MOVING AGAINST THE GRAIN: THE EXPECTATIONS AND EXPERIENCES OF TANZANIAN FEMALE UNDERGRADUATES

by

Grace Khwaya Puja

A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
Department of Sociology and Equity Studies in Education
Ontario Institute for Studies in Education of the
University of Toronto

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Abstract

Moving Against the Grain: The Expectations and Experiences of Tanzanian Female Undergraduates by Grace Khwaya Puja, Doctor of Philosophy, 2001, Department of Sociology and Equity Studies in Education, University of Toronto.

Because of the lack of research on women in higher education in Tanzania this study examines women's role in higher education in Tanzania. It is a shift from other studies on women's participation in higher education in Tanzania because it focuses on those who are less understood -- the few girls who, despite all the odds against them, have persistently shown an interest in mathematics and the natural sciences and decided to pursue higher education in programs such as agriculture, engineering and medicine.

My study is an attempt to take women's crucial role in higher education more seriously and to answer important questions: What type of education do Tanzanian women want? Do Tanzanian women want an education that limits their career choices to unskilled labor market? Or, do they want an education that enables them to participate in higher levels of leadership and professional positions?

Women's uneven enrolment in scientific and technological programs raises many other questions: What are some of the policy or institutional-based factors that may explain women's low and uneven participation in university undergraduate programs? This implies going beyond the commonly held view in Tanzania that women's low participation in mathematics and science-based university undergraduate programs is due to girls' lack of interest and poor performance in these subjects at the secondary school level. This calls for
an examination of women’s participation in specific university programs in order to tease out factors which contribute to gender imbalance specific to each discipline.

Despite the rhetoric about “encouraging” girls to study Science subjects, many Tanzanians seem to be more comfortable with an image of a Tanzanian girl/woman as a “failure.” This could be a possible explanation as to why the study participants, most of whom were the best performers, experienced little or no acknowledgment from those around them. The research participants learn under a very hostile environment, they are despised, their competencies doubted and they are often unfairly judged.

I advocate an increased participation in higher education of Tanzanian women from under represented ethnic, regional, religious and socio-economic backgrounds.
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I would not have been able to sit in the undergraduate classes had I not been allowed by the teachers of those classes to do so. It was such an honor for me to sit side by side with some of the most talented minds in Tanzania. Such opportunities come but once in a lifetime. I think that my words are not enough to express how privileged I felt in those classes and in the discussions that we had during the tea breaks and after class. There were also special and exciting moments such as when some engineering and medical students and their teachers occasionally welcomed me to be an active class participant by assisting them answer some of the questions posed by the teachers. I am sorry I could not answer any of those
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where all of you have been part of that village, including my Physics teacher, and to all of you I say, thank you.

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Dedication

This thesis is dedicated to members of my family and special friends who are no longer in this world but who would have rejoiced to see me finally finish school: To my first and best teacher, my Beloved Grandmother *hayati Mukhekuu Inyadulau* [Sie Magdalena Mwiko]. *Yiu, you taught me the value of work, hard work, wajifiye ino Yiu wane wa Umaiki*, To my Grandfather *hayati Mnyampa Mwiko Abdallah Njiku* who loved me so much and wanted to see me succeed in life. *RaRa, you once asked me "Lini utamaliza shule?"*[When will you finish school] that was a long time ago, over 30 years ago Grandpa and it is only now that if you were here, I would say that I am finishing school this year, [2000!]. I still remember how hard working you were and what you always said, *Mantu kaRi makaku mwanane* [my child, life is a struggle, there is nothing easy in life*]. To my only uncle *Yasifu* [Joseph] my first `doctor` who always made sure that I was well. It was a pity that I could not be there when you most needed my assistance. To my Beloved father *Hayati Mnyampa* (Mohammed Munkenyi Bulali Assi), *Baba daima nitakumbuka ulivyonambia siku ile kuwa nisome kwa bidii ili nije nipate kazi na kuwatunza wadogo zangu*, you taught me that there is an important relationship between school, work and service to others, ahsante Baba. To my Dearest of all, *hayati sister Uyanjo, Pendo Mwayundu, mwanitu, muhajane*, who worked so hard at school and work and wanted to achieve so many things in life but whose life expired prematurely at a very tender age and to *Hayati Mnyampa* Chima, my mother’s uncle [*Baba Mdogo*] who died when I was pursing my PhD studies and closed the list of my mother’s paternal relatives, *RaRa*, I will always remember you for what you were, a very kind grandfather who loved me so much even without ever having seen me.

