of female students in engineering.

## **1.6 Scope and Limitation**

The study focused on female undergraduate students currently enrolled to study engineering on module 1 at the University of Nairobi. The University of Nairobi is one of the seven public universities in Kenya. The study was limited to the university's School of Engineering's five departments namely: Electrical and Information Engineering, Mechanical and Manufacturing Engineering, Geospatial and Space Engineering, Environmental and Biosystems Engineering and Civil and Construction Engineering. It only targeted those female students who were in session during the study.

The proposed sample of the population will not be large enough to permit generalization of the findings to all women studying engineering in all Kenyan universities. The collection of data was subject to getting informed consent from the study participants.



## **1.7 Conclusion**

The first chapter of this report has given a background to the study and presented the problem statement. It has also specified the objectives the study sets out to meet and the research questions to be answered. The chapter also gives a justification for the study as well as its scope and limitation.

Chapter two which follows this will contain a review of relevant literature. It will also include the theoretical framework that informed and guided this study.

## **CHAPTER TWO**

### **Literature Review and Theoretical Framework**

#### **2.0 Introduction**

This chapter presents a review of existing literature and the theoretical framework that guided the study. It includes a look at the history of formal education in Kenya and the factors that impeded the inclusion of women. The chapter also gives the history of university education in Kenya and the initiatives and strategies that have been made to increase the number of women in science and technology. It also presents a historical review of the University of Nairobi and the School of Engineering at the same university. The chapter then describes the theoretical framework that informs and guides this study.

#### **2.1 History of Formal Education in Kenya and the Factors That Impeded Women's Inclusion**

Formal education was introduced in Kenya by European missionaries with the aim of making Africans able to read the bible and to assist them spread the gospel. In addition to basic literacy and numeracy, subjects such as carpentry and gardening which gave their students skills that were useful around the missions were taught (Wosyanju, 2008).

Most students from the pre-colonial to the colonial period were men. Only a few women were able to access education and they mostly got basic education. Traditional practices and beliefs played a major role in the exclusion of women from formal education. Many communities did not see much value in education since it kept the girls away from their chores that revolved around the household. The chores performed by girls included cooking, preserving food, caring

for children, cleaning and milking cows (Ahlberg, 1991). Even in western theories of development women had been perceived as housekeepers who needed to operate largely within the domestic sector while men were perceived to be the breadwinners, producers and legitimately good in science and technology (Kimani and Muikamba, 2010).

The few girls who went to school during the colonial period were encouraged to study subjects that would prepare them for their care roles in the family (Aura, 2002). They therefore focused on arts rather than sciences in their studies and usually only got basic education. Occasionally a few women were offered relatively superior education which was geared towards employment mainly as nurses, lady physicians, schoolmistresses and secretaries (Chege and Sifuna, 2006).

From 1963, after Kenya gained political independence, the country adopted the 7-4-2-3 education structure modeled after the British education system. With political independence, the country was in dire and immediate need for skilled workers to hold positions previously held by the British. Hence, the government set out to quickly expand educational opportunities to its citizens. During this period, the number of both men and women going to school increased but not at the same rate as parents were still reluctant to send girls to school because of their domestic roles.

However, in academic circles women were still perceived as homemakers and the view still persists in some communities. Female students were mainly taught domestic skills and home science that were considered relevant to their domestic role as homemakers, wives and mothers. It is in the early years of the 1970s, with the understanding of the significant role played by women in the development process that women began to make an appearance in the area of education (Kabeer, 2003; cited in Kimani and Muikamba, 2010:5). Even when girls-only schools

were established in Kenya, there was little effort to provide them with Science-related infrastructure like laboratories and other equipment or facilities for learning science and technology subjects (Wosyanju, 2008).

Today, there are many girls-only schools with proper facilities to enable girls to get quality education in all academic subjects. However the provision of and access to education in Kenya continues to be undermined by social, political and economic factors (Bujra and Keriga, 2009). Some of the factors that undermine access to education include; poverty, high cost of education at the higher levels, insecurity and gender bias (Ibid). A report by the Development Policy Management Forum (DPMF) after an Evaluation of Education in Kenya indicates that education has failed in a number of key areas including; promoting equity and well being of individuals through access to opportunities, bridging the gap between male and female participation in the social, political and economic arena and positioning the country as a strategic global player through the creation of a scientifically and technically informed labour force (Bujra and Keriga, 2009).

The key factors that lead to gender disparities in education include social, cultural and religious beliefs, attitudes and practices, poverty, child labour, poor learning environment, lack of role models, HIV/ AIDS, curriculum and learners' attitudes, among others (Kenya, 2007).

## **2.2 History of University Education in Kenya**

Higher education in Kenya can be traced back to 1956 when the Royal Technical College was established in Nairobi (Bujra and Keriga, 2009). In 1970 the college was turned into the University of Nairobi by an Act of Parliament, thus becoming the first national university in Kenya (Bujra and Keriga, 2009). More universities were established over the years especially in the 1980s. Moi University was set up in 1984; an academic institution that specialized in training

technical and environmental sciences while in 1985, Kenyatta University which had additional faculties of arts, social sciences and commerce was established (Bujra and Keriga, 2009). Next was Egerton University in 1987; a university that specialized in agriculture and environmental factors (Bujra and Keriga, 2009). Jomo Kenyatta University of Agriculture and Technology began as a constituent of Kenyatta University and was elevated to full university status in 1993. Maseno University was established in the year 2000 and Masinde Muliro University of Science and Technology was established in 2007.

By the year 2009 Kenya had 7 public universities and 23 private universities (Ministry of Education, 2009). The country also has a number of public tertiary institutions including polytechnics, which are also involved in imparting industrial and technical skills in the country. The admission of students to the regular programmes of public universities is done through the Joint Admissions Board (JAB), while self-sponsored students of the public universities and private universities are independently admitted into their programmes based on qualifications (Riechi, 2010).

Today, the number of women accessing education all the way from early childhood level to universities and other institutions of higher learning is higher. This situation is being encouraged by initiatives like the affirmative action policy adopted by the government of Kenya. In addition, the establishment of private universities has enabled more women to access university education. Kiriri Women's University of Science and Technology for example admits only female students and offers Science courses.

All the seven public universities in Kenya offer engineering courses today. A 2010 study by the National Commission for Science and Technology dubbed 'Mainstreaming Gender in Science and Technology Policies and Programmes in Kenya' established that there exist gender disparities in admissions and overall participation of men and women in engineering courses in the universities. The study indicated that between the years 2002 and 2006, the number of female engineering students remained lower than that of male students with instances where there were no female students admitted for certain engineering courses in some years.

