GENDER DISPARITIES IN ACCESS TO UNIVERSITY EDUCATION IN KENYA

BY

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E55/9157/2000

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF EDUCATION DEGREE

KENYATTA UNIVERSITY

NOVEMBER 2008
DECLARATION

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

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Gender disparities in access to University
2009/39441
DEDICATION

To God almighty for abundant provision, love and care

And

To my parents Mr. and Mrs. James Bii for

their love, encouragement, patience

And support during the period of my studies

And

To my baby girl

Joy Randi Chebet
ACKNOWLEDGEMENT

The whole process of undertaking this project from the start to its completion proved to be quite difficult. However, several people assisted me in various ways. It is my heart felt pleasure to extend my sincere gratitude to all of them.

Special thanks to my supervisors, Professor F. Q. Gravenir and Dr. Njeri N.N. Ngugi, who patiently and conscientiously guided me through this research. Without their dedication, tireless efforts, encouragement and active interest in my work, this project would not have been successful. Such kinds of people are rare to come across.

Special gratitude goes to the academic and non-academic staff members of the School of Education and Human Resource Development and Department of Curriculum Development for their guidance through out the coursework and research. I would like to mention Mr. Wesonga and Ms. Githogori who have been my ideal role models and a great source of inspiration. I am also indebted to all my colleagues (M.Ed class 2000, more especially Lucy Kande, Nderitu John, Joab Namai, Emong’ole and the late Anthony Kinyua) for their valuable suggestions and contributions throughout the study period.

Deep appreciation go to my parents Mr. and Mrs. James Bii who gave their energy, money and moral support that enabled me move higher in academic horizons. My appreciation goes to my brothers, sisters and cousins for their material and moral support. Not forgetting Milka Chepkirui for editing and printing this work.
ABSTRACT

University education is very important in the development process of any country since it results to a cadre of highly qualified human resource equipped with production skills, vision, attitudes and values necessary for initiating and advancing economic development. Article 26.1 of the Universal Declaration of Human Rights states that 'everyone has a right to higher education' and that 'higher education shall be equally accessible to all on the basis of merit.' The government of Kenya is a signatory to this declaration and hence has to ensure equal accessibility to higher education.

The purpose of this study was to examine gender disparities in access to various undergraduate programmes from 1998/99 to 2001/02 academic years. The study investigated gender disparities in admission to undergraduate degree programmes in Kenyan public and private universities. The researcher investigated factors that led to such disparities with a view of suggesting possible policy intervention strategies to gender disparities in access to university education. The basic significance of the study was to give information on admission by gender to university education to educators and policy makers and hence use it as a basis for policy formulation to address gender imbalances. Literature review was done on enrolment patterns by gender and factors affecting access to education.

The study population covered were undergraduate students admitted in 1998/99 to 2001/2002 academic years in six public and four chartered private universities in Kenya. Also included were senior academic staff members as well as JAB and CHE officials. Data were collected by means of document analysis from published and unpublished official university documents as well as documents from CHE and JAB. Data on factors leading to gender disparities were collected from sampled out senior academic staff members and secretaries to CHE and JAB by means of interview schedules. Thirteen Deans of faculties from public universities and four Dean of faculties from private universities were interviewed. Deans of faculties were sampled out using proportionate random sampling and simple balloting. Data was collected by the researcher from the field and analyzed quantitatively and qualitatively. Data on enrolments were presented in
the form of graphs, tables and percentages. Information gathered from interviews was thematically analyzed and presented in narrative form. This enabled the researcher draw up summary, conclusions and recommendations of the study.

The study found out that female representation in public universities was lower than in private universities. Furthermore, it was revealed that female representation in Science and Technology courses was below 40% in both public and private universities. The gap by gender in admission was almost constant and parallel in the years under study. The number of females admitted to public universities was at 35% and only in the academic year 1999/00 did it increase by 1%. Percentage female admission in Kenyan public universities was below 40% in all universities except Kenyatta University, which admitted over 45% female students in the academic years under study. On the other hand, female representation in private universities was high with Daystar having the highest of 60% and Catholic University of East Africa (CUEA) scored the lowest with 48% admission of female students. Females were mainly enrolled in Education, Art, Home Economics, Nursing and Social Sciences. School based factors, Socio economic and socio cultural factors were cited among the major causes of gender differences in university education.

Based on the research findings it was recommended that the problem of under representation of female students must be tackled right from the primary and secondary levels of education. Sensitizing the society on the importance of female education must be done. The study further recommends that teaching and learning at the primary and secondary levels should be improved especially in sciences, mathematics and technical subjects especially for female students. To achieve equitable access by gender to university education, the Kenyan government must commit the necessary resources and design policies that will open school doors to the disadvantaged. There is need to strengthen national institutions that conduct education policy analysis and research in order to face challenges of high population growth and the need to increase physical facilities and teachers while at the same time improving quality.
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ABBREVIATIONS, ACRONYMS AND SYMBOLS

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<tr>
<td>AAU</td>
<td>Association of African Universities</td>
</tr>
<tr>
<td>CHE</td>
<td>Commission for Higher Education</td>
</tr>
<tr>
<td>CUEA</td>
<td>Catholic University for Eastern Africa.</td>
</tr>
<tr>
<td>FAWE</td>
<td>Forum for African Women Educationalists</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
<tr>
<td>JAB</td>
<td>Joint Admissions Board</td>
</tr>
<tr>
<td>HELB</td>
<td>Higher Education Loans Board</td>
</tr>
<tr>
<td>JKUAT</td>
<td>Jomo Kenyatta University of Agriculture and Technology</td>
</tr>
<tr>
<td>KCSE</td>
<td>Kenya Certificate of Secondary Education</td>
</tr>
<tr>
<td>KCPE</td>
<td>Kenya Certificate of Primary Education</td>
</tr>
<tr>
<td>UEAB</td>
<td>University of Eastern Africa, Baraton</td>
</tr>
<tr>
<td>USIU-A</td>
<td>United States International University, Africa</td>
</tr>
<tr>
<td>WERK</td>
<td>Women Educational Researchers of Kenya</td>
</tr>
<tr>
<td>1</td>
<td>Improved figures of female enrolments are as a result of entry into higher education by private universities</td>
</tr>
<tr>
<td>( )^2</td>
<td>Figures in brackets are for private universities</td>
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CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Background to the Problem

Higher education is one of the ways society selects its future elite and is essential to every
country’s plans for development (Saint, 1992; World Bank, 2000). The quintessence of
university education should be the production of a cadre of highly qualified human
resource equipped with production skills, vision, attitudes and values necessary for
initiating and advancing economic development as well as translating material outputs of
development into overall well-being of the population (Republic of Kenya, 1998).
University education provides top quality research in order to be able to formulate
policies, plan programs and implement projects that are essential to economic growth and

In Africa there has been a notable and remarkable increase in enrolments at all levels of
the education system. During the last two decades African higher education has
witnessed an increase in student enrolments, which grew by 61% between 1980 and
1990, rising from 337,000 to 542,700 (Saint, 1992; UNESCO, 1998). This quantitative
growth was also seen in Kenyan universities whereby there was an increase from one
public university in 1970 to six in the year 2001. Private chartered universities rose from
one in 1970 to six in the year 2002. These are: United States International University,
Catholic University for Eastern Africa, University of Eastern Africa Baraton, University,
Daystar University, Scott Theological College and Strathmore University. Student

This quantitative increase has been hampered by inequity in access to university education that was characterized by differences between geographical areas, males and females, affluent and poor households (Republic of Kenya, 1998). In Sub-Saharan Africa 33% of women compared to 67% of men are enrolled in higher education with lower figures of females enrolled in science and technology (AAU, 2001; UNESCO, 1998; Saint, 1992). Gender share in enrolment in public universities in Kenya was 31.7% females and 68.3% males in 2000/2001 academic year as compared to 52.9% females in private universities. In private universities there are more females than males and this was attributed to socio-economic status whereby the more affluent Kenyans tend to pay for their daughter’s education. The representation of females in private universities was above the fifty percent mark and was seen to indicate either parental or female preference for private universities or that these universities are playing a major role in opening up university education to women or both.

The low enrolments of female students in the science-based courses is a spill-over from secondary school level of education where girls tend to perform more poorly in the science subjects in the national examinations (Kenya Certificate of Secondary
Education). Gender disparities in education and training become more and more pronounced as various cohorts of students move up the ladder. The problem of women's access to education occurs even at primary and secondary education so that by the time admissions to university are done, women are already disproportionately fewer than men.

The average percentage enrolment for girls at the primary level in Kenya was 49.4% in 1999. Girls' enrolment at the secondary level was lower than that at the primary level. Average Percentage of girls at the secondary level was 45.9% as compared to 49.4% at the primary level hence fewer girls move to the secondary level of education (Republic of Kenya, 1998).

Table 1.1 on the next page shows enrolment in public universities by gender from 1990/91 to 1998/99 academic years.
Table 1.1: Enrolment at Kenyan Universities by Gender 1990/91 – 1998/99

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MALE</th>
<th>FEMALE</th>
<th>TOTAL</th>
<th>FEMALE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990/91</td>
<td>24,038</td>
<td>10,187</td>
<td>34,225</td>
<td>30.0</td>
</tr>
<tr>
<td>1991/92</td>
<td>26,035</td>
<td>10,602</td>
<td>36,637</td>
<td>29.0</td>
</tr>
<tr>
<td>1992/93</td>
<td>28,293</td>
<td>10,921</td>
<td>39,214</td>
<td>28.0</td>
</tr>
<tr>
<td>1993/94</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1994/95</td>
<td>28,631</td>
<td>9,442</td>
<td>38,073</td>
<td>24.8</td>
</tr>
<tr>
<td>1995/96</td>
<td>29,421</td>
<td>12,699</td>
<td>39,327(2,763)</td>
<td>30.1*1</td>
</tr>
<tr>
<td>1996/97</td>
<td>28,367</td>
<td>12,985</td>
<td>37,973(3,37902)</td>
<td>31.4*1</td>
</tr>
<tr>
<td>1997/98</td>
<td>32,323</td>
<td>14,864</td>
<td>43,591(3,646)2</td>
<td>31.5*1</td>
</tr>
</tbody>
</table>


It was noted that university enrolment for female student was at the 30% mark with an increase of 1-2% due to entry of private universities.