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Chapter One: Introduction

This study examines women’s role in higher education in Tanzania. More specifically, the study explores factors influencing Tanzanian women’s decisions to pursue higher education, their career expectations and the opportunities available to them. The study focuses on Tanzanian female students enrolment in undergraduate programs in academic disciplines such as agriculture, engineering and medicine where women are most under-represented. However, it is anticipated that the findings of this study may be used as baseline data to design studies that examine women’s participation in other university programs.

The major objective of this study was to explore why Tanzanian women pursue higher education? To respond to this question, I generated four specific research objectives which are posed as questions: (1) Why did the participants of this study join their current programs? (2) What are the experiences of the participants of this study in these programs? (3) What career expectations do the participants of this study have? and (4) How do we come to an understanding of women’s role in higher education through studying factors that influence the career decision-making experiences of Tanzanian female undergraduates and through studying opportunities available to female professionals in these fields?

Statement of the Problem

The higher education sector in Tanzania is barely developed and very few education studies focus on higher education. However, Almasi (1993) explored factors associated with access to university education and his study revealed the following: (1) Most regions in Tanzania are still under represented in post-secondary education; (2) there are more students in institutions of higher learning from high socio-economic family backgrounds than from peasant family backgrounds; (3) most of the students in his sample had attended public schools rather than private schools; (4) there is a significant association between gender and the field of study, which indicates that less women participate in mathematics and the sciences; (5) single-sex schools are likely to perpetuate gender inequality compared with co-educational setting although more university students are likely to have attended single-sex than co-education schools; (6) females and males tend to have similar aspirations in terms of factors motivating them to pursue higher education; and (7) peer groups tend to have positive influence on their groups (p. 241).
On the basis of these and other findings, Almasi made several recommendations for further research, including a suggestion that there is a need for "a study on gender and science education" (p. 242). Almasi's research findings and recommendations sharpened my interest in women's participation in higher education in general and specifically their participation in the sciences, mathematics and technology—subjects in which women are most under represented, (United Republic of Tanzania (URT) 1995; and the National Examination Council of Tanzania, 1996).

But I also note that Almasi did not address other important issues that may also influence access to higher education in Tanzania. The first is regional differences, which are closely associated with ethnic variations. The term "home region" is often used in Tanzania as an indication of ethnic background because the main ethnic group(s) in each region are known. Regional differences also refer to differences between rural and urban areas. Most social services such as education are more easily available in urban than in rural areas.

The second is religion. Research on girls' participation in primary and secondary education in Tanzania indicates that religion also influences girls' chances to attend primary and secondary schools in Tanzania. Parents' attitudes towards the education of their daughters are influenced by religion (Dubbledam, 1970). More recent studies confirm that in Moslem-dominated areas, many parents still do not see the need to educate their daughters after they have reached puberty (Puja, 1992; Puja and Kassimoto, 1995). Also, some parents in other parts of Tanzania, both Moslem and non-Moslem, arrange early marriages for their daughters (Katapa, 1995; Puja, 1994). It appears that, for the most part, women in Tanzania are valued more for their reproductive and biological role as wives and mothers than as individuals with needs, aspirations and the potential to be scholars and professionals, just like their brothers. The mediating influences of religious and cultural practices on gender disparity in higher education are some of the issues examined in this study. Very few studies have examined the influences of religion on girls' access to higher education.

The third and one of the most crucial issues is ethnicity. As pointed out above, the term "home region" is often used in Tanzania to undermine the role of ethnicity in the social differentiation among Tanzanians. A review of studies on girls' education in Tanzania, produced by the Tanzania Development Research Group (TADREG) (1990) concluded that "although there is no direct proof, it seems that ethnic origin is a major determinant of
educational progress irrespective of parental education and income” (p. 25). The TADREG report stresses that ethnicity disparities in education are more striking for girls than they are for boys. The report points out that the Chagga, whose home region is Kilimanjaro, account for almost 70% of all successful girls who join Form Five in public secondary schools after they have completed Form Four in private and public secondary schools. This indicates that although there are 120 ethnic groups in Tanzania, it is only the Chagga who are clearly over represented in public secondary education.