### **2.3 Initiatives and Strategies to Increase the Number of Women in Science and Technology.**

Several international instruments and declarations provide guidelines for gender mainstreaming in education matters. These include the Convention on the Elimination of all forms of Discrimination against Women (CEDAW,) of 1979 and The Beijing Platform for Action (1995). The Beijing Platform for Action identifies a number of areas of concern to women including improvement of women's access to vocational training, science and technology. It identified steps that should be taken, such as improving access and retention of women in science and technological programmes; and sensitization against gender stereotyping which end up in channeling of girls and boys into specific and often limited fields of study (FAWE, 1996). CEDAW which was ratified by the Kenyan government in 1984 provides that at all levels of education any stereotypes on men and women should be eradicated to foster co-education.

The Millennium Development Goals (MDGs) also highlight education as one of the major goals of development. The third MDG targets among other goals "To promote gender equality and empower women by eliminating gender disparity in primary and secondary education preferably by 2005 and to all levels of education by 2015" (UNESCO, 2003:27).

A study by UNESCO (2011) on Mainstreaming Gender in Science, Technology and Innovation (STI) Systems in the East African Community revealed that despite several positive initiatives being undertaken through legal enactments, policies and programmes in place in East African Community member States, the level of women's participation in science and technology from primary through tertiary education, to the career level, is low compared to that of men. According to this study, this situation is attributed to various causes such as: lack of clear policy guidelines on how to improve women's involvement in STI, lack of gender analysis expertise, women's reproductive roles, workload sharing between women and men, educational imbalances and unequal representation in decision-making positions, lack of role models, masculine stereotypes on science and technology, lack of data on gender, socio-cultural barriers, lack of equity on access to basic technologies, gender-insensitive curriculums and gender discrimination(UNESCO, 2011). The study recommended that for the achievement of gender parity in science and technology in education, an appropriate mix of strategies based on lessons learnt from best practices and experiences at national, regional and international levels should be applied.

Among the strategies carried out for promoting gender parity in Africa include

*the Action Plan for the implementation of the Second Decade of Education for Africa (2006-2015); Africa's Science and Technology Consolidated Plan of Action ; launching of 2007 as the year of building constituencies and champions for science, technology and innovation in Africa, by the African Union Summit of the Heads of State and Government; the African Union regional conferences on women in science and technology in Africa and the African Union progressive gender policies(UNESCO,2011:2).*

In the East Africa region, the governments of member countries have been making efforts to address gender mainstreaming concerns. A significant regional effort made to tackle this issue is the Gender Advisory Board (GAB) Regional Secretariat for Africa which is based in Kampala, Uganda and hosted by the Association of Women Engineers, Scientists, and Technicians in Uganda (UNESCO, 2011). In 2005, all African governments including those from East African Community, EAC signed the declaration establishing GAB and approved its transformative action plans. GAB was established in 1996 based on recommendations made at the 1995 Beijing World Conference on Women by the United Nations Commission on Science and Technology for Development (UNCSTD). The strategies identified by GAB from 1995 to 1996 and that are still valid include: gender equity in science and technology education, promoters of gender equalities in scientific and technological careers, applicability of science to societal needs, inclusion of gender within the science and technology decision-making process, valuing indigenous knowledge systems, science, technology and gender ethics, availability of disaggregated data on gender for policy makers and gender equity in science, technology, engineering, mathematics disciplines (STEM) and innovation systems (UNESCO, 2011:3).

During the East Africa Sub-region GAB workshop held 14-16 March 2005, some key gender concerns were noted including the fact that the gender mainstreaming of science and technology policy formulation and review processes have not been sufficient enough to reflect the level of gender awareness that has been created and attitude changes made (UNESCO, 2011:3). This therefore means that engendered programmes are very few (UNESCO, 2011).

The government of Kenya has also been making particular efforts to mainstream gender in science, technology and innovations. One way in which the government has supported the mainstreaming of gender in science and technology is through registration of private universities



and enrolment of self-sponsored students into public universities. These institutions provide more opportunities for girls to gain university education. Many private universities admit students with lower cut off scores than public universities. In May 2008, The Ministry of Higher Education, Science and Technology held its first national workshop on gender mainstreaming in science and technology. Despite Kenya's efforts, the country does not have a specific policy on gender mainstreaming in science and technology, apart from some general provisions like those in the Gender Policy on Education of 2007. These provisions are not strong enough to mainstream gender equity into science and technology (UNESCO, 2011).

## **2.4 Historical Development of the University of Nairobi.**

The University of Nairobi's history began in 1947 when the Kenya Government drew up a plan to establish a technical and commercial institute in Nairobi. The institution was later started as the Royal Technical College which admitted its first lot of A-level graduates for technical courses in April 1956. When the Royal Technical College was transformed into a University College of East Africa on 25th June, 1961 it immediately began enrolling students in the faculties of Arts, Science and Engineering for award degrees of the University of London (<http://archive.uonbi.ac.ke/about-us>). In 1970, the University College Nairobi became the first national university in Kenya and was renamed the University of Nairobi. The enrolment of women has been rising slowly over the years, with 3% in 1987/88, rising further to 6% in 1990/91, then 6.1 % in 1992/93 and 9.7% in 1993/94 ( Chege and Sifuna, 2006).

At the postgraduate level of study at the University of Nairobi (UON), in the early 1990s women comprised only 1.2% of those enrolled at the faculty of engineering (Chege and Sifuna, 2006).

## 2.5 Theoretical Framework

This research project will be informed and guided by the Gender and Development (GAD) approach. The approach looks at women as active participants and agents of development and aims at understanding and improving the position of women and disadvantaged groups in the community. GAD aims at strengthening the effectiveness of development work in improving the situation of both women and men, and achieving progress towards social and gender equality. In this approach, gender is considered as a concern that relates to and influences all economic, social, and political processes. GAD seeks to provide a remedy for gender inequity through facilitating strategic, broad-based, and multifaceted solutions to gender inequality. It considers both the practical gender needs of women such as health care, water supply, education and laborsaving technologies, and the strategic gender needs ensuring that any project undertaken assists women to increase their benefits and to overcome structural constraints. The GAD approach promotes a development process that transforms gender relations in order to enable women to participate on an equal basis with men in determining their common future.

In the GAD approach, gender mainstreaming is applied as a means of addressing women's concerns more holistically and effectively. It requires gender planning to be applied to all development operations and projects, and allows women to be factored into economic and development policy. In GAD gender analysis is used to analyze the specific nature of gender differences by asking basic questions such as who does what, where, when, how often, with what resources and returns, and who controls what. After gender analysis suitable policies and strategies are designed to assist in improving women's inclusion, status, and productivity. The approach considers that projects targeting women specifically are still required as long as there

are structural constraints and barriers restricting women's participation, such as in cases where women require special assistance to enable their full participation in mainstream projects.