It was quite clear that gender imbalance started right from primary level continues to the secondary level and becomes more pronounced at the university level. It is noted that at the university level female student enrolment was at the 30% mark a difference of 19% from those enrolled at the primary level. Gender imbalance starts right at the primary level and increases as one rises up the educational ladder. At the university level females were below the fifty percent mark and only with the entry of private universities that an improvement of one to two percent is noted.
The World Conference on Education for All held in Jomtien in 1990 emphasized that it was an urgent priority to ensure and improve the quality of education for women and girls and to remove every obstacle that hampers their active participation. This was reaffirmed in the Dakar Platform of action in the year 2000 and affirmed again in the same year as Millennium Development Goals on education. It was also discussed during the World Conference on Higher Education, held in 1998 in Paris, which stated that the key function of higher education is to enhance participation and promote the role of women. These conferences were reinforcing article 26 of the Universal Declaration of Human Rights, which states that “everyone has a right to higher education” and that “higher education shall be equally accessible to all on the basis of merit.” Hence higher education and especially university education is expected to assume leadership in changing the society's views on women's roles and participation in education apart from its role of creating knowledge through research, and human resource development through education and training (UNESCO, 1998; Gachukia, 2001).

In response to this the government of Kenya has had initiatives to increase and equalize access to university education. Students who were unable to meet the costs of university education were provided loans and scholarships through the Higher Education Loans Board (HELB) and this enabled them enroll at the university level. In Kenya efforts have been put in place to increase the representation of women in university education. In 1992 Joint Admissions Board made proposals that would provide gender consideration in university entrance. The university cut-off points were lowered from sixty-nine points to sixty-eight points for female students. This raised the number of female students in public
universities yet their enrolment was still very low despite weighting implying other strategies and more research has to be carried out in this area.

Women were still under-enrolled even after this gender consideration; enrollment is still at thirty percent mark. Students were admitted to public universities by considering the cut-off points, cluster points for that degree program and also considering the candidate's gender. In an effort to increase access to university education the Government encouraged both private sector and non-governmental organizations to invest in educational facilities at all levels. At the university level there are private universities, parallel and special programs which were introduced at public universities. Distance learning has also been introduced for example African Virtual University that has helped in education access and technology in Kenya and East African region (UNESCO: 1998). The introduction of these programmes has on the other hand reduced the government's expenditure on university education. Tan and Mingat (1992) argued that although private financing may reduce access to those who do not afford it helps to mobilize resources thus increasing public funds that can be used for expanding coverage especially for women's education at all levels. Hence the Kenyan government should ensure that whatever is saved from private financing should be used to increase coverage of women's education and the disadvantaged.

Public universities standardized their admission procedures through the Joint Admissions Board (JAB). The admission entry requirement is that the candidate must have a mean grade of C+ in Kenya Certificate of Secondary Education (KCSE) and must meet specific
degree program cluster points as determined by the available capacity for that degree in that particular year. On the other hand private universities admission requirements is that one must have a mean grade of C+ and determined by the capacity of that degree program in that particular year. This brought about differences in admission criteria in public and private universities, which in turn makes access to these universities different. A study by World Bank (1994) stressed that; strategies must be multi-faceted if they were to be effective in increasing representation in higher education for women, minorities, students from low income families and other economically disadvantaged groups. These strategies include improving primary and secondary education for these groups, increasing their demand for higher education, diversifying institutions to serve various groups, subsidizing their studies and using admissions criteria to correct inequalities.

With this background, how were females enrolled at Kenyan Universities, what were the factors behind this trend and what strategies and recommendations could be put into place to curb gender differences?

1.2 Statement of the Problem

The government of Kenya has expressed commitment to providing equal accessibility to university education. Despite the efforts by the government and JAB gender consideration to admission of female students and provision of loans by HELB, establishment of private universities, as well as parallel and special programmes; university education is still faced with challenges and shortcomings of widening gender differences. The issue of gender differences is a transitional problem that starts at the
primary and secondary levels and becomes wider at the university level.

The development and success of any country depends on optimum utilization of its human resource. If Kenya is to exploit and utilize its resources it has to develop its human resource base to the highest point. The Kenyan government also needs to provide increased education and training for girls and women in science and technology. There was need to look at the issue of gender disparities and find out the factors that lead to this problem and give suggestions on how to curb the problem.

From the background female and male students were represented unequally in the universities. What was the admission statistics by gender per degree program in Kenyan universities; what are the factors that lead to gender differences and what should be done to minimize gender differences in Kenyan universities?

1.3 Purpose of the Study

The purpose of this study was to examine gender disparities in access to university education in various undergraduate programs. The patterns of admission by gender in Kenyan public and private universities to various degree programs were examined. Where there were differences the researcher attempted to investigate the causes with a view to suggesting practical and appropriate intervention measures.

The study was based on the following objectives

1. To establish the extent of gender disparities in admission to undergraduate degree programmes
2. To examine the factors that influenced gender disparities in access to undergraduate degree programmes.

3. To propose intervention strategies for gender disparities in access to university education.

1.4 Research Questions

The researcher aimed at answering the following questions:

1. How males and females were admitted to various degree programmes at the university undergraduate level?

2. What are the factors that lead to gender disparities in access to university education?

3. What intervention strategies can be put into place to curb gender disparities in access to university education?

1.5 Significance of the Study

This study is significant because:

- It gives policy makers at the ministry of education, CHE, JAB and at the university level a basis for policy formulation. The information on representation by gender in undergraduate degree programmes could inform policy makers on how to or not to adopt certain admission policies.

- Policy makers at the ministry of education, CHE, JAB and at the university level will use it as a basis for addressing gender imbalances at primary, secondary and university levels.
The possible intervention strategies could help policy planners to adapt programmes for redressing imbalances in access to university education.

The study goes a long way towards increasing data needed by policy makers to make national economic decisions about university education and the education sector as a whole.

This study will contribute to literature in the field of higher education.

1.6 Scope and Delimitations of the Study

Data on enrolments was collected from JAB and from each private university per degree programme.

Data on admission records for public universities were collected from JAB while for private universities were collected from CHE and also from individual universities that did not have records at CHE due to time and financial constraints.

Collection of data was limited to universities even though the issue of gender disparity starts at primary and secondary level.

Strathmore University was not included since it was given a charter in the year 2002 and the researcher was studying student enrolments up to 2001/2002 academic year.

Scott Theological College was left out on the basis that it is purely theological and the researcher was able to capture this in University of Eastern Africa, Baraton and Catholic University of Eastern Africa.
1.7 Basic Assumptions of the Study

- All respondents responded freely and fairly to the questions without fear or bias.
- Gender differences existed in university enrolments by faculties of study.
- Measures and strategies could be applied and implemented to achieve gender parity.

1.8 Theoretical Framework

Access to university education in Kenya has become extremely competitive due to demographic pressure and increased demand. This study was based on the theory of meritocratic selection and the theory of justice.

The theory of meritocratic selection assumes that common values can be shared across social strata and thereby integrates what might otherwise be divisive social arrangements (Prewitt, 1974). The Kenyan education system has common values pegged on achievement, which are shared and accepts merit selection for pupils to progress to different levels of education. Apart from this, for one to be selected to a school or to advance to a different level of education a person must have qualified. Hence to progress beyond class eight or form four one must have passed examinations and will be chosen to another level by merit.

The theory of justice states that moral judgments must be based on the processes by which distribution is attained rather than the final distribution itself (Atkinson, 1980). There is need to look at the process of the education system and not the differences between the outcome of individuals. In this case educational inputs should be equally and efficiently distributed. Educational inputs include teachers, curriculum, textbooks,
instructional materials, facilities and hours of exposure to learning. All these will determine the result of the learning output.

Atkinson (1980) pointed out that even if individuals started equally, there may be differences in the outcome since individuals have differing advantages arising from natural abilities, family background, socio-cultural and political factors. This already puts inequality of opportunity and therefore to achieve equality of opportunity deal with issues that can be amendable to social action. School factors such as: school facilities, textbooks and qualification of teachers can be equally distributed by having proper public policies that will equally distribute school inputs and thus achieve equity.

Chege (1994) averred that girls and boys in Kenyan schools have equal rights to education they are exposed to the same educational opportunities, read the same books and are taught by equally qualified teachers (there is equal sharing of school resources). She points out that the notion of equal educational opportunities is narrow in the sense that it only refers to formal aspect of education; other circumstances that influence acquisition of education on gender lines need consideration. These include socio-cultural factors, economic factors, political factors and also family background that need to be put into consideration. Formal education takes a wider context of general and informal education.

1.9 Conceptual Framework

For one to enroll in school or a particular degree programme there are several factors which influences access. Psacharapolous (1985) averred that broadening access to
schools is not just a matter of increasing schools. School participation is an interaction of supply, demand and learning process. Supply refers to both the availability and quality of school facilities, materials and teachers. Demand on the other hand is based on decisions that parents make concerning the opportunity of schooling and the influence of such factors.

Access to education is determined by several factors namely: Socio-economic factors, School-based factors, Socio-cultural factors, political factors and personal factors.
FIGURE 1: Factors affecting access to University Education

- **Pupil attributes**
  - Age
  - Gender
  - Attendance rate
  - Cognitive ability
  - Future aspirations
  - Family background
  - Socio-cultural factors

- **Learning opportunities**
  - Number of schools
  - School type
  - Curriculum

- **School resources**
  - Text books
  - Facilities
  - Curriculum
  - Teacher (female/Male teachers)
  - Hours of exposure to learning
    a) Pupil/teacher ratio

- **Student performance**
  - KCPE
  - KCSE

- **University Access**
  - Merit criteria
  - Non-merit criteria (quotas, weighting)
  - Degree program cluster points
Pupil attributes affect student's access to learning opportunities and the qualitative context of learning. Learning opportunities and the quality of learning experience, individually and collectively influence performance of students in examinations used for selection into subsequent level of pre-university education. Selection for university admission is itself mainly dependent on performance in the final pre-university examinations, in this case Kenya Certificate of Secondary Education (KCSE). Students are selected to university by merit depending on their qualifications, subject cluster points and the available capacity for that degree program. Gender disparity at the university level needs to be seen in relation to what happens in the earlier levels of education system particularly at the secondary level. Due to a variety of demand and supply factors, including socio economic, cultural influences, school factors, female participation (in terms of access, achievements and enrolment) is lower than that of males. These disadvantages translate to inequitable selection and participation at the university level. Differences in university education outcomes by gender are understood in the context of practices shown in the conceptual framework.

2.0 Definition of Terms

Access: Availability of opportunities at the university level for all those who are eligible and meet the criteria. For the purpose of this study access can be defined in terms of admission distribution and utilization of opportunity in undergraduate degree programs by gender.
Equity: Equality of opportunity to attend university. The equality expected here is whereby the percentage of students by gender is a fair proportion of the total student population.