Similar observations were made by the Faculty of Engineering in two of its three studies (University of Dar es Salaam, 1995 and 1993; Winkler, Hartman and Schomburg, 1992), which revealed that participation in Engineering education in Tanzania is influenced by home region and gender. These studies further indicate that since the Faculty of Engineering was established in 1973, almost half of its graduates have come from only two of Tanzania’s twenty regions: Kilimanjaro (26%) and Kagera (14%). Of these graduates, the number of women has never exceeded 3%.

Although the 1988 National Population Census Report does not provide a breakdown of the Tanzanian population by ethnicity, it does indicate that of those who responded and identified their “Usual Region of Residence” as the Kilimanjaro region made up only 4.8% of the total Tanzanian population1 (although people of other ethnic groups may consider Kilimanjaro region their usual residence). It is generally understood in Tanzania that the two main ethnic groups in the Kilimanjaro region are the Chagga and the Pare. Similarly, the Haya are the main ethnic group in Kagera region although there are people who live in Kagera region who do not belong to the Haya ethnic group. Based on the 1988 Population Census, people who identified Kagera region as their “Usual Region of Residence” were 5.7% of the population of Tanzanians who usually reside in the country.

There is a scarcity of recent data on the breakdown of the Tanzanian population by ethnicity. Because of this, I need to cite Caldwell and Okonjo (1968) whose study refers to the 1957 Tanganyika Population Census Report, which indicated that only 318,167 people (3.67% of the Tanganyika population in 1957) belonged to the Chagga ethnic group. The

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1 Appendix A. The Regional Distribution of the Tanzania Population by “Usual Residence” in Percentages.
same report indicated that there were 325,539 people who belonged to the Haya ethnic group (3.75% of the Tanganyika population) at the time when the total Tanzanian population was 8,665,336 people. The 1957 Tanganyika Population Census Report also indicated that the Sukuma, with 1,093,767 people (12.62%), were the major ethnic group in Tanganyika.

Since the United Nations Declaration of Women’s Decade in the 1970s, the Tanzanian government has been under pressure, particularly from the women’s groups and donors, to promote women’s participation in higher education. Consequently, by 1996 strategies aimed at promoting girls’ participation in science and mathematics were already in operation. Galabawa (1996) reports on a special program supported by the Rockefeller Foundation whose aim was to promote girls’ interest in science at the secondary school level. He explains that the “DARE” project, as it was known, was organized under the auspices of a Research Project on Strengthening the Education of Girls in Science and Mathematics in Secondary Schools, which was conducted by the Faculty of Education of the University of Dar es Salaam. Galabawa points out that the opinion survey which involved secondary school girls in Dar es Salaam, Morogoro and Tanga regions, was carried out in 1994.

In 1995, the University of Dar es Salaam began a collaborative project with the Dutch government which is known as the Teacher Education Assistance in Mathematics Science (TEAMS) Program (University of Dar es Salaam, 1995). TEAMS is aimed at increasing the number of women enrolling in mathematics at the University of Dar es Salaam. This was done by selecting a number of female students who had passed the National Form Six examination with minimal grades. These girls participate in a six week program of study with emphasis on mathematics after which they are examined. Those who do well are selected to join the university, and those who do not do so well, enrol in other post-secondary institutions of higher learning.

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2 The United Republic of Tanzania (URT), in short, Tanzania, came into being in 1964 as a result of the union between what was known in 1957 as “Tanganyika” and “Zanzibar.” See Chapter two of this thesis for more details.

3 Donor communities are foreign organizations or countries which assist Third World Countries. Donor communities which have taken an active part in women’s education in Tanzania include the Swedish Agency for Research Co-operation with Developing Countries (SAREC) and the Norwegian Research Agency for Development (NORAD).
These efforts are useful because they are aimed at increasing the number of girls who study mathematics and the sciences at the secondary and university levels. However, no study has examined the career decision making experiences of girls who do enrol in mathematics and science university programs. Such research might provide useful insights into the popularity of some university programs such as Home Economics and Human Nutrition and Medicine in comparison with Veterinary Medicine and Agricultural Engineering.