The theory is significant in this study because it aims at understanding and improving the position of women in the education sector; with women as both participants and agents in the education sector. The challenges that women face in meeting their need for education have led to gender inequality in the sector. GAD seeks to identify these concerns and provide a remedy so that both women and men can participate in education on equal basis. The GAD approach will be useful in this study since it will help to understand the challenges female engineering students face in their studies at the university. It will also help in suggesting solutions for these concerns so that both female and male students are able to participate equally in engineering studies.

In the case of inclusion of women in university courses like engineering where they form a small minority, GAD also becomes applicable since it allows implementation of projects meant specifically for women where there are structural constraints and barriers restricting women's participation. In addition, the approach allows intervention and strategies like affirmative action. It ensures that women themselves are included into efforts made to improve their learning institutions. GAD guides this study well because it allows the researcher to find out directly from female students what motivates them to study engineering, what difficulties they encounter in this area of study and what solutions they suggest to counter these challenges.

## **2.6 Conclusion**

In the second chapter of this report, existing literature that is relevant to the study has been reviewed. The chapter began by looking at the historical development of education in Kenya. It explained why women were excluded and the efforts that are being made to get rid of gender

disparities in education; especially at higher level. It also explains the theoretical framework; Gender and Development that guided the study and its relevance to the study. GAD as applied in this study seeks to identify the concerns of women studying engineering; one of the areas where women form a minority and provide a remedy so that both women and men can participate in education on equal basis.

Chapter three which follows this will contain the research methodology of this study. It will give details of how the research itself was carried out and how data was analyzed thereafter. It also explains the ethical considerations and challenges encountered during the study.

# CHAPTER THREE

## RESEARCH METHODOLOGY

### 3.0 Introduction

This chapter presents a discussion of the research methods used in this study. It gives a description of the study site, and then describes the study and sample populations. It indicates the sampling procedure and research design used too. The chapter then explains the data collection methods and tools used in the study. Next it describes how the data collected was processed and analyzed followed by the ethical considerations made and challenges encountered during the study.

### 3.1 Description of Study Site

The study was conducted at the University of Nairobi's School of Engineering. The School of Engineering is located in the Main Campus close to the city centre of Kenya's capital, Nairobi. All engineering courses of the University of Nairobi are offered at the School of Engineering which is located at the Main Campus. The School of Engineering is under the College of Architecture and Engineering. Module I and II students in this school learn together on full time basis. In the 2011/2012 academic year, the college had a total of 4,326 combined Module I and II students; 3464 male and 862 female (UoN statistics, 2012). Out of this student population, the School of Engineering had a total of 2695 students; 2300 male and 395 female students. The School of Engineering offers the following courses: Electrical and Information Engineering, Mechanical and Manufacturing Engineering, Geospatial and Space Engineering, Environmental and Biosystems Engineering and Civil and Construction Engineering. In the 2011/2012 academic year, the number of students taking these courses were as follows: Civil and Construction

Engineering; 634 male and 128 female students, Electrical and Information Engineering; 680 male and 192 female, Mechanical and Manufacturing Engineering; 519 male and 63 female, Geospatial and Space Engineering; 159 male and 36 female, Environmental and Biosystems Engineering; 196 male and 63 female students (Uon statistics, 2012).

### **3.2 Study Population**

The study population consisted of all Module One female undergraduate students in the School of Engineering at The University of Nairobi.

### **3.3 Sample Population**

The sample population comprised of thirty female students drawn from the five departments at the School of Engineering. Six respondents were drawn from each of the engineering departments: Electrical and Information Engineering, Mechanical and Manufacturing Engineering, Geospatial and Space Engineering, Environmental and Biosystems Engineering and Civil and Construction Engineering department. The female students were drawn from between second year to fifth year students as follows: nine from the fifth year and seven from the fourth, third and second years of study. Even though first year students had reported to the university for their first semester they were not included because they had not began their studies at the university and would not be able to provide the information needed from this study.

The unit of analysis was a woman undergraduate School of Engineering student at UON on Module I.

### **3.4 Sampling Procedure**

This study employed the multi-stage sampling procedure. The sample population was drawn from five groups; each comprising of students from one of the five School of Engineering departments namely: Civil and Construction, Geospatial and Space, Electrical and Information, Environmental and Biosystems and Mechanical and Manufacturing engineering departments. Six respondents were drawn from each of the engineering departments. From each of these groups, students were conveniently selected depending on their availability and willingness to participate in the study. This was done on the understanding that students have different study timetables and residential arrangements making it difficult to catch many of them on campus during the day.

### **3.5 Research Design**

This research project used a cross-sectional design. The following tools were used for collection of data: survey questionnaires, key informant interviews, secondary data and informal discussions.

### **3.6 Data Collection Methods**

Both primary and secondary data were collected using qualitative and quantitative methods. A survey and interviews were carried out. The following tools were used:

#### **3.6.1 Questionnaires**

The primary method of data collection was a questionnaire. A semi-structured questionnaire comprising of both open ended and closed questions was used. The questionnaire was divided

into two sections; Section 1 provided background data of the people who participated in the study while Section 2 gave findings that answered the research questions. Some of the questionnaires were administered within the Engineering Building in classrooms while others were administered at the Great Court grounds of the Main campus. It took about twenty minutes to interview each student. The researcher conducted the interviews. The researcher would approach a female student and introduce herself and the study to the student. She would then request the student to take part in the study. If the student agreed to participate, they would search for a quiet spot and proceed with filling the questionnaire. Most of the students approached easily agreed to participate in the study.

### **3.6.2 Key informant interviews**

Key informant interviews guided by an interview guide were carried out. The key informants were members of staff at the university. They were chosen from the School of Engineering on the basis of their knowledge of and interactions with students. Five interviews in total were carried out among faculty staff. These interviews were conducted in the key informants' offices.

### **3.6.3 Secondary Data**

Secondary data was also collected. It included reports from previous related studies and records from the university registrar's (academic) office. Data was also collected from the University of Nairobi's website. The data collected included historical records of student admission and graduation statistics of the University of Nairobi. Data on previous studies on inclusion of women in science and technology in tertiary education was also looked at. This data was useful



since it enabled the researcher to establish trends and better understand the state of affairs of female students in engineering and other SET courses.

#### **3.6.4 Informal Discussions**

Informal discussions with female students in engineering were also carried out within the Engineering Building and the Main Campus women's hostel premises. The informal discussions were aimed at getting any additional information on the topic of study that may not have been captured by the survey questionnaires. Three informal discussions were held with the female students. From these discussions, the researcher was able to corroborate the data collected through the questionnaires. No new information was yielded through the discussions.