Gender: Social categorization of human activities and behavior as either masculine or feminine. Gender is a social construct conceptualized in terms of the roles that are allocated to female and male human beings in a way that positions them as boys and girls and as men and women in respective communities.

Public universities: Government established universities and are open to all citizens who meet the minimum set of requirements.

Private universities: Universities that are run by individuals or organizations and they do not rely on government funds.

Short-term: Refers to recommendations that can be implemented and the expected results achieved within two years.

Medium-term: Refers to recommendations that can be implemented and the expected results will be achieved within five years.

Long-term: Refers to recommendations that can be implemented and the expected results will be achieved within ten years and above.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this section literature was reviewed concerning student enrolment patterns by gender and factors affecting access to education.

2.2 Student Enrolment Patterns by Gender

UNESCO World education report 1993 studied enrolment rates in eleven countries in Africa and revealed the problem of gender differences in higher education. Female enrolment ratio was 46% in Botswana, 18% in Ethiopia, 22% in Ghana, 31% in Kenya, 28% in Malawi, 64% in Namibia, 26% in Nigeria, 28% in Tanzania, 13% in Uganda, 28% in Zambia and 32% in Zimbabwe. From this it can be noted that with the exception of Namibia that has more than 50% female enrolment the rest of the countries revealed gender differences.

Women in most parts of the world have trailed behind men in educational access. Abagi (1997) argued that at the tertiary level gender gap exists both in terms of participation and areas of specialization. Odaga and Heneveld (1995) identified the central problems of female education as access to school, attainment in years of schooling, academic achievement and accomplishment after school. These problems are inter-related and are influenced by in and out of school factors.

Kanake (1998) found out that gender imbalances in higher education systems are
manifested in enrolments, academic performance, staff training, promotion and social relations. In addition gender differences were also seen in declining female representation as learners' progress up the education pyramid. For example in Kenya 49% of the students at the primary level were females, 46% at the secondary level and 28% at the university level, public universities (Republic of Kenya, 1998). The issue of gender disparity as shown by the percentages is a transitional issue that starts at the primary and secondary levels and becomes more pronounced at the university level.

A study done by World Bank (1994) found out that despite the potential for women's higher education to economic growth a gender gap in enrolments at the tertiary level still exists especially in sub-Saharan Africa, Middle East and South Asia. In 1988 Latin America had the highest female enrolment of 16.2%, East Asia 14.6%, Middle East and North Africa 11.8%, South Asia 2.0% and sub-Saharan Africa 1.1%. In Latin America female participation in higher education is approximately equal to that of males although significant differences persists across fields of specialization for example in Chile 6% of engineering students were females and 90% of the nursing students were females. This showed that the problem of gender differences was found in most parts of the developing world. Females are under-represented especially in Science and Technology courses in most parts of the world hence it is not a problem unique to Kenya alone. Males are also under-represented in areas of Nursing and Home Economics courses.

A report during the World Conference on Higher Education held in Paris in 1998 showed that in Sub-Saharan Africa 33% of women compared to 67% of men were enrolled in
higher education and out of these a very low percentage enroll in science and technology (UNESCO, 1998). The same report cited that unequal education opportunities within countries are based on sex, regional, socio-economic factors and sometimes ethnic-background. Differences based on sex were seen as one of the greatest hindrances to development compared to the other disparities.

During a conference held in Nairobi by Association of African Universities (2001), it was discussed that access to tertiary education was more difficult for women than men this was shown by their enrolments for example in Togo 13% of the total enrolments were females, Tanzania 16%, Central African Republic 11% and Namibia 61% (AAU, 2001). This implied that gender differences was very high in most of the developing countries and hence was seen as a challenge to the development of higher education. Gender differences are the most common form of inequality in Africa as argued by AAU (2001:123). One deep-rooted aspect of inequality in education in Sub-Saharan Africa is inequality between sexes.

-Kenya being part of the developing world the researcher set out to investigate if there were any similarities or differences in enrolments by gender as compared to other developing countries. Since the issue of gender differences was experienced in different parts of the world, there was need to find out gender differences in Kenyan Universities and what factors were causing these gender differences and it was important to find out what possible intervention strategies that could be put in place.
2.3 Student Enrolment Patterns by Gender in Kenya.

In Kenya, female representation at public universities was very low and there was under enrolment in Science, Technology and professional courses (Nungu, 1997; FAWE, 1998; Republic of Kenya, 1998). In 1994 female representation at public universities was 20% having dropped from 29% in 1990. At the university level 70% of the women were mainly enrolled in art-based courses (Ominde, 1997).

A study done by Nungu (1997) on public universities showed that there was a low participation by women. In the 1993/94 academic year at the University of Nairobi 27.2% were females in the faculty of arts, 24.6% in the faculty of law, 7.9% faculty of engineering and 24.5% faculty of medicine. At Kenyatta University in the same academic year 98% were females in the faculty of Home Economics, 38.7% in the Faculty of Education arts and 25% in the faculty of Education (science). At Moi University 16% of the students in the faculty of Forest Resource and Wildlife Management were females, 27% in the Faculty of Science and 2% in the Faculty of Technology. This showed great gender differences in most of the faculties in our public universities. The researcher would like to find out the current situation in enrolments by gender in different faculties of study.

Gender share in enrolment in public universities in 1997/98 was 29.2% females and 70.80% males as compared to 50.3% females in private universities. While in the year 2000/2001 female students in public universities comprised of 31.7% as compared to 52.9% in private universities (Republic of Kenya, 1998, 2001). There is a variation in the number of women students enrolled at different universities with Kenyatta University having the highest population of 38.9% and JKUAT having the lowest at 20.1%, this
could be explained by the fact that JKUAT is mainly science-oriented. This has serious implications considering the importance of higher education as a right for all individuals. Variations in enrolments by gender in these universities showed the need to conduct the study in all public and private universities in Kenya.

Women are under-enrolled in Science based courses. The largest numbers of women were enrolled in Education and Art faculties. This pattern of enrolment has serious implications for women’s access to scientific careers and for management of crucial aspects of women’s daily lives that relate to science. The table 2.1 below showed student enrolment by selected courses and gender. This showed that enrolment of women was below 30% in most courses except education and art, which are 37.7% and 34.9% respectively. This percentage was still below the fifty percent mark.

**TABLE 2.1: Enrolments in public universities by selected courses and gender 1998/99**

<table>
<thead>
<tr>
<th>Course</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>%Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>8,749</td>
<td>5,289</td>
<td>14,038</td>
<td>37.7</td>
</tr>
<tr>
<td>Arts</td>
<td>3,568</td>
<td>1,910</td>
<td>5,478</td>
<td>34.9</td>
</tr>
<tr>
<td>Commerce</td>
<td>1,672</td>
<td>506</td>
<td>1,668</td>
<td>30.3</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2,530</td>
<td>833</td>
<td>3,363</td>
<td>24.8</td>
</tr>
<tr>
<td>Engineering</td>
<td>2,435</td>
<td>244</td>
<td>2,679</td>
<td>9.1</td>
</tr>
<tr>
<td>Medicine</td>
<td>729</td>
<td>237</td>
<td>966</td>
<td>24.5</td>
</tr>
<tr>
<td>Science</td>
<td>3,677</td>
<td>1,000</td>
<td>4,677</td>
<td>21.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22,850</td>
<td>10,019</td>
<td>32,869</td>
<td>30.5</td>
</tr>
</tbody>
</table>

*Source: Gachukia E.N. (2001), Conceptualizing gender issues in private university education.*

A study carried out by Professor Lenga and Serah Wanycky in the University of Nairobi and JKUAT indicates that most women tend to pursue careers in nursing, secretarial, catering and housekeeping. It was found out that though a big number have in the recent past joined the labor force relatively few girls are pursuing courses in Science, mathematics and technical fields in institutions of higher learning. At the university level fewer women are enrolled in engineering and other technology based courses. In 2000/2001 academic year one female student was admitted to study agricultural engineering in JKUAT against thirty three men, one female against twenty one men in computer science. JKUAT offering technology based courses admitted 658 students 22% female and 78% male (East African Standard, 16th February, 2002).

Eisemon (1993) stated that among thirty private universities in seven Sub-Saharan countries in Africa, eleven of these were in Kenya followed by Zaire with seven. Private universities in Kenya accounted for 14% of the student enrollment in universities in the academic year 1999/2000. USIU enrolls the highest number of students in private universities and more women (51.2%) than men (48.8%) are enrolled at the undergraduate level. Even though women have a positive enrolment they were still disadvantaged when it comes to enrolment in Business oriented courses (Gachukia, 2001; Republic of Kenya, 2001).

Odaga and Heneveld (1995:14) summarized the overview of the level of female participation in education below:
Although tremendous gains have been made since the 1960's in most places participation levels of girls remains lower than boys. Repetition, dropout and failure was very high among girls. ....... The small numbers of girls who remain in the system tend to be directed away from Science, Mathematics and Technical subjects which are in high demand in the labor market. Consequently female participation in the labor market is limited, with women concentrated in the informal market.

Several studies have been done in Kenya on gender differences most of these studies are done on selected universities and faculties and none has been done on the current gender differences in the year 2001/2002 academic year. These studies have only been done in public universities and rarely private universities especially by faculties. The researcher carried out a research on public and private universities so as to get data on unique differences in enrolments in each particular university and to know the current differences in enrolments.

2.4 Factors Affecting Access to Education.

For one to enroll in school or a particular program there are several factors which influences access. Psacharapolous (1985) averred that broadening access to schools is not just a matter of increasing schools. School participation is an interaction of supply, demand and learning process. Supply refers to both the availability and quality of school facilities, materials and teachers. Demand on the other hand is based on decisions that parents make concerning the opportunity of schooling and the influence of such factors. Access to education is determined by several factors namely: Socio-economic factors, School-based factors, Socio-cultural factors, political factors and personal factors.
2.4.1 Socio-economic Factors

DFID (1993) cited that socio-economic factors are the most influential in adversely affecting female participation in education, especially in the rural areas. Other factors identified were Socio-cultural, religious, health and legal factors.

Winkler (1990) in his study on higher education in Latin America found out that unequal access to higher education was due to high private costs of education and inadequate financing mechanism. The high costs will only be afforded by the high and middle-income families while the low-income families would be left out. Lockheed and Verspoor (1991) argue that children from poor families are less apt to enroll in school. He attributed this to child labor in order to provide for the family, lack of finances and malnourishment. Graham-Brown (1991:51) points out that:

Educational provision is limited by lack of funds, so the poorest and the most marginal people are least likely to access education. Poor quality education also limits the numbers who reach the higher grades. Thus effective education remains largely the preserve of the elite.