Moreover, to my knowledge, no study on girls’ participation in science at the secondary school level has been linked to the girls’ career plans. For example one of the few studies which examined girls’ career plans (Brock-Utne and Possi, 1991) only examined the career expectations of high achieving school girls in Morogoro. Brock-Utne and Possi did not relate their study to specific subjects that the “bright” girls were studying although their study revealed important observations that are relevant to this study. One of these was their finding that, the “bright girls” (N=27) had a very limited view of the career choices available to them. Almost half of them said that they wanted to be doctors. Based on this finding, Brock-Utne and Possi warned that, “although Tanzania needs doctors, it also needs foresters, expert farmers, engineers, technical experts, scientists, managers. And it needs women in these jobs too” (p. 54).

Brock-Utne and Possi stress that there is an acute need for career guidance services for secondary school girls. Lack of career guidance and counseling is a crucial problem in Tanzania because there are no trained career counselors in the country as a whole. Instead, students rely on parental advice, peer influence, hearsay or their own wisdom when making career decisions. Also, because the main purpose of higher education in Tanzania is still the training of high level [hu]manpower, admission decisions into institutions of higher education are based more on “selection” than “choice.” Quite often, selection does not correspond to choice because selection is done by educational administrators based on students’ performances and according to the national high level manpower needs.\footnote{The term “manpower” is used here as it is used in Tanzania’s official communications.} Frequently, this process does not take into account the career aspirations of the student.

Women’s participation in university undergraduate programs can be summarized as follows: (1) women are under represented in all university programs except Home
Economics and Human Nutrition (HE and HN) and in the Bachelor of Science, Nursing (BSc) program; (2) women's enrolment in university programs has been decreasing in absolute numbers over the years. Educational statistics indicate that in 1990 girls' primary school enrolment was 49.5% but women were only 18% of the combined enrolment in all Tanzanian universities (University of Dar es Salaam, 1996; United Republic of Tanzania, 1992); (3) research on women's participation in university education in Tanzania is very scarce; (4) Tanzanian higher educational policy statements lack long-term structural strategies for the promotion of women's participation in higher education, especially at the university level where their under representation is more pronounced.

The Ministry of Science, Technology and Higher Education does not exhibit a commitment to eliminating gender inequity in education in Tanzania. Its brief statement that "there is also a student imbalance between female and male students in university programs" (United Republic of Tanzania, 1995, p. 23) is not enough. And its strategy to eliminate the gender gap in higher education by "redressing the gender imbalance through positive discrimination mechanisms" (p. 85) is problematic. Such a strategy should be used only on a short-term basis, and it should be supplemented with initiatives for upgrading the female university entrants before they join their undergraduate programs (University of Dar es Salaam, 1995). Without good supportive strategies, positive discrimination can place female students at a disadvantage because they will have to compete with other students who are selected on the basis of high performance.

Moreover, as a strategy, positive discrimination should be part of a more comprehensive program aimed at finding out why girls perform poorly in national examinations and addressing those factors that contribute to poor performance among girls. Such a program should be aimed at promoting gender equity in higher education in all fields of study. The role of the Ministry of Science, Technology and Higher Education should be to design a comprehensive long-term plan of strategies and activities to achieve this goal.

This implies that the Ministry of Science, Technology and Higher Education should make gender equity in higher education one of its priorities. Currently, the underlying lack of commitment by the Ministry in eliminating gender disparity in higher education is a reflection of the low status accorded to women in Tanzanian society as a whole. As Shao, Kiwara and Makusi (1992) argue, the marginalization of women's issues in Tanzanian
society is a reflection of how women are perceived in all aspects of society and a reflection of their low social status. Tanzanian women’s property rights and their participation in formal and informal social institutions are limited to the lower levels of the social structure. This lack of women’s representation contributes to their marginalization when it comes to the formulation of national policies — almost all policy makers at the top levels of Tanzanian society are men.

Educational policies in Tanzania treat gender in isolation from race, ethnicity, religion, class and geographical differences. But these sites position women differently, marginalizing some and privileging others. These factors need to be taken into account and diversity among women needs to be acknowledged when formulating educational policies and research projects. By so doing, efforts aimed at eradicating gender inequity in education should benefit marginalized women instead of benefitting women from socio-economic, ethnic, religious and geographic backgrounds who are already privileged. A limited view of gender, which portrays women as a homogeneous category, is historical and has become prevalent because gender analysis in education research in Tanzania has been influenced by the studies done by white middle-class women such as Mbilinyi and Mbughuni, by women educated in the West in collaboration with white middle-class women such as Brock-Utne and Possi (1991) or by African men such as Malekela and Galabawa to name but a few. Apart from these weaknesses, such studies have played an important role in raising awareness among Tanzanians about gender inequity at the lower levels of education (Mbilinyi, 1969 and Mbilinyi and Mascarenhas, 1975; TADREG, 1990 and Malekela, 1997 and 1983). But the ideas of gender inequity in these studies reflect liberal feminist views of gender inequity that have been criticized by African, Third World and other feminists for universalizing the concept of “woman” as white and middle-class. Liberal feminism has also been blamed for its failure to challenge racism and capitalist practices, both of which contribute to the oppression of Third World and African women.