#### **3.7 Data Processing and Analysis**

The data collected through questionnaires was handled first, followed by data collected from key informants. The questionnaires were checked for completion. The responses given were categorized under the major issues raised and a coding system was developed. Since the data collected through key informant interviews was based on the major issues addressed by the questionnaire for students, it was processed under the same themes.

The themes used in analysis were created in relation to the study objectives and research questions. The data collected was placed under these major themes. The data was analyzed thematically.

A summary report was then developed indicating these major themes and the associations between them.

### **3.8 Ethical Considerations**

First a research permit was sought from the National Council for Science and Technology. Once the permit was acquired, the researcher applied for permission to conduct research within the university from the Vice Chancellor's office. When this authorization was given the researcher was able to begin the data collection exercise.

The researcher also sought informed consent from the respondents participating in the study. She introduced herself to possible respondents, explained that she was a student doing research for her MA project and what the study was about, as well as its objectives. Then she invited them to ask her any questions or seek clarification on anything that was not clear about the study. It was after this that she invited them to participate in the study. The researcher assured the respondents that the information they gave her would be kept confidential and their names would not be included in the final report. She also informed them that they could withdraw from the study at any time if they wished to do so.

Privacy and confidentiality were observed during the key informant interviews too. The interviews were carried out one at a time and all respondents were given an assurance that the information they gave her would be kept confidential and their names would not be included in the final report on the study.

The researcher also endeavored to create a good rapport with all the respondents. For the questionnaires, student respondents were given the option to write down or skip their names on the questionnaires. The key informants were given a guarantee that their names would not be mentioned in the report on findings of the study.

The researcher also endeavored to create a good rapport with all the respondents.

### **3.9 Challenges Encountered During the Study**

The main challenge encountered during this study was a strike by academic and non-academic staff at the university. During the time of the strike which lasted for about two weeks it was difficult to collect data as students stayed away from lecture halls and the main campus which was the location of the study. This time most of the university premises including the School of Engineering block were inaccessible and most members of staff were away. This caused a delay in the study and the researcher had to wait until the strike was over to complete data collection. However, the researcher was still able to interview some key informants during this period. Three key informants were interviewed in their private offices.

Another challenge that the researcher encountered was the students' tight schedules. While the students were willing to take part in the study, sometimes they were not able to get enough time to participate because they had to attend lectures.

### **3.10 Conclusion**

The third chapter presented the research methodology of this study. It gives details about the study site and population. It also contains details on sampling and data collection. The chapter also explains how the data collected was analyzed as well as the ethical considerations observed and the challenges the researcher encountered during the study.

Chapter four which follows this will contain a presentation and discussion of the research findings. It will explain these findings in detail.

## **CHAPTER FOUR**

### **Presentation and Discussion of Research Findings**

#### **4.0 Introduction**

This chapter presents the findings of the research study. The chapter is divided into two sections. Section I presents background data of the people who participated in the study. Section 2- presents findings that answer the research questions. The findings are discussed according to the objectives of the study as outlined in chapter one. The specific objectives of the study were:

1. To find out what motivates female students to take engineering courses at the University of Nairobi.
2. To find out what factors affect female students in engineering at the University of Nairobi.
3. To find out what strategies can be put in place to address the challenges faced by female students in engineering at the University of Nairobi.

#### **4.1 Socio-demographic Characteristics of the Respondents**

Age of the Respondents:

All the student respondents- 100% were in the age category 21-25 years. Among these respondents, 11% were 21-22 years old, 61% were 23 years, 25% were 24 years and 3% were 25 years. This is because Module 1 students are directly admitted to university after high school. They are sponsored partially by the government.

Marital Status:

All the respondents - 100% were single (unmarried) and all were residents of the University Hostels. Most female students tend to delay marriage until after completion of university

education and sometimes, after securing employment. Science courses are quite involving and usually require a lot of concentration hence marriage could be another added responsibility that could distract female students in their studies. Remaining unmarried while at the university is therefore one of the strategies employed by female students to ensure that they complete their course.

#### Courses Enrolled in:

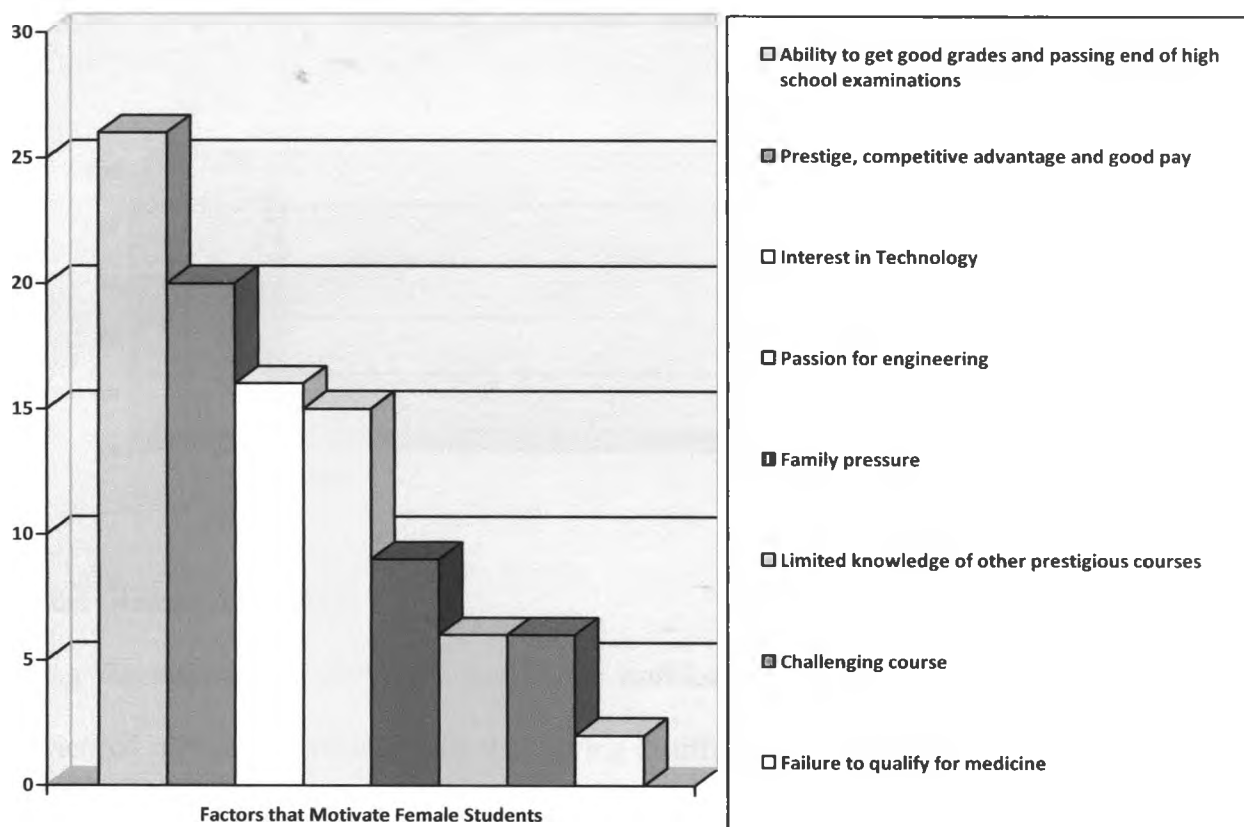
For the thirty questionnaires issued, six students were selected from each of the five engineering departments of the university namely civil engineering, electrical engineering, mechanical engineering, Geospatial engineering and Environmental and Biosystems engineering.