Most of the low-income families are also in constant movement in search of jobs and this affects education of their children as it leads to frequent repetitions and erratic attendance. This has even more impact on the girl-child since with limited finances for some communities a boy would be educated and the girl is left at home or married off as a source of money to educate the boy.

Demand by the labour market also determines access to university education. If the labor market offers more better paying jobs for the graduates this acts as an incentive to make sacrifices in order to keep children in school. For one to access a particular degree
program then the first question is on job prospects. Hence access to education depends on availability of jobs. Increasing women’s demand for higher education for instance in part requires actions in the labour market, fair employment and family policies to make employment opportunities more attractive for women graduates (World bank, 1994).

2.4.2 School-based Factors

A study conducted by DFID (2005) identified the cost of schooling and poor school environment as the challenges facing girls’ participation in education.

The quality of primary and secondary education affects access to higher education (World Bank, 1990). The quality of education offered at primary and secondary levels will determine the performance of a student during the final exams. This will be used to determine the qualifications of a student to a degree program. Provision and efficient use of physical facilities, textbooks, teaching materials and the qualification of teachers determine the quality of education.

Ulrich (1988) argued that the transition from secondary to tertiary institutions also determines access. The period of time spent to enter these institutions could lead to drop outs or enrolling in institutions outside the country of residence. Women are also affected due to marriages or pregnancy hence hindering their enrollment and performance in these institutions.

Distance from home to school is also another factor that determines access (Lockheed, 1991; Graham-Brown, 1991). This could be due to difficulty or expense of transport especially to those in rural areas, females and the physically handicapped.

World Bank (1990; 1993) attributed low levels of coverage to inflexibility in admission standards and lack of knowledge on how to apply. Applicants should have the right
information and procedures on application. Career information, role models of successful women, flexible models of attendance (part-time studies, short-courses and credit systems) and separate facilities for cultural practices could help increase the number of women in higher education.

Eshiwani (1983) argued that among other factors which affect achievement of girls are that their schools had much poorer equipment, less qualified teachers and more limited curricular than schools attended by boys. Teachers have a potential as role models so he recommended an increase of female science and mathematics teachers as a strategy of raising achievement among girls.

Factors that affected learning of science subjects and hence poor performance by girls in national examinations include investment in teaching and learning resources that had been low and learning facilities had been limited hence many students avoiding the subjects. Researchers argue that development of attitudes towards science, mathematics and technology based subjects is a process that must begin in the early stage of a child’s development (East African Standard, 16th February, 2002).

Obura (1991) averred that textbooks contributed to reinforcing the hidden curriculum that is bound to influence negatively on girl’s attitudes towards educational achievements. Textbooks have cognitive and affective effects in that they shape teaching and learning. Obura found out that the images of females are considerably fewer in number than that of males and the images of females are negative in relation to the images of males. The images of males are striking, powerful and positive and hence had a strong positive impact on males. It is important to use textbooks to facilitate formation of positive images in all learners.
2.4.3 Socio-cultural Factors

A research study carried out by DFID (1993) in Sub-Saharan Africa identified customary early marriage, the incidence of early pregnancy, heavy domestic duties of females (especially in rural areas), a generally lower regard of female life and a cultural bias in favour of males were cited to adversely affect participation of girls and women in formal education.

Cultural factors inhibit girls' access to education (Graham-Brown, 1991). Attitudes to female roles in the family and marriage affected girls' access to and achievement in education.

In some communities there was a reluctance to keep girls in school on the grounds that it is a waste of money since they get married and move out of the parent's household. Parents also control girl's sexuality due to many dangers that they face outside home boundaries for example rape and pregnancy. This in the end reduces their enrolments in schools.

Eshiwani (1985) noted that girls are more likely to be burdened with household tasks that take precedence over schoolwork for them than their brothers.

2.4.4 Historical Factors.

Kanake (1998) attributed historical factors among others to gender differences in academic and teaching staff in public universities. Colonial and missionary education mainly educated men because they were useful to the Europeans. Apart from this there were more boys' schools than girls' schools and they had different curriculum. This system of education was inherited from colonial times and has influenced education for women and girls up to today.
Heneveld and Odaga (1995) also attributed the limited participation of females in education as partly due to historical precedents. Non-indigenous education was introduced through Islam and Christianity and was later taken over by the colonial government. The education of women was not important and only trained them as housewives and mothers while males became clerks and church officials. The type of education women received limited them to their career choices which were nursing, health care professions and education primarily teaching and of course marriage. This led to limited social demand for female education in Sub-Saharan Africa. The exclusion of women from formal education during the colonial era has been reflected in the low levels of female participation to date.

2.4.5 Political Factors

DFID (1993) argued that government policies exist for example Universal Primary Education and equal educational opportunities in terms of gender but the political will to carry these through seems to be weak in terms of severe economic constraints.

Graham-Brown (1991:55) argued that government policies determine the attitude people have to education. Graham-Brown notes that:

A government which actively encourages and prioritizes education not only for the elite... may legitimize education for those who previously thought it was not for them or their families...Government policies provoke skepticism about education if it is perceived as irrelevant to people's needs and of poor quality; if its benefits are seen to be reserved for those who are already privileged; if it is deliberately segregated along class or racial/ethnic lines; or lastly if the wider economy cannot offer some economic and social rewards to its graduates.
Government policies would help influence people’s perception on the importance and benefits of education of both boys and girls. Hence political factors will determine whether people will see the benefits of education and hence would influence their demand and hence access.

2.4.6 Personal Factors

Williams and Gordon (1977) argued that personal preferences and willingness rate determines one’s access to higher education and enrollment to a particular degree program. While one will find school enjoyable the other will resent the constricting environment of the school and this will determine access to higher education. Intellectual ability limits one’s performance and hence enrollment to the subsequent level.

Perception of the benefits of higher education especially earnings affects access to higher institutions.

Eshiwani (1983) noted that girls achieve less than boys because they have less favorable attitudes and little aspirations for science and mathematics. This affects their enrolment for science-based courses at the tertiary level.

2.5 Summary

This literature reviewed showed that there were differences in enrolments by gender in university education but what is the current situation in Kenyan universities. What are the factors that contributed to gender differences in Kenyan universities? With the changes in admission policy and the increase in the number of chartered private universities, has there been any change currently in the enrollments by gender in Kenyan public and chartered private universities? The literature reviewed showed that there is an imbalance
in access to university education by gender and females who are admitted are mainly enrolled in art and education oriented faculties. There is need for more action and interventions to suggest simple but cost effective strategies for closing the gender gap. In order to suggest sustainable strategies this research has explored deeper into enrolment trends and factors that explain female’s persistent limited access to education compared to men.

The studies done were limited in that they dealt with sampled out public universities and sampled out degree programs. Differences between universities and degree programs are obscured if sampled out. Although a number of studies on this area had been done, in-depth research such as this one helps understand the problem of gender imbalances and reveal differences among universities and degree programs. No known similar study has been done in Kenya involving all the public universities and chartered private universities. The researcher found the need to carry out a study on all the universities in Kenya in order to provide comprehensive data on gender differences.
CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discusses the procedures for data collection and analysis. Focus is on, research design, study population, description of research instruments, piloting, procedures for data collection and analysis.

3.2 Research Design.

Survey design was adopted in conducting this study. Survey was appropriate because according to Kothari (1985) survey is concerned with describing, recording, analyzing and reporting conditions that exist or existed. In addition, Engelhart (1972) argued that survey methods are widely used to obtain data useful in evaluating present practices and in providing basis for decisions.

3.3 Study Population

The study was conducted on Kenyan universities, both public and private. There are six public universities in Kenya namely: University of Nairobi, Kenyatta University, Egerton University, Moi University, JFUAT and Maseno University. Four chartered private universities will be studied namely: United States International University, University of Eastern Africa Baraton, Catholic University of Eastern Africa and Daystar University. Research was done on the six public and four private universities so that the identified factors which are proved valid on admission statistics can be dealt with at a national level.
The population that was studied included all undergraduate students as well as senior academic staff and officials of CHE and JAB. This involved those students admitted during 1998/99 to 2001/2002 academic years. The whole population was selected for the study in order to have comprehensive data showing the situation on gender differences in Kenyan universities. Table 3.1 below shows Universities and the number of faculties at the time of research.

Table 3.1: Universities and number of faculties in 2002

<table>
<thead>
<tr>
<th>UNIVERSITY</th>
<th>NUMBER OF FACULTIES STUDIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nairobi</td>
<td>14</td>
</tr>
<tr>
<td>Kenyatta</td>
<td>6</td>
</tr>
<tr>
<td>JKUAT</td>
<td>4</td>
</tr>
<tr>
<td>Egerton</td>
<td>8</td>
</tr>
<tr>
<td>Moi</td>
<td>10</td>
</tr>
<tr>
<td>Maseno</td>
<td>3</td>
</tr>
<tr>
<td>USIU</td>
<td>2</td>
</tr>
<tr>
<td>UEAB</td>
<td>7</td>
</tr>
<tr>
<td>CUEA</td>
<td>4</td>
</tr>
<tr>
<td>Daystar</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
</tr>
</tbody>
</table>
3.4 Sample and Sampling Technique

Senior academic staff in the universities were interviewed together with secretaries to JAB and CHE. Deans of faculties were sampled out while eleven Academic Registrars and each secretary to JAB and CHE were interviewed.

Deans of faculties were sampled out using stratified random sampling. Universities were stratified using two categories: private and public universities and proportionate random sampling was used to select faculties in which the deans were interviewed. Simple balloting was used to establish specific faculties in which deans were interviewed. There are sixty faculties in these institutions and a total of eighteen deans of faculties will be interviewed comprising 30% of the population, which was appropriate for this study according to Gay (1976).

The table 3.2 below shows the number of subjects who were interviewed in public and private universities:

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>PROPORTION</th>
<th>RESPONDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public universities</td>
<td>0.73</td>
<td>13</td>
</tr>
<tr>
<td>Private universities</td>
<td>0.267</td>
<td>5</td>
</tr>
</tbody>
</table>

3.5 Research Instruments

The basic research instruments used in this study were document (content) analysis and interview schedule. The research instruments were developed by the researcher to suit the requirements of the study. According to Engelhart (1972) relevant data in survey may be collected by means of questionnaire, interviews, systematic observations or by content
3.5.1 Document (content) Analysis

Document or content analysis was used to examine data on published and unpublished university documents. This enabled the researcher collect data on admission by gender (Appendix v shows the documentary analysis sheet) and also facilitated a thorough inspection of admission to different undergraduate degree programs. The documents used included student admission records from respective universities JAB and CHE that enabled the researcher make a survey of the admission by gender per degree programme.