As pointed out elsewhere in this chapter, the work of these scholars has raised consciousness in Tanzania about educational inequalities. Such awareness has, in the long

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5 These white middle-class women are among the many white middle-class women who have dominated the gender studies in Tanzania for many years. Some of them have taken African names.
run, influenced the Tanzanian government's initiatives to promote girls' education at the primary and secondary levels in recent years. A look at the list of candidates who sat for the 1996 Primary School Leaving Examination indicates that girls' primary school enrolment in Tanzania surpassed that of boys in twelve regions (National Examination Council of Tanzania, 1996). Similar observations have been reported in the Kilimanjaro and Arusha regions where girls' private secondary school enrolments surpassed boys' enrolments (Bloch and Favru 1998).

Although these observations are quite encouraging, they are limited to some regions and apply only to the primary and secondary school levels. These recent improvements do not apply to other regions nor are they reflected at the higher levels of education. Women remain under represented in higher education especially in university programs. Women's participation in higher education varies from one university to another and among departments and programs. Existing enrolment data indicate that women are under represented in greater numbers in the physical sciences, mathematics, and technology than in the arts and the social sciences (Kinabo & Pereka, 1997; University of Dar es Salaam 1996, 1995; Almasi, 1993; and United Republic of Tanzania, 1995; 1992). In the 1996/97 academic year women's enrolment in university undergraduate programs was appallingly low in Engineering (3%) and only slightly higher in Agriculture (20%), and Medicine (24%) (University of Dar es Salaam, 1996; 1995, 1993).

The under representation and uneven participation of women in undergraduate programs need to be examined more fully. There are key questions that research must address: Why do Tanzanian women pursue higher education? What factors influence Tanzanian women to join non-traditional undergraduate programs? And how may we come to an understanding of women's role in higher education in Tanzania through a study of their career decisions and expectations?

This study differs from most of those cited above. Earlier educational studies on gender inequity do not focus on the lived experiences of girls who are themselves the product of the Tanzanian education system. Few studies on Tanzanian women's participation in education have been done by Tanzanian women who themselves have gone through the Tanzanian education system. Those which do exist focus mainly on adult education (Lasway,
One of the first Tanzanian studies by a Tanzanian that did focus on women in higher education was done by Mosha (1991). She explored the counseling services available to female students at the University of Dar es Salaam and found that these services were inadequate and were offered by people who were not professional counselors. Since then no study has focused on Tanzanian female undergraduates. Although Almasi (1993) and the University of Dar es Salaam (1993, 1995) report on women’s under representation in higher education, neither of them focus on female students.

The scarcity of research by Tanzanian women is the gap my study intends to narrow. Although I did not pursue higher education in the physical sciences, I can identify with many of the experiences of those who participated in my research. I went through the same educational system that they did. Also, as a secondary school teacher, tutor in a teacher training college and as a university instructor, I offer a perspective that is not available in the studies cited above. Unlike the above studies, my study is guided by an African-centered feminist and anti-colonial conceptual framework.

This study also examines female students’ classroom experiences in an attempt to understand the relevance of classroom experiences in relation to female students’ overall educational experience from their own perspective. Classroom observation as a data collecting source, allows for the collection of informal data that are not available in educational records, questionnaires or interview responses. This is a unique aspect of the study and adds another dimension to the existing research literature on women and education in Tanzania. It is an effort to “speak from within.” Speaking from within is aimed at giving space and agency to Tanzanian female students to reflect on their own experiences in order to make sense of what they have experienced, the factors that have shaped their educational and career decisions, and the meanings they attach to these experiences.