#### **4.2 Motivation for female students to take engineering courses at the University of Nairobi.**

Twenty six per cent of the students who took part in the survey said that their ability to get good grades and having passed their end of high school examinations was the main reason why they selected engineering as their area of study. Fifteen per cent of respondents said that a passion for engineering was the main reasons why they chose engineering as their area of study at the university while 9% said it was family pressure that made them select engineering. Twenty per cent of respondents said that they selected engineering as their area of study at the university because the course is prestigious and one is guaranteed to get a good and well-paying job after their studies especially considering that there were few female engineers thus giving them a competitive advantage. Another 16% of the respondents said that a great interest in technology and technological developments and a possible career in computers was the reason why the selected engineering as their area of study. 6% of respondents said that a limited knowledge of other competitive and prestigious courses was the reason they selected engineering as their area of study at the university. A further 6% of respondents said they selected engineering as their

study area because engineering was a technically involving course and it challenged them. Another 2% of the respondents said the failure to qualify for medicine was the main reason that made them select to study engineering at the university. Table 4.1 illustrates these findings.

**Figure 4.1 : Factors that motivated female students to take engineering courses at UON.**

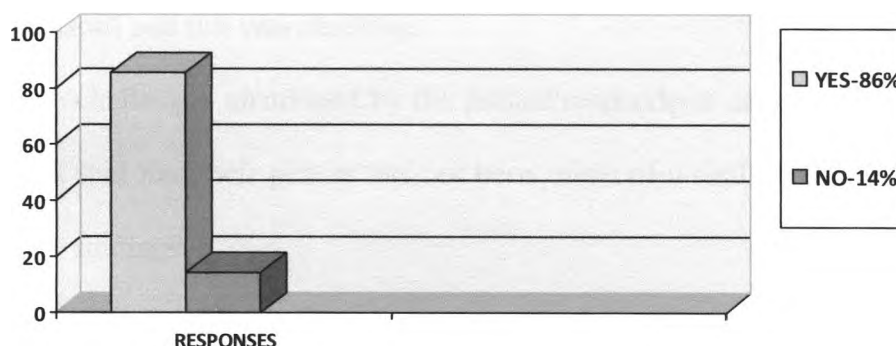


Source: (Researcher, 2012).

### 4.3 Challenges Female Engineering Students Face at the University of Nairobi.

Majority of the female students respondents (86%) said that they experience challenges in their engineering studies at the university. 14% of the respondents said that they do not experience any challenges in their studies at the university. Table 4.2 indicates these findings.

**Figure 4.2: Responses on whether or not female students experience challenges**



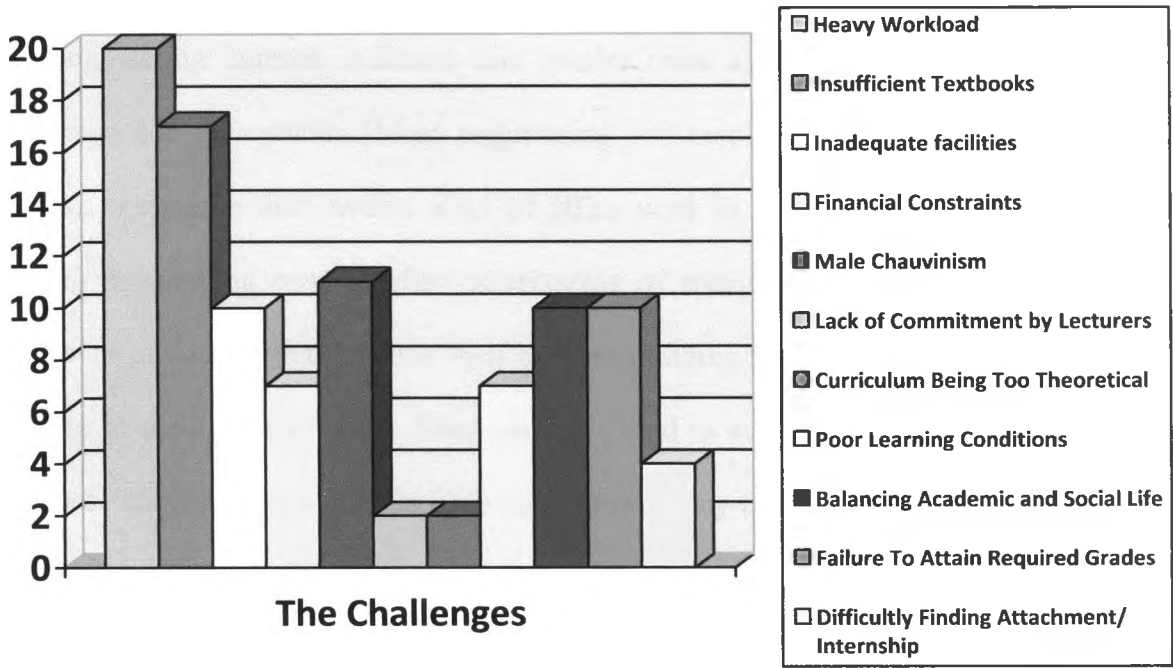
**Source: (Researcher, 2012)**

Among the respondents 20% said that heavy workload was one of the challenges that they experienced. 17% of respondents said that having insufficient textbooks was a major challenge to them. 10% of respondents said that inadequate facilities especially laboratory equipment was a challenge to them. 7% of the respondents said that they experienced financial challenges because of high costs incurred in engineering studies. Another 11% of the respondents said that male chauvinism was a challenge that they experienced. They said that they often faced prejudice especially from other students and sometimes from university teaching staff just because they were women studying engineering; a course dominated by men. 10% of the respondents further said that balancing academic and social life was a challenge for them. Failure to attain the

required grades was cited by 10% of respondents as a challenge that they experienced while studying at the university. 7% of the respondents said that poor learning conditions were a challenge. They said that these poor learning conditions include small lecture halls for a large number of students, bad seats and poor lighting. 4% of the respondents said that finding attachment or internship was a challenge to them while 2% of respondents said the lack of commitment by lecturers was a challenge that they experienced. Another 2% of the respondents said that the engineering curriculum was too theoretical while they expected it to have more practical lessons and this was challenge.