3.5.2 Interviews

Two interview schedules were used in the study to collect data on the causes of gender differences, suggested strategies and intervention measures that can be put into place. One was administered to deans of faculties and Academic Registrars and another was administered to JAB and CHE secretaries. Interviews are advantageous in that they attain the highest response rate of any survey technique and allow extensive in-depth questioning about complex issues (Gay, 1992). Open-ended questions were used so as to allow respondents to express themselves freely and on the other hand allow the researcher an opportunity to probe and give explanations and clarifications where necessary.

3.6 Piloting

A small sample of senior academic staff members was used to carry out piloting of the interview schedule. Feedback from the pilot study was used to rewrite questions in the interview schedule that were apparently unclear. The pilot study helped determine
how the resulting data can be quantified or analyzed in the manner intended.

The most important type of validity in this study was content validity. Content validity is the extent to which a measuring instrument adequately covers the concept under study (Wiersma 1980). Content validity was determined by expert judgment (Gay, 1992). This involved careful scrutiny of the interview schedule and document analysis collection sheet during seminars, by supervisors and the researcher. Comparison between what was included in the instruments given its intended purpose and what actually was included helped in judgmental analysis of the measuring instruments. Alterations where necessary, were made to the final copy of the instruments after suggestions given during seminars and also piloting.

A correlation co-efficient of the split half was determined to get reliability of the research instrument. A correlation co-efficient of 0.754 was arrived at that was a relatively high correlation, which meant that the instrument was reliable.

3.7 Data Collection Procedure

After obtaining a permit to carry out research from the legal authorities, the researcher took a letter of introduction to vice chancellors of the universities under study in order to be allowed to carry out research in their institutions. The researcher collected information on admission statistics from records in the universities, JAB and CHE by filling in the documentary analysis collection sheet for each university. Interview schedules were administered to the selected members of academic staff by the researcher who wrote
down answers given by the interviewees.

Data collection took place between January and June 2003 due to the long distances covered and also getting permission from the vice chancellors. The major problem faced during this study was bureaucracy. It took over two months in each university before official permission was granted to get access to student admission records and carry out interviews. Poor record keeping was also another problem in one university as it took one and a half months to assemble the required documents.

3.8 Methods of Data Analysis

Quantitative and qualitative data analysis techniques were used. Data collected from documents on student admission statistics by gender were subjected to quantitative statistics. It was edited, coded and then computer processed. This was then presented in the form of simple tables, graphs and percentages to facilitate quick reference for analysis.

Data collected from interviews were analyzed qualitatively. Responses were organized descriptively into themes, coded and presented in discussion, narrative form and citations. This enabled the researcher an easy way to discuss the findings, draw conclusions and make recommendations.
CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter deals with presentation, analysis and discussion on data gathered from the field. The major findings of the study as they relate to each of the research objectives are presented. The following are the research objectives that guided the study;

1. To establish the extent of gender disparities in admission to undergraduate degree programmes.
2. To examine factors that influence gender disparities in access to undergraduate degree programmes.
3. To propose intervention strategies to curb gender disparities in access to university education.

Data from documentary sources on student admission statistics were subjected to quantitative statistics and presented in the form of graphs, percentages and tables. Data collected from interviews were examined for completeness and relevancy then analyzed qualitatively in narrative and discussion form.

4.1.1 Admission Trends in Public Universities.

Data showing overall admission trends in undergraduate degree programs in public universities revealed a general under-representation of female students. These cut across all the six public universities under study: Kenyatta University, University of Nairobi,
Egerton University, JKUAT, Moi University and Maseno University. Table 4.1 shows admission trends to public universities by gender.

Table 4.1: Public University Admission trends by Gender 1998/99 – 2001/02

<table>
<thead>
<tr>
<th>ACADEMIC YEAR</th>
<th>UNIVERSITY</th>
<th>1998/99 Male%</th>
<th>Female %</th>
<th>1999/2000 Male%</th>
<th>Female %</th>
<th>2000/2001 Male%</th>
<th>Female %</th>
<th>2001/2002 Male%</th>
<th>Female %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public universities</td>
<td>65</td>
<td>35</td>
<td>64</td>
<td>36</td>
<td>65</td>
<td>35</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Nairobi</td>
<td>68</td>
<td>32</td>
<td>68</td>
<td>32</td>
<td>66</td>
<td>34</td>
<td>65</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Kenyatta</td>
<td>52</td>
<td>48</td>
<td>53</td>
<td>47</td>
<td>55</td>
<td>45</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Moi</td>
<td>65</td>
<td>35</td>
<td>65</td>
<td>35</td>
<td>66</td>
<td>34</td>
<td>66</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Egerton</td>
<td>68</td>
<td>32</td>
<td>66</td>
<td>34</td>
<td>68</td>
<td>32</td>
<td>68</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>JKUAT</td>
<td>77</td>
<td>23</td>
<td>80</td>
<td>20</td>
<td>80</td>
<td>20</td>
<td>78</td>
<td>22</td>
</tr>
</tbody>
</table>

(Admission to Maseno University is included in Moi University statistics because Maseno University was under the tutelage of Moi University)

Source: Public universities student admission statistics-Joint Admissions Board

The gap by gender in admission is almost constant and parallel in the years under study as illustrated in Table 4.1. Evidently, on average, only 35% of the students admitted to public universities in the academic year 1999/00 were female. It may therefore be deduced that female admission in Kenyan public universities is below 40% in all universities except Kenyatta University, which admitted over 45% female students in the academic years under study. This could be attributed to the fact that Kenyatta University offers mainly art-based and education courses which are populate with female students.
On the contrary, JKUAT has the lowest female admission percentage of below 25% and this could be explained by the fact that it offers technology-based and engineering courses that are traditionally known to be unpopular with female students right from the lower levels of learning. Wamahiu (1997) observed that the gender gap transition rates and examination performance in Mathematics and Science is the highest at the KCSE levels, in favor of male students.

Evidently, from Table 4.1, JKUAT has the lowest female percentage as compared to all the other public universities. This university admits less than 25% female students in all the academic years under study. Among the degree programmes offered are: Bachelor of Science (Agriculture, horticulture, food science), Bachelor of Science (Computer Science and Technology), Bachelor of Science (Engineering) and Bachelor of Science (Architecture and Landscape).

Figure 2: JKUAT Admission trends by gender 1998/99 – 2001/02 Academic Years
Clearly, four degree programmes are offered at JKUAT. Figure 2 shows admission trends by gender and degree programme. Bachelor of Science (Agriculture, Horticulture and Food Science) admitted between 20-30% female students in 2001/02 academic years. Similarly, Bachelor of Science (Computer Science and Technology) admitted a percentage of 20-30% females in the academic years under study. On the other hand, Bachelor of Science (Architecture and Landscape) admitted 10-15% female students with the exception of 1999/00 academic year where 32% of the students admitted were females. Of all the students admitted for the Bachelor of Science (Engineering) degree programme, between 5-15% of the students were females with the exception of 1999/00 academic year where the percentage of female students was 28%.

Seemly, JKUAT had the lowest number of female students because it offers Science and Technology based courses and the fact that it does not offer any Art based courses which are popular with female students. In addition, female candidates usually score relatively lower than their male counterparts in KCSE in Science and technology courses which require high entry points in Mathematics and Sciences at the University level.

Looking at Kenyatta University, the degree programmes offered include Bachelors of Education, Arts, Commerce, Science, Environmental Studies and Home Economics. As discussed earlier, Kenyatta University has the highest proportion of female students admitted comprising nearly half (50%) of the total students. This could be so because the University offers largely Art-oriented courses. Majority of female students opt for the
Art-Based programmes since they attain strong passes in Art subjects at the end of secondary education as compared to their male counterparts.

Figure 3: Kenyatta University Admission trends by Gender 1998/99 –2001/02 Academic Years
Evidently, from Figure 3 above; Bachelor of Science degree programme had the lowest female percentage of below 30% except in 1998/99 academic year with a female admission of 32%. Similarly, Bachelor of Commerce also had a female percentage of below 40% while Bachelor of Education and Arts programmes each had a percentage of between 40-50%. Despite the fact that females attain strong passes in these courses, they were still below the fifty percent mark which is way below the male students enrollment rate. Clearly, Bachelor of Environmental Studies attained parity with females enrolment at 48-52% in the academic years under study. Bachelor of Home Economics has the highest female admission of over 90% while males are less than 10%. Seemly, this is an area where males are under-enrolled and may be attributed to the fact that Home Economics is traditionally stereotyped as a feminine occupation that teaches housekeeping, cooking and baby care.

University of Nairobi mainly caters for Science based and technology courses. The degree programmes offered at the university of Nairobi include: Bachelor of Science, Bachelor of Science (Agriculture, Engineering, Nursing and Computer Science), Bachelor of Arts, Bachelor of law, Bachelor of Dental surgery, Bachelor of Pharmacy, Bachelor of Medicine, Bachelor of Veterinary Medicine, Bachelor of Education and Bachelor of Arts(Architecture and Design).
FIGURE 4: University of Nairobi Admission trends by Gender 1998/99 – 2000/02 Academic Years
Figure 5: University of Nairobi Admission trends by Gender 1998/99 – 2001/02 Academic Years

- **B.commerce**
  - Male %: 60, 30, 20, 0
  - Female %: 40, 30, 20, 0

- **B.sc (Agric)**
  - Male %: 60, 30, 20, 10
  - Female %: 40, 30, 20, 10

- **B. Law**
  - Male %: 60, 30, 20, 10
  - Female %: 40, 30, 20, 10

- **B.Pharmacy**
  - Male %: 50, 40, 30, 20
  - Female %: 50, 40, 30, 20

- **B.sc (Engineering)**
  - Male %: 60, 40, 20, 10
  - Female %: 40, 30, 20, 10

- **B.Dental Surgery**
  - Male %: 60, 40, 20, 10
  - Female %: 40, 30, 20, 10

- **B. Arts**
  - Male %: 60, 40, 20, 10
  - Female %: 40, 30, 20, 10

- **B.Medicine**
  - Male %: 60, 40, 20, 10
  - Female %: 40, 30, 20, 10
Figures 4 and 5 show the trend of admission by gender per degree programme offered at University of Nairobi. Bachelor of Science (Nursing) had a substantial number of female admission comprising of between (55-60)% in the years under study compared to (40-50%) of the male enrolment. Unmistakably, this is a female dominated area as Nursing is also traditionally stereotyped as a feminine occupation.