**Personal Relevance of the Study and Subjective Location**

To begin with, this study has a personal relevance to me. It is an effort to understand my own role as an educated woman in a society where the majority of women have little or no formal education.
In retrospect, I recall my primary and secondary school experiences when I used to excel in mathematics. I know now that the fact that I did not pursue a career in mathematics, my favorite subject especially at the primary school level, was not an accident. I also believe that possibly, I was not alone. I often wonder how many girls who were good in other school subjects never pursued a career in those fields. I also wonder, based on my own schooling experiences, how many girls understood the link between being good in school subjects and the career opportunities available to them. Although I obtained the best scores in mathematics at the primary school level, I did not know anything about the relevance of being competent in mathematics nor about careers that required a knowledge of mathematics. Like many children from rural backgrounds, my knowledge about the relationship between school subjects and future careers was very limited. Despite my good performance in mathematics no one (not even my mathematics teachers) told me what careers I could pursue with such competence in mathematics.

In general I had a very positive view about school and teachers. I had not had negative experiences before I came into contact with Mr. Gupta, our physics teacher. (Mr Gupta is a pseudonym). On his first day in our class of all girls, he told us that “physics is not a subject for girls,” adding that “girls are weak elements.” On reflection, I think that our physics teacher held certain stereotypical views about what “subjects are for girls.” I did not know that there was any difference between girls and boys in terms of school subjects until I heard Mr. Gupta’s remarks. Even then, I did not quite understand what he meant. But one thing was very clear in my mind — I would do anything to avoid direct interaction with Mr. Gupta. I did not want to ask him any question because if I did, he would tell the rest of the class that I was a “weak element.” I have learned much since then about barriers to women’s participation in education, particularly in the physical sciences. Now I also know that Mr. Gupta is not the only physics teacher who thinks that girls should not study physics. In Tanzanian secondary schools, there are very few girls in physics classes. There is a story shared by teachers that when a science teacher once asked “Why are there so few girls in this class?” a male student responded immediately by saying, “This is a physics class.”

The stereotypical thinking I witnessed from Mr. Gupta early in my school life is shared by other people. It is partly for this reason that this study is an effort to understand not only “other” women but myself as well. I became more conscious of gender inequity in
Tanzanian society between 1986 and 1991 when I was involved with several women's groups at the University of Dar es Salaam. As a member of these women’s groups I took part in various activities, including doing research about secondary school girls. I cannot pin down specific ways in which participation in these groups and carrying out these studies influenced my perception of gender inequity in Tanzania. But I know that it was at this time that I became more aware of gender inequity in education.

Gender inequity in education became much clearer to me when I taught First and Second Year Education students between 1989 and 1993. I noted that female students were very few in number. The discussions I had with fellow lecturers and their suggestions about women’s participation in higher education further motivated me to carry out a study on women’s role in higher education. Some senior members in our department also suggested that there was a need for a study of “successful” women in Tanzania (they probably meant women with higher education who have joined various professions). Although these suggestions became my starting point, I began to think more seriously about studying undergraduate students enroling in university programs in which women are under-represented. This is the context within which I studied the role of women in higher education in Tanzania. The focus is on female undergraduates enrolled in the fields of agriculture, engineering and medicine, where women are most under-represented. It is anticipated however that the findings of this study will be used as baseline data for further studies on factors that influence women to enrol in other university programs.

My understanding of gender inequity in education in general and higher education in particular became more focused as a result of being a student at the Ontario Institute for Studies in Education (OISE). More specifically, my ideas about gender inequity in Tanzania were shaped during the various class discussions we had about gender inequity in society. I particularly recall the discussions we had in “Women and the Educational System.” I remember I told some of my colleagues and professors that, in Tanzania, gender discrimination is the only form of discrimination facing women. Stressing that other forms of oppression such as class, religion, ethnicity and racism do not exist in Tanzania, I explained to them that our country’s ideology is based on principles of human equality, dignity and respect for all. But one student said to me, “Maybe you [meaning Tanzanians] are not very critical.” I quickly told her that was not the case. However, when I re-read the
TADREG report (TADREG, 1990) I realized that it is true that using gender as the only site of women’s differentiation in educational research limits our view of gender inequity in education in Tanzania. It was then that I became interested in analyzing gender issues against the mediating effects of ethnicity, religion and other sites of differentiation on gender inequity in higher education in Tanzania. An integrated view of gender inequity in higher education is needed in designing effective strategies that can eliminate gender inequity and promote women’s participation in higher education.