Most of the challenges mentioned by the female respondents cut across the gender divide. The respondents said that their gender has not been much of a challenge in their studies. Table 4.3 shows these findings.

**Figure 4.3: The Challenges Female Students Experience**



Source: (Researcher, 2012)



According to interviews with the key informants, one of the biggest challenges with many female students in engineering regards perception. Despite their academic prowess and the fact that they got admitted into the university to study engineering because they were qualified enough, female students often regard themselves as being incapable of performing well in this area of study. All the key informants said that female students generally perform well in their studies despite being much fewer than male students. It was suggested that the negative perception by female students in engineering courses on their capabilities could be because they are fewer than male students in the field. The negative perceptions often affects their performance negatively and make them appear to be less apt in their studies and less skilled in engineering than their men course mates. The relatively small number of female students also makes their fellow students at the university undermine them in terms of their ability to do well in engineering studies.

Data obtained from interviews with the key informants and the informal discussions with female students in engineering courses indicated that gender roles also affect female students in engineering courses in their studies. Many engineering jobs involve practical work done out in the field unlike other jobs that involve a lot of office work in one specific locality. Female students taking engineering courses often select areas of specialization based on future job prospects in favor of courses that increase their chances of doing more office work, without too much travelling in the course of work. They generally tend to avoid jobs that involve a lot of field work. These choices enable them to have more time to play family roles like child care and domestic chores that they would not easily manage with the more involving and manual field jobs.

The data from key informant interviews and informal discussions also revealed that when female students get married or pregnant in the course of their studies they often have to take time off studies to play their maternal roles. While the university allows them to officially take time off and resume their studies after some time, some students find it difficult to catch up with their studies or pick up from the point where they left. This affects their performance and sometimes leads to students completely dropping their studies.

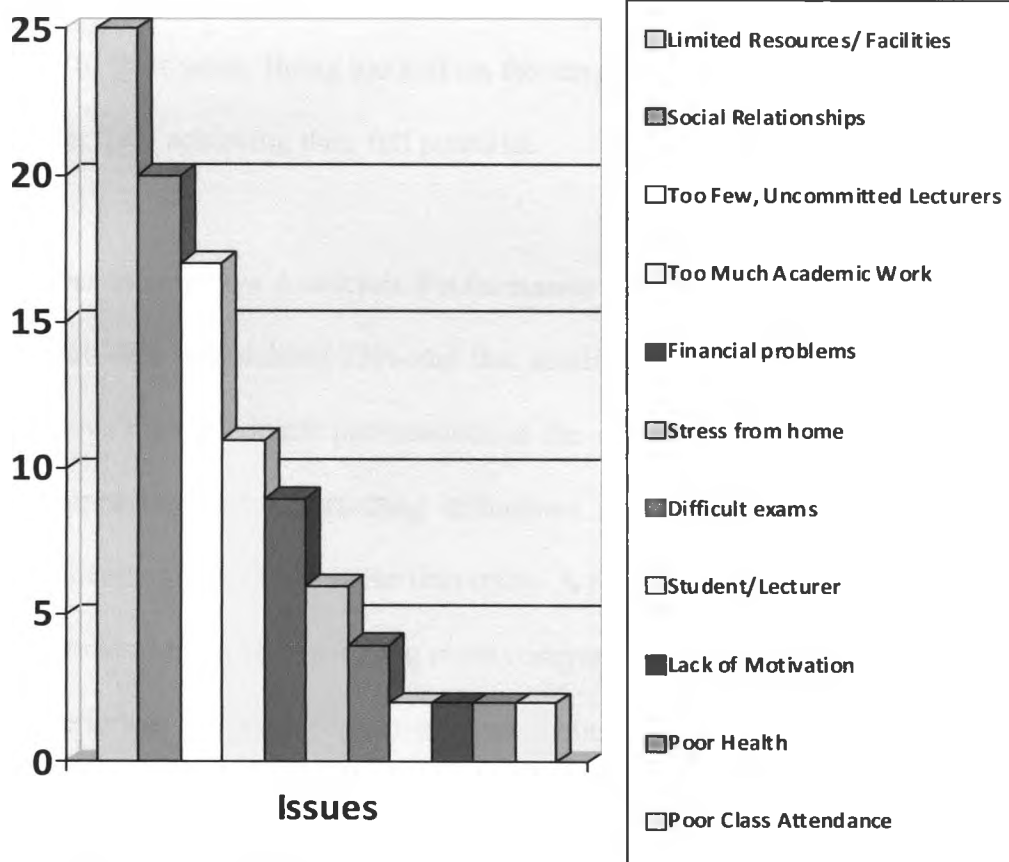
Some engineering careers involve a lot of manual work and require engineers to put in much physical effort. An example of such a career is mechanical engineering that involves working with heavy equipment. As a result, women tend to avoid such engineering options in their studies and relatively fewer female students are in these departments. The students said that avoiding the very involving careers enabled them to perform other duties such as their family roles.

#### **4.4 Issues Affecting female Students' Academic Performance**

Among the student respondents, 20% said that relationships affected their studies; with involvement in social issues like spending time with friends, participation in politics and partying as some of the issues that affected their academic performance at the university. 25% said that limited resources or facilities affect their academic performance. A further 17% of respondents said that uncommitted lecturers with poor teaching and marking skills and the ratio of lecturers to students (with lecturers being too few for the large number of students) was an issue that affected their academic performance while at the university. 11% of respondents said that one of the issues that affect their academic performance at the university was the engineering course having too many units some which are irrelevant and the lack of time for practical lessons. 9% of the respondents said that financial problems were another major issue that affects their academic performance at the university. One cause of financial strain that was mentioned was the requirement to purchase equipment for practical lessons and another was difficulty in getting adequate funding from the Higher Education's Loans Board, HELB. 6% of the respondents said that stress from home was an issue that affected their academic performance at the university

while 4% of the respondents said that difficult exams were also challenges that affected their academic performance at the university. 2% of the respondents said strikes from both students and lecturers affected their academic performance. Another 2% said that lack of motivation was an issue that affected their academic performance while a further 2% of respondents said poor health affected their academic performance. 2% of respondents mentioned poor class attendance as an issue that affected their academic performance at the university. Table 4.4 illustrates those findings. These findings seem to indicate that gender issues have little impact on academic performance of female students in engineering.