Bachelor of education has a female percentage of 35% to 45% in the years under study, Bachelor of Law also has a female enrolment of over 40% and in the year 1999/00 gender parity was achieved with a 50% female admission. Bachelor of Arts and Bachelor of Dental surgery also have a female percentage of over 40%. These degree programmes that have a female percentage of over 40% are mainly Art-oriented courses except for Bachelor of Science (Nursing) and Bachelor of Dental surgery, which require passes in Science subjects.

Bachelor of Veterinary Medicine, Bachelor of Science, Bachelor of Science (Agriculture) Bachelor of Architecture and Design admitted 20% to 30% of female students. These were courses that were mainly science oriented and were quite unpopular with females since they perform poorly in science and mathematics at the secondary level. Bachelor of Science (Computer Science) and Bachelor of Science (Engineering) have the lowest female admission percentage. Bachelor of Science (Computer Science) admits a female percentage of below 10% as compared to 90% of male students. This was almost parallel and constant for the academic years under study. Bachelor of Commerce, Bachelor of Pharmacy and Bachelor of Medicine also admitted a female percentage of 20% to 40%.
These are also areas that are quite unpopular with females since it requires high entry points in Mathematics and Sciences.

University of Nairobi admitted 32% to 35% of female students in 1998/99 to 2001/02 academic years, this is because it offers courses that are mainly science oriented.

Maseno University was a constituent college of Moi university until the year 2000 when it was given its own charter. The degree programmes discussed are only for 2000/01 and 2001/02 academic years. It offers Bachelor of Education, Bachelor of Science and Bachelor of Arts degree programmes.

Figure 6: Maseno University Admission trends by Gender 1998/99 – 2001/02 Academic Years
Figure 6 shows the distribution by gender in each of these degree programmes. Bachelor of Education had 39% female students admitted in 2000/01 which dropped drastically to 27% in 2001/02 academic year. This showed female under-representation yet the course was supposed to be an area quite popular with female students. Bachelor of Science had a constant and almost parallel graph on admission with females being 36% to 35% in 2000/01 and 2001/02 academic years respectively. Bachelor of Arts had the highest female percentage with 48% of the students admitted being females in 2000/01 academic year and 51% in 2001/02 academic year. This is an area that is quite popular with females since they perform well at form four in Art subjects.

As earlier shown in table 4.1 Egerton university admitted a female percentage of 32% to 34% under the academic years under study academic years that is 1998/99 to 2001/02 academic years. This is a university inclined towards agricultural courses.

Figure 7 shows Bachelor of Arts, Bachelor of Education and Bachelor of Commerce degree programmes. These programmes admitted a female percentage of over 35%. These are mainly art-oriented courses yet females are still below the fifty percent mark. Bachelor of Environmental studies, Bachelor of Health Sciences and Bachelor of Science (Agriculture). These programmes admitted 20% to 35% of female students. Bachelor of Science admitted female percentage of below 30% while Bachelor of Science (engineering) had a female percentage of below 10% except in 1999/2000 academic year where females admitted were 17%. These programmes are science oriented hence the low female percentage admission.
FIGURE 7: Egerton University Admission trends by Gender 1998/99 – 2001/02 Academic Years

B. Sc (Agric Eng.)

B. Sc (Agric)

B. Arts

B. Education

B. Environmental

B. Health Sciences

B. Commerce

B. Science
Moi University as shown in Table 4.1 admitted 34% to 35% proportion of female students in 1998/99 to 2001/02 academic years. It offered Science, Technology and Art based courses. Moi University offers: Bachelor of Science (Forestry and Wild Life management), Bachelor of Technology, Bachelor of Law, Bachelor of Science, Bachelor of Environmental Studies, Bachelor of Health Sciences, Bachelor of Science (Tourism and Agriculture), Bachelor of Arts and Bachelor of Education.

Figure 8: Moi University Admission trends by Gender 1998/99 – 2001/02 Academic Years
Figure 9: Moi University Admission trends by Gender 1998/99 – 2001/02 Academic Years

- **B.Sc (for., Wild.man.)**
- **B. Technology**
- **B. Law**
- **B.Sc (Info Sci)**
- **B. Science**
- **B. Environmental**
Figure 8 and 9 show distribution at Moi University by gender per degree programme. Bachelor of Arts, Bachelor of Education, Bachelor of Law and Bachelor of Environmental Studies degree programmes admitted over 30% female students. Bachelor of Arts had a percentage of between 43% to 46% of female students and on the other hand Bachelor of Education also has 33% to 55% female percentage with 2000/01 academic year having more females than males. Bachelor of Law also has a female percentage of between 30% to 40% with 1998/99 having achieved gender parity and the year 1999/00 admitted 52% female students. This was then followed by a drastic drop of female students admitted in the following years to below 40%. Bachelor of Environmental Studies also has a female percentage of over 30% with the year 1998/99 having 55% of the students as females being admitted. This figure dropped in the years that followed to below 45% of those admitted being females.

Bachelor of Science (Tourism Agriculture), Bachelor of Health Sciences (Information Science) degree programmes. These programmes admitted females of 20% to 30%. Bachelor of information science in Moi University has a female percentage that fluctuated in 1998/99 42% of those admitted were females while in 2000/01 24% of those admitted were females. The percentage of female students is below 30% except in 2001/02 academic year. Bachelor of Health Sciences has a female percentage of 20% to 35% with 1999/00 academic year having the lowest female student’s percentage of 21% which increased to 32% and 34% in the academic years that followed. Bachelor of Science (Tourism and Agriculture) has a female percentage of over 30% in the academic
years under study. Females admitted ranged from 31% to 35% in 1998/99 to 2001/02 academic years.

Bachelor of Science (Forestry and Wildlife Management), Bachelor of Technology and Bachelor of Science (general) degree programmes had the lowest number of females admitted below 30%. Bachelor of Science (Forestry and Wildlife Management) admitted below between 20% to 30% female students with 1998/99 academic year having 17% female students which increased steadily to 31% female students in 2001/02 academic year. Bachelor of Science also has a female percentage of 20% to 30% being admitted in the academic years under study. Bachelor of Technology had the lowest female students admitted in the years under study. In all the academic years under study the female percentage was below 15%. Female percentage in 1999/00 academic year was 5% while in 2001/02 it was 14%. This is an area that is quite unpopular with female students.

4.1.2 Admission Trends in Kenyan Private Universities.

Private universities account for about 20% of the university population in Kenya (Brown, 2001). Female representation is higher in private universities constituting over 50% of the population unlike in public universities. Since more females than males fail to attain the minimum cut-off points for admission to public universities they find opportunity in private universities. Another reason for high female representation is that the degree programmes offered heavily lean on humanities mostly theological and art based courses which females perform well in the lower levels of learning.
Four chartered private universities were sampled out for this study these are; USIU, UAE-Baraton university, Daystar university and CUEA. Table 4.2 illustrates the trend of admission by gender to these universities.

**Table 4.2 Private University’s enrolment by gender 1998/99-2001/02**

<table>
<thead>
<tr>
<th>ACADEMIC YEAR</th>
<th>UNIVERSITY</th>
<th>1998/99</th>
<th>1999/00</th>
<th>2000/01</th>
<th>2001/02</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male%</td>
<td>Female%</td>
<td>Male%</td>
<td>Female%</td>
<td>Male%</td>
</tr>
<tr>
<td>Baraton</td>
<td>52</td>
<td>48</td>
<td>51</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>CUEA</td>
<td>51</td>
<td>49</td>
<td>50</td>
<td>50</td>
<td>48</td>
</tr>
<tr>
<td>USIU</td>
<td>47</td>
<td>53</td>
<td>47</td>
<td>53</td>
<td>49</td>
</tr>
<tr>
<td>Daystar</td>
<td>43</td>
<td>57</td>
<td>38</td>
<td>62</td>
<td>41</td>
</tr>
</tbody>
</table>

Source: Admission and enrolment records (Office of registrar, CHE and director of admissions JAB)

As Table 4.2 illustrates Daystar university and USIU had the highest proportion of female students exceeding 50% in all the academic years under study. UAE-Baraton and Catholic universities had the proportion of female students at 48% to 52% which is almost at the 50% mark. USIU in 2001/02 academic year had 54% proportion of the students being female while Daystar in 2001/02 academic year had 60% of the students being female.

The trends of enrolment by gender per degree programme in each of these private universities were looked at.
As shown on Table 4.2, female representation at USIU is over 50% in 1998/99 to 2001/02 academic years. It offers Bachelor of Science, Bachelor of Arts and Bachelor of Business Administration. Figure 10 shows distribution by gender in the degree programmes offered at USIU. Bachelor of Science and Bachelor of Arts has a higher proportion of female students. Male students' percentage is 32% in 1998/99 and 1999/00 academic years, which rose to 47% in 2001/02 academic year. The proportion of females remained over 50% with 74% in 2000/01 academic year. Bachelor of Business Administration has the proportion of female students at 48% to 55%. The proportion of female students in 2001/02 was the highest with 55%.

**Figure 10: U.S.I.U Admission trends by Gender 1998/99 – 2001/02 Academic Years**
Daystar University had the highest proportion of female students of all the private universities. Table 4.2 shows that Daystar University had a female proportion of 57% to 62% in 1998/99 to 2001/02 academic years with 1999/00 having the highest percentage of 62%.

Getting information proved to be difficult at Daystar University, the researcher was able to collect data for 2000/01 and 2001/02 academic years only. Daystar University offers Bachelor of Commerce, Bachelor of Arts, Bachelor of Science and Bachelor of Education degree programmes. Bachelor of Science is the only degree programme with the lowest female proportion in this university.

Figure 11 shows admission trends at Daystar University by gender per degree programme. Bachelor of Science had a female proportion of 37% in 2001/02 academic year with none at all enrolled in 2000/01 academic year. This shows that females are under enrolled in science courses as observed in other universities.

Bachelor of Commerce had 49% and 51% female representation in 2000/01 and 2001/02 academic years respectively. Bachelor of Arts had a female proportion of 68% and 71% in 2000/01 and 2001/02 academic years.