**Figure 4.4: Issues Affecting Students' Academic Performance**



Source: (Researcher, 2012)

The key informants said that perception of some female students about themselves and their academic capabilities affect their performance to a great extent. When students undermine themselves they do not perform as well as they otherwise would. Stereotype also affects female students; with the belief that women are not as good as men in sciences and technical courses existing among students. These stereotypes are from some of the female students themselves and fellow students at the university.

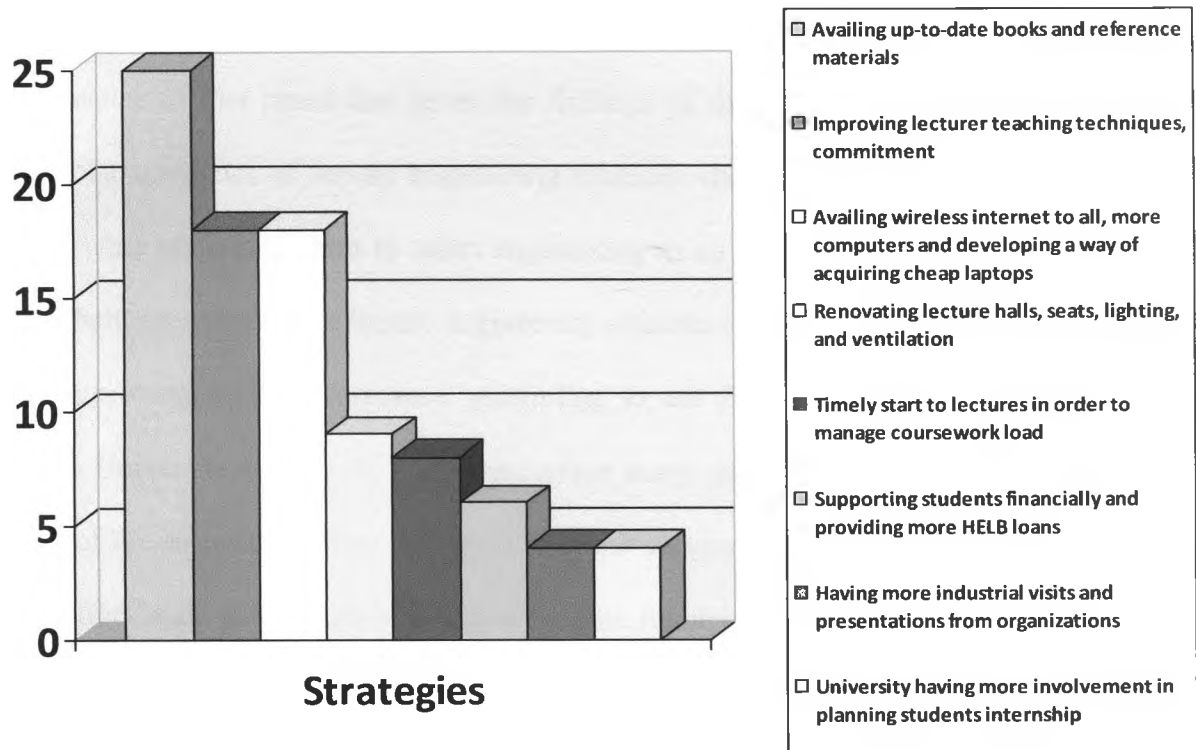
One key informant mentioned that some lecturers are too lenient on female students when awarding marks in examinations and assignments, which tends to make some of the students complacent in their work. Being too soft on the female students was seen to hold them back and prevent them from achieving their full potential.

#### **4.5 Strategies to Improve Academic Performance**

Among the student respondents 25% said that availing up to date books and reference materials would improve their academic performance at the university. Eighteen percent of respondents said that improving lecturer teaching techniques and commitment by teaching staff would improve academic performance at the university. A further 18% of respondents said that availing wireless internet to them and providing more computers would play a big part in improving their academic performance. Nine percent of respondents said that renovation of facilities such as lecture halls, lecture seats, proper lighting and ventilation would help improve the student's academic performance at the university. Eight percent of the respondents said that starting lectures early; at the beginning of the semester would improve their academic performance at the university as opposed to lectures starting way into the semester which made the lecturers rush to cover the syllabus and ended up with too much workload and pressure for the students in the end. Six percent of the respondents said that supporting students financially and increasing the

amount given in form of Higher Education Loans’ Board (HELB) loans would improve their academic performance at the university. Four percent of respondents said that more industrial visits and presentations from organizations would help improve their academic performance and motivation at the university. Another 4% of respondents said that improving the quality of student internships would play a major role in improving their academic performance. Table 4.5 illustrates these findings.

**Figure 4.5: Strategies to Improve Academic Performance**



Source: (Researcher, 2012)

The key informants interviewed all said that for female engineering students to improve their academic performance and enhance their completion rates at the university there was need for change of perception on the female students. The female students need to believe in themselves and their ability to perform well in the field despite their small numbers. Their fellow students at the university; both male and female who have stereotypes or tend to look down on the female students taking engineering and other technical courses also need to change their perception to stop discouraging the students.

The lecturers also needed to stop being lenient on female students and treat them equally with men especially in class work and marking to help them work to their full potential.

#### **4.6 Conclusion**

The fourth chapter of this report has given the findings of the study. It has details on soci-demographic characteristics of female engineering students who were the main respondents in the study and what motivated them to select engineering as an area of study. The chapter also explains the challenges that affect female engineering students and strategies that these students suggest for improving their performance. According to the findings, it appears that female students at the University of Nairobi do not encounter many gender-related challenges in their studies. Most of the issues that affect their studies at the university cut across the gender divide and seem to affect male and female students alike. The findings also indicate that some of the issues that affect female engineering students can easily be rectified by the students themselves. These issues include the involvement in social activities like politics and partying and poor class attendance.

Chapter 5 that follows will contain conclusions and recommendations from this study. It gives a summary of the research findings.

## **CHAPTER FIVE**

### **Conclusions and Recommendations**

#### **5.0 Introduction**

This chapter provides a summary of the key findings of this study. The study was done to find out the challenges that female students in engineering courses face in their learning environment at the university. The study sought to find answers to three important questions: What motivates women to study engineering at the University of Nairobi, what factors affect the performance of female engineering students at the University of Nairobi and what strategies can be put in place to improve the performance and completion rates of female engineering students. The questions have been answered and the objectives of the study met.

The chapter is divided into two major sections. The first section gives a conclusion to the study while the second section gives recommendations.

#### **5.1 Summary of Findings**

This study looked into the challenges that female students in engineering courses face in their learning environment at the university. It focused on the university of Nairobi and specifically looked at what motivates female students to study engineering, what factors affect the performance of female students in engineering courses and what strategies can be put in place to improve the performance and completion rates of women engineering students.

The finding showed that women select Engineering as an area of study for a number of reasons. The reasons given for studying engineering included getting good grades in end of high school examinations to qualify for the course, a passion for engineering, family pressure, prestige

associated with the course, a guarantee to get a good and well paying job after studies, a great interest in technology and technological developments and a possible career in computers. From the findings it is evident that majority of female students taking engineering chose the course because they had the qualifications. Further these findings prove that women also have a huge interest in courses that have long been associated with men.

The study further established that there are a number of problems that affect female students in engineering courses at the university and in turn affect their academic performance. These problems include limited resources; mainly books, insufficient internet services, insufficient laboratory equipment, and computers. Relationships; involvement in social issues like spending time with friends, involvement in politics and partying were also issues that affected the academic performance of female students. Uncommitted lecturers with poor teaching and marking skills and low ratio of lecturers to students (few lecturers for many students) were also an issue of concern.

The findings also show that most of the challenges experienced by female engineering students are not unique to their gender. The challenges appear to be experienced by all students in the school alike; both male and female.

This study also demonstrates that although there were challenges encountered by female students at the university, these challenges can be solved by the various stakeholders involved including students, university administration and faculty staff taking the necessary steps as regards the challenges and solutions mentioned. The solutions suggested included availing up to date books, reference material and laboratory equipment, increasing the number of lecturers and improving



lecturer teaching techniques and commitment, availing wireless internet to all, adding more computers and renovating lecture halls, seats, lighting and ventilation.

## **5.2 Conclusion**

From the findings of the study, it can be concluded that female students doing engineering at the university indeed encounter a number of challenges which require to be addressed. It has also been established that these challenges are diverse and rise from a number of sources. The study confirms that women select engineering as an area of study for various reasons ranging from passion for technology to good career prospects. It has also shown that a number of strategies can be implemented to overcome these challenges and improve the educational experience of women in engineering.

The findings of this study indicate that most of the issues affecting female students in engineering courses and their academic performance are not necessarily unique to them; they may be affecting men engineering students as well as students from other faculties of the university.

Statistics on the School of Engineering indicate that the number of women admitted for engineering studies has grown steadily over the years. Female students have been performing well in engineering and according to the teaching staff interviewed many and female students are generally focused on their studies and are very hard working. Completion rates of female students have also been increasingly high; with fewer female students dropping out along the way.

### 5.3 Recommendations

The study has established that a number of strategies can be implemented to overcome the challenges female students in engineering studies face. The researcher suggests that the following should be done at the University of Nairobi in order to alleviate the challenges identified in this study:

The University of Nairobi should endeavor to provide adequate and up to date facilities, equipment and technology to enhance the learning experience and skills of its students. Examples of such requirements are reliable internet and computer services, textbooks and sufficient, well-maintained lecture halls. The curricula may also need regular revision to maintain relevance and the university should be more involved in placement of students especially for internship/industrial attachment for students to acquire more practical skills. There should be sufficient practical lessons for students even within the university. All lecturers also need to avail themselves throughout each semester for lectures; right from the beginning and stay committed to their work. Lecturers who are too lenient on female students should treat all students equally (men and women) to make them work hard and genuinely earn the marks they score in their studies.

The female students on the other hand need to be hardworking and focused on their studies as a priority while at the university. They also need to believe in themselves and their ability to make it in their specific area of study; considering that the students who get admission into the School of Engineering are usually among the best performers in the end of high school examinations.

Kenya as a country does not have a specific policy on gender mainstreaming in science and technology, though it has general provisions like those in the Gender Policy on Education of

2007. There is need to develop more specific provisions for gender mainstreaming in science and technology and to strengthen those in place in order for them to be more effective.

This study has focused on the challenges that female engineering students face at the University of Nairobi and the findings have revealed that there are various challenges faced by these students. The study only focused on one of the many schools in the university; the School of Engineering. A study should be carried out to assess the situation and the challenges of female students in other faculties or those taking other courses at the University of Nairobi.

Similar studies should be carried out in other universities in the country; both public and private to assess if the challenges identified by this study are prevalent elsewhere and what can possibly be done to address them. The studies may also be extended to other tertiary institutions; especially those offering Science, Engineering and Technical courses to find out whether or not the challenges this study found out are specific to universities or cut across to other similar institutions.

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## APPENDICES

### Appendix 1: Questionnaire for Female Engineering Students.

#### Introduction

My name is Hellen W. Mugo. I am a masters student at the Institute of Anthropology, Gender and African Studies, University of Nairobi studying Gender and Development (M.A.).I am carrying out a study on the Challenges that female engineering students at the University of Nairobi face in their learning environment. You have been randomly selected to take part in the survey as a student in the School of Engineering, UON. I would highly appreciate your time spent on answering the following questions. The information that will be collected is purely for academic purposes and your responses will be treated with strict confidentiality.

**Quest. No.**

**Date Filled:**

**Locality:**

#### Section I: Information on Respondent

Please fill your responses to the following questions:

1. Name of respondent (optional) :
2. Respondent's age (in years):
3. Course that respondent is taking:
4. Marital status:

Single

Married

Divorced

Widowed

5. Respondent's current area of residence.

University hostel

Non-resident student

## **Section II: Information on engineering studies**

6. What made you select engineering as your area of study at the university?

7. As an engineering student, do you experience any challenges in your studies at the university?

Yes

No

If yes, what kind of challenges do you experience?

8. What issues affect your academic performance at the university?
9. What can be done to improve your academic performance at the university?

Thank you for your time and information.



## Appendix 2: Key Informant Interview Guide

### Introduction

My name is Hellen W. Mugo. I am a masters student at the Institute of Anthropology, Gender and African Studies, University of Nairobi studying Gender and Development(M.A.).I am carrying out a study on the Challenges that female engineering students at the University of Nairobi face in their learning environment. You have been selected to take part in the study as a key informant on the basis of your knowledge and interaction with female engineering students. I would highly appreciate your time spent on answering the following questions. The information that will be collected is purely for academic purposes and your responses will be treated with strict confidentiality.

**Date of Interview :**

### Section I: Information on Respondent

1. Name of respondent (optional) :
  
  
  
  
  
2. Respondent's age (in years):

3. Respondent's Gender

Male

Female

**Section II: Information on the Challenges**

4. What is your job designation at the university?
5. For how long have you been teaching at the University of Nairobi?
6. Are there challenges faced by female students at the School of Engineering? If yes, what kinds of challenges do they face?
7. Do these challenges affect the students' performance? If yes, how?
8. What in your opinion should be done to improve the performance and completion rate of female engineering students at the university?

Thank you for your time and information.