It is quite clear from Daystar University that the most popular courses among female students are Education and Arts while commerce is fairly enrolled. Bachelor of Science had a very low female enrolment showing great disparity. Despite Daystar having the highest proportion of female students there are still disparities per degree program.
Representation of female students at CUEA is almost equal to that of males. Table 4.2 shows that female representation at CUEA in 1998/99 to 2001/02 academic years was 49% to 52%. This shows that gender parity has almost been achieved.

CUEA offers Bachelor of education, Bachelor of Arts, Bachelor of Social Sciences and Bachelor of Theology degree programmes. Figure 12 shows admission distribution at CUEA by gender per degree programme. Bachelor of education and Bachelor of Social Sciences had a higher proportion of females than males in the academic years under
study. Bachelor of Education has 50% to 60% proportion of female students and Bachelor of Social Sciences had 56% to 64% proportion of female students.

Bachelor of Arts had the proportion of female below 50% ranging from 40% to 48%. On the other hand Bachelor of Theology had the lowest number of females with a percentage of 14% to 17%. Females are quite under-represented in Bachelor of Theology.

Figure 12: C.U.E.A Admission trends by Gender 1998/99 –2001/01 Academic Years
UEAB had the proportion of female students at almost 50% mark. In 1998/99 to 2001/02 academic years the proportion of female students ranged from 48% to 51%. UEAB University offers Bachelor of Arts, Bachelor of Science, Bachelor of Business Administration, Bachelor of Education, Bachelor of Science, Bachelor of Science (Home Economics), Bachelor of Science (Nursing) and Bachelor of Science (Electronics).

Figure 12 shows admission distribution by gender per degree programme at UEAB. Bachelor of education, Bachelor of Arts, Bachelor of Science (Home Economics) and Bachelor of Science (Nursing). These are degree programmes with a high proportion of female students. In Bachelor of Arts degree programme female students ranged from 44% to 50% in the academic years under study. Bachelor of Education had female students proportion of 59% to 70%. There was a drop in 2001/02 academic year 59% female students from 70% in 2000/01 academic year. Bachelor of Science (Nursing) had a high proportion of female students ranging from 66% to 70% while Bachelor of Science (Home Economics) has 98% to 100% female representation. Bachelor of Science (General), Bachelor of Business Administration and Bachelor of Science (Electronics) degree programmes had a high proportion of male students. Bachelor of Business Administration had 43% to 47% female representation. Bachelor of Science had female representation of 29% to 35%. Bachelor of Science (Electronics) is a male dominated programme with females at 10% to 15% in 1998/99 to 2001/02 academic years.
Figure 13: UEAB Admission trends by Gender 1998/99 – 2001/02 Academic Years

B. Arts

B. Science

B. B. Administration

B. Education

B. Sc (Home Economics)

B. Sc (Nursing)

B. Sc (Electronics)
In summary females were under represented in both public and private universities especially in science and technology based courses. While private universities had a higher proportion of female students they were still under represented in science and technology based courses. In public universities female proportion was very low.

4.2 Causes of Gender Disparities in Undergraduate Degree Programmes

Responding to the question on factors that influence gender differences in access to undergraduate degree programmes, the respondents pointed out several factors during the interviews.

For the interviews conducted, it emerged that school based factors, socio cultural and socio economic factors are some of the major causes contributing to female under representation in undergraduate degree programmes. Other factors were political and personal factors. Each of these factors is discussed in the sub-sections that follow.

4.2.1 Socio-economic Factors.

Lack of financial resources is the main factor that led to under representation of females in Kenyan universities. Due to financial problems, parents opted to educate boys than girls. One of the respondents cited the following as the reason why boys are more likely to be educated than girls.

'Most communities find that the economic value of girls is more important than being educated since you get dowry and once they are married they become part of another family'

Such practices it was noted decrease the number of girls entering the education system and that would eventually be eligible for admission to universities. Most parents assess
the returns of their children’s education thus influencing their choice of whom to educate and to what level.

The findings supported studies done by Kanake (1999) and Nungu (1997) where they noted that girls sometimes offer to work as maids or to get married so that they can raise money for their brother’s education, this in the end has reduced the number of girls who join the school system and more so those who join the university.

4.2.2 Socio-cultural Factors.

Socio cultural factors and socio economic factors that constrain girl’s education at the community level are closely interwoven. The respondents cited female circumcision, early marriages, teenage pregnancies, domestic chores and gender stereo typing as some of the factors that influence girl’s education. The issue of gender stereotype right from the lower levels of learning manifests itself in gender typing of subjects.

This affected the subjects done by boys and girls; boys will want to become engineers, doctors and scientists while girls on the other hand become nurses, teachers and housewives. This explains the low proportion of males in nursing and home economics, which are perceived to be an area for females only. Household chores remain the primary responsibility of a woman even if employed, in college or in school. Childcare and other family responsibilities are a significant drain on time and energy on the part of women academics and often inhibit their performance to higher levels of education.

The above findings support earlier studies by UNESCO (1987), Lamptey (1992) and Kanake (1998) which found out that the dual responsibility of household drudgery and
work are often difficult to combine and are major constraints to women's work academically.

4.2.3 School- based Factors

Learning environment, teacher attitudes towards female students, type of school, curricula, textbooks, distance from school sexual harassment and pregnancy were some of the causes cited for low enrolment of females in the lower levels of learning hence reducing the pool of female students entering university. A major cause of women under representation in university education is high drop out rate in the primary and secondary levels (Ominde, 1997).

Respondents from private universities attributed the high proportion of female students in private universities to the subjects offered at these universities. Most private universities offer Art and Social Science oriented courses which are more favorable to females since they perform well at the form four level examinations in these subjects.

Another respondent attributed the high proportion of female students in private universities to their admission criteria that admits students with a minimum of C+ mean grade and this is where most female students fall and hence qualify. Most females fail to attain the minimum cut-off points for public universities and thus finding opportunity in private universities.

Poor performance in science subjects and mathematics at secondary level by female students was also cited as leading to a lower proportion of females admitted to science
and technology oriented courses. Poor career guidance contributes to under representation of females in science based degree courses. The findings are supported by studies carried out by Eshiwani (1985) who argued that achievement of girls in mathematics and science was poorer due to lack of equipment and limited curricula.

4.2.4 Political Factors

Political factors were identified as factors that influence access to university education. Supply and training of teachers to schools, financing and management of education sector especially on policies for example universal primary education and female education are all determined by the government in place.

These were the causes that were cited as the major causes of gender differences in university education. One major cause that came out clearly is that there is a small pool of female students completing secondary school. The small pool was mainly enrolled in art, social science and education based courses leaving a small pool on science and technology oriented courses. Women's access to higher education cannot be increased without raising female enrolment at the primary and secondary level. Unequal access to secondary education and poor quality secondary education received by female students results to a limited pool of qualified female students for higher education. The poor performance of female students in Science and Mathematics related subjects at the secondary level is a main factor of the low participation of female students in science and technology related fields at the university level. This concurred with previous studies done by Ominde (1999); Kanake (1998); Nungu (1997) and Subbarao (1994).
4.3 Intervention Strategies to Gender Disparities in University Education

Respondents highlighted possible intervention strategies to gender disparities in university education. The criterion used was that a possible intervention strategy was considered important if it was mentioned by 50% of the respondents.

It was agreed by most respondents that lowering of entry points for female students to public universities should be done away with as it compromises the standards of education and it is not a solution since the problem lies at the lower levels of education. The following intervention strategies were cited:

1. The government should reconsider the quality of teaching at the primary and secondary level. These include: equal distribution of physical facilities, qualified teachers and posting of teachers. Teacher training colleges should train teachers in specific teaching subjects to allow for specialization.

2. The Kenyan government should create support policies/programmes to ensure girls survival at the lower levels of education. Government to make specific programmes for girls and ensure that provision of free primary education is enforced. Law should be used to prosecute parents who do not take children of school going age to school.

3. Sensitizing the society from grass root levels on the need for girls to be educated. This awareness could be created through the media, print and press to enforce the issue of female education. There is need to instill on females that they are equal performers like males right from childhood.

4. Increasing female role models in science and technology areas and using peer influence to enroll more female students in secondary schools and universities
performing well in sciences or pursuing science and technology courses to talk to those in lower levels for example arranging seminars and talk shops.

5. Make the cost of schooling affordable by providing scholarships, loans, and bursaries more especially to female students. This will eliminate dropout due to lack of fees. Some regions require provision of uniform and food (approach of meeting basic needs of water, food and clothing before education) in arid areas. This could be used as an incentive to encourage more students to enroll. This will also include provision of water and firewood so that domestic chores are reduced for girls and left to go to school.

6. Eliminate gender typing of subjects among females by encouraging them to enroll in science and technical faculties. More organizations and government to invest in female education for example Kiriri women’s University that offers science and technology for females only. More institutions like this should be established so as to encourage more females. Those enrolled could also act as role models to those at the lower levels of education.

7. Schools should be equipped with sufficient science and technical facilities especially in girls’ schools. Technical education subjects should be introduced in girls’ schools. Discrimination against females by teachers and male students during classroom interaction should be eliminated and also gender typing in textbooks.

8. Teachers should be trained in career guidance and counseling at the lower levels of education especially at the secondary level. This also involves establishing appropriate family planning and counseling services at both secondary and university levels.
9. Parents who force their girls to be married at an early age that is (below eighteen years) before completing school should be arrested.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights summary and conclusions derived from the study’s findings and further provides recommendations for policy and practice.

Chapter one was devoted to a review of the importance of education to national development in a country and maximum utilization of its human resource potential. Further the chapter revealed the notable increase in student enrolment in university education in Kenya which is being hampered by inequity in access by gender, geographical region and socio economic backgrounds. Consequently the chapter revealed instances where female students are under represented in university education and intervention strategies that have been put in place. A deduction of the statement of the problem was made, followed by purpose, objectives, research questions, significance, assumptions, scope and delimitation of the study. Theoretical and conceptual framework of the study was also presented.

Chapter two reviewed literature related to the problem of research. Literature was reviewed on enrolment trends by gender in university education and factors influencing access to education which led to identification of gaps left by specific studies, which the study addressed sufficiently. Most of the studies done were on sampled out degree programmes at Moi, Nairobi and Kenyatta universities; this obstructs the differences
between universities and degree programmes. Therefore there was need to carry out research in all public universities and four chartered private universities.

In chapter three methods of data collection and analysis were discussed. Data was collected using document analysis and interview schedules. Data was collected from six public universities and four private chartered universities. Information on admission records was collected through document analysis while information on factors influencing gender differences and possible intervention strategies was collected using questionnaires.

The forth chapter dealt with data analysis, presentation and discussion. Secondary data on student admissions statistics were subjected to statistical analysis and presented in the form of graphs and percentages. Primary data was analyzed and presented in narrative and discussion form.

The last chapter presents findings, conclusions and recommendations drawn from the study. Recommendations, drawn from these research findings may be used for policy and practice in Kenya’s Education sector and other governments with similar education systems. Finally, suggestions for further research are given. The study found out that there is a notable inequality by gender in access to undergraduate programs in the Kenyan universities. In addition, study findings showed that female student representation is generally low in public universities as compared to private universities. In the meantime,
female representation in Science and Technology courses is below 40% in both public and private universities.

- Female representation in public universities in 1998/99 to 2001/02 academic years was very low. The proportion of female students admitted was 35% in three academic years while it was 36% in 1999/00 while male representation was 65%. On the other hand, in private universities female representation was above 50% in USIU and Daystar universities. Female proportion in USIU was 51% to 54% while Daystar had a female proportion of 57% to 60%. CUEA and UEAB had a female representation of 48% to 52%.

- Regarding enrolments of males and females in various undergraduate degree programmes, it was evident that females were more attracted to Education, Art, Home Economics, Nursing and Social Sciences. In public universities despite Education and Art courses being the area that most females enroll they were still below the fifty percent mark. The proportion of females in Home Economics was very high with over 90% in both public and private universities. Bachelor of Science, Nursing also has a high proportion of female students with over 60% in UEAB University while Nairobi University has over 50%. Bachelor of law, Commerce, Environmental Studies and Dental Surgery in all the universities that offer these courses had female representation of 40% to 55%. Bachelor of Science Electronics, Engineering, Computer Science, Veterinary Medicine, Architecture and Design, Agriculture, Pharmacy, Medicine, Agricultural Engineering, Information Science,
Technology and Theology were notably male dominated with the proportion of females being 5% to 30% in these degree programs.

Opinions advanced by the respondents on the causes of gender differences in access to various degree programs included: school based factors, socio-cultural factors, socio-economic factors and political factors. Socio-cultural and socio-economic factors included: lack of financial resources which influenced parental decision of the opportunity cost of keeping a girl or a boy in school. Early marriages, pregnancy, domestic chores and gender stereotyping which influences girls more than boys in education. On school based factors gender typing of subjects, inadequate science facilities, teacher attitudes, textbooks and the curricula offered. This influences females as they find that science and technical concepts are hard leading to poor performance in these subjects or opting to do art subjects rather than science and technology. Few girls schools also offer technology courses this in the end reduces the pool of females to universities.

Opinions on possible intervention strategies to address gender differences in various undergraduate programs included: Improving teaching and learning at primary and secondary levels, government to support policies on girls education, sensitization of society through media, local barazas and talk shops, increasing female role models on science and technology courses, making the cost of schooling affordable, equipping schools with science equipment and teacher training on career guidance and counseling and increasing more universities for females offering science and technology courses for example Kiriri women's university.
The issue of gender weighting should be done away with since it has not solved the problem of low representation of female students in universities.

5.2 Conclusions

Based on the data collected and analyzed in this study, the researcher arrived at several conclusions elaborated below:

1. Gender differences persists in undergraduate degree programs in Kenyan public and private universities. Female representation is generally lower in public universities than private universities. This was attributed to the courses offered in private universities that are mainly Art and Social Science oriented. Also more females than males fail to attain the minimum cut-off points to public universities thus finding opportunity in private universities.

2. When females were admitted to universities their proportion was high in Education, Art, Home Economics and Nursing. Education and Art courses in public universities had below 50% proportion of female students. Science, Technology and Theology courses had female representation below 40%.

3. Regarding the causes of gender differences socio cultural, socio economic and school-based factors were found to be the major causes. There was need to deal with this causes to ensure that there is equal representation to all in education.

4. Intervention strategies should be employed to curb the problem of gender differences. These problems should be tackled right from the primary and secondary levels of learning. Addressing the issue of gender differences requires
not only political will to support a sustained effort but also the resources to invest in improving access to and quality of schools to the disadvantaged.

5.3 Recommendations for Policy and Practice

The study findings had numerous implications for policy and practice in this country. In this section various policy options for redressing imbalances in access by gender to university education are discussed.

The critical challenge facing higher education in Kenya is to expand access while ensuring the existing capacity is used to maximum advantage. It was cited that reforms must be implemented to ensure that children learn while schools speed the flow of students through the primary cycle and reduce the gap that exists between the systems capacity and its coverage. The platform for action may require policy makers at the Ministry of Education, University level, JAB, CHE, private sector and the society in general to have overall commitment.

These recommendations were grouped into long term, medium and short term recommendations.

5.3.1. Short term and Medium term Recommendations

1. Technical education should be introduced in all girls' schools; laboratories and laboratory equipment should be provided in schools especially for girls.

2. Training of secondary school teachers on career guidance and counseling should be done. Primary school teachers should be trained to specialize in specific subject areas to make them more competent.
3. Schools should be made to be friendly for girls by having more female teachers and better learning environment with proper water and sanitation facilities. Education for girls should be made for affordable to ensure that girls from low-income families are not left out.

4. Technical education should be introduced in all girls' schools; laboratories and laboratory equipment should be provided in school especially for girls.

5. More institutions of higher learning for women only should be established. These institutions should offer science and technology courses. Adult education, distance and open learning should also be increased to open up more opportunities for those who are left out. Females should be encouraged to enroll in such programs. Universities should make their admissions more flexible so that they can accommodate more mature entrants and part time students.

6. Providing bursaries and scholarships to female students to reduce the cost of education. Education should be subsidized to the under represented and loans should be provided. Universal primary education should be enforced and action should be taken against parents who do not take their children to school. This will go a long way in ensuring that all children of school going age are enrolled in school.

5.3.2 Long-term Recommendations:

1. Gender equity should be promoted at all levels of education right from primary to the university level. The government should be committed to eradicating socio cultural practices for example early marriages and circumcision.
2. Curriculum should be reviewed to offer women empowering education. Gender typing of subjects should be eliminated right from the lower levels of learning.

3. Gender equity should be promoted at all levels of education right from the primary to the university level. The government should be committed to eradicating socio cultural practices for example early marriages and circumcision.

4. The regional disparities that exist in some area in terms of women's access to education should be addressed and the factors which permit greater female enrolment be encouraged.

5. Governments should eliminate gender gap in education by creating and supporting policies and programs that will ensure girls' survival through primary and secondary school by providing sufficient and adequate gender sensitive and safe facilities.

6. Mechanisms to monitor gender equality in education should be monitored and the Ministry of Education should provide leadership and capacity to promote girls' education

In conclusion for the government to achieve equitable access by gender to university education they must commit the necessary resources and design policies that will open school doors to the disadvantaged. There is need to strengthen national institutions that conduct education policy analysis and research in order to face the challenges of high population growth and the need to increase physical facilities and teachers while at the same time improving quality.
5.4 Suggestions for Further Research

This study is not conclusive and there is need for further research so as to build a comprehensive research data base upon which conclusive generalizations can be made.

1. This study may be replicated by doing a comparison of the students who are admitted against those who enroll to find out how many do not join the university by gender and how many female students drop out before completion.

2. This study could be replicated on trends in admission by gender using statistical tools such as chi-square and t-test. Such a study will show whether the gender disparities in universities are of any statistical significance.

3. A similar study could be done but views could be collected from teachers in secondary schools, students and also parents to get a wider view on the issue of gender disparities in education.

4. A similar study could be done by comparing enrolment by gender in regular degree programs versus parallel programs in public universities.
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APPENDICES

Appendix A: Cover Letter to Respondents

Dear respondent,

You have been chosen to participate in this study that investigates 'Gender differences in access to University education in Kenya.

Your responses will be treated with utmost confidence. Therefore you are requested to respond to the questions asked by the interviewer without reservations; do not discuss your responses with other respondents.

It is hoped the information will be useful to students, parents, educators and policy makers. Your response will be of great value to this study.

Your co-operation in this exercise is highly appreciated in advance.

Thank you.

Yours Faithfully,

Cherotich Caroline
Appendix B: Interview Schedule for Registrars and Deans of Faculties in Public Universities.

1. It has been observed that there are gender differences in access to public universities, what are the main:
   
a. factors which influence gender differences in access undergraduate programs?

   * Probe with regard to socio-cultural factors, economic factors, school-based factors, and historical factors, personal and political factors

2. What is the government’s contribution in trying open up access to university education for women?

   *Probe with regard to university expansion (parallel programs, private universities open/distance learning), construction of boarding facilities in girls’ schools and weighting for admission to university and provision of loans and bursaries by HELB.

3. What recommendations can improve:

   a. Admissions by gender in undergraduate programs
Appendix C: Interview Schedule for Registrars and Deans of Faculties in Private Universities

1. It has been observed that there are gender differences in access to University education. What are the main factors that influence:
   a. Gender differences in access to university education?
      *Probe with regard to socio-cultural factors, economic factors, school-based factors, historical factors, political factors and personal factors.

2. Has the university done enough to open up access for female students?
   - Probe with regard to policies that have been put in place to cater for female students.
     The use of weighting in public universities, vice Chancellors grant and Jomo Kenyatta scholarship in USIU

3. What recommendations can improve admissions by gender in undergraduate programs?
Appendix D: Interview Schedule for JAB and CHE officials

1. What are the causes of gender differences in university education?
   * Probe with regard to socio-economic factors, school-based factors, socio-cultural factors, Historical factors, political factors and personal factors.

2. What has CHE / JAB done to address gender differences in access to university education?

3. Since the introduction of admitting female students with sixty-eight points are there any differences in admission to different programs of study especially Science and technology based programs.

4. Has enough been done to open up access to university education for female students?
   - Probe with views on what policies should be put in place in addition to weighting and provision of loans and scholarships.
Appendix E: Document Analysis

1. Analysis of nominal rolls for the academic year 2001/2002 for undergraduate students by field of study and gender. These are students enrolled in the first, second, third and fourth year of study.

2. CHE and JAB documents on enrolments and admissions for the academic years 1998/99 to 2001/02

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Appendix F: Time Schedule

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<tr>
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Appendix G: Research Budget

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<tr>
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<tr>
<td><strong>Total</strong></td>
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Appendix H: Location of Universities in Kenya.

1. University of Eastern Africa, Baraton
2. Moi university
3. Catholic University of Eastern Africa
4. Daystar University
5. United States International University
6. University of Nairobi
7. Kenyatta University
8. Jomo Kenyatta University of Agriculture and Technology
9. Egerton University
10. Maseno University