Thus, although the participants in this study pursued careers in mathematics or medicine and I did not, the focus of the study has personal relevance to me. Born to Moslem peasants, belonging to one of the most marginalized ethnic groups in Tanzania, the pursuit of higher education has not been a smooth path.

**African Education: General Context**

**The Colonial Legacy**

Dei (1998) and others have questioned the commonly held view that African education is currently in a state of “crisis.” They argue that this is a result of the colonial legacy of policies and practices that dominated, exploited and divided the African peoples. Dei in particular argues that these policies fail to speak adequately to the variety of African experiences and to the diverse histories and ideas that have shaped and continue to shape human growth and development. He further points out that processes and practices inherited from the colonial past continue to reproduce societal inequalities in many parts of Africa. The crisis is also due to the failure of African governments to bring about substantive changes in the educational practices they inherited at the time of independence.

Some African universities in former British colonies were partly designed in accordance with the University of London model of university education. The University of London had a special supervisory relationship with these African universities. According to this relationship of dependence, African universities received external degrees from the University of London. African universities were also designed according to the recommendations made by the Asquith report. Furley & Watson (1978) citing Great Britain, 1945) point out that the Asquith Report was a document of cultural imperialism. These authors argue that although the Asquith Report emphasized adherence to high academic
standards, excellent teaching methods, a narrow range of subjects and facilities for top-level research, it did not take African needs into consideration. Furley and Watson quote Lord Ashby who observed the following about the report: “Its basic assumption was that a university system appropriate for Europeans brought up in London and Manchester and Hull was appropriate for Africans brought up in Lagos, Kumasi and Kampala” (Furley and Watson, 1978, p. 305-306). This is why African universities established under British colonial rule, such as Makerere in 1922 and even those which came much later such as the University of Dar es Salaam in 1961, were based on a Eurocentric model of middle-class ideals. Most of these universities had expensive halls of residence, staff houses and professional schools which have proved too costly for most African governments to maintain.

**Gender Inequity in African Education**

The expensive foundations and the systematic gender inequality inherent in higher education in the former British colonies have not been questioned. Instead, critics of the higher education sector in Africa question its role in society, the effectiveness of its teaching, the outcomes of its graduates and the cost involved in its implementation (Hinchliffe, 1987). Few have noticed the historical exclusion of women from African higher education, particularly from university education or questioned how this exclusion relates to the “London connection.”

Women’s under representation in higher education is an integral part of the larger issue of gender inequity and education whose roots can be traced to colonial rule. Bloch and Favru (1998) observe that gender and education in Sub-Saharan Africa did not receive much attention in national and international debates until the early 1990s. These authors acknowledge that there have been increases in girls’ enrolments in many African countries between the 1960s and the 1990s. This is true in countries such as Botswana and Namibia, where girls’ primary school enrolment surpassed boys’ enrolments, and in Tanzania’s Kilimanjaro and Arusha regions, where girls’ enrolment in private secondary schools surpasses boys’ enrolment.

However, Bloch and Favru caution that despite these minimal improvements, women’s participation in education in Sub-Saharan Africa is still characterized by many
problems. Two of these problems are that in most African countries girls’ primary school enrolment is not equal to that of boys, and African women’s participation in education is lower at the secondary and tertiary levels and declines further at the university level. These observations have been confirmed by various studies (Okeke, 1994; Etta, 1994; Kelly, 1984; Little, 1973). In addition, Robertson and Berger (1986) argue that the marginalization of African women in higher education is compatible with a capitalist system whose African rulers prefer less educated African women. Women in general and African women in particular are easier to exploit than men as cheap laborers. Bloch and Favru (1998) wonder whether development, as measured in terms of girls’ education alone, fosters African women’s independence. They suspect instead that international donors who provide financial and other resources aimed at expanding African girls’ and women’s access to formal education do, in fact (intentionally or not), contribute to an ongoing dependency relationship with Sub-Saharan African countries rather than promoting development or women’s economic independence. Although access to formal schooling by itself may not bring about women’s economic independence, it is a starting point. Moreover, such access should not be limited to lower levels of education (literacy, primary and secondary education). Higher education should also be made accessible to African women.

Apart from having limited access to education, girls and women in many African countries are systematically discriminated against in education and have fewer curricular options available to them in comparison with boys. Historically, school subjects in Africa, as in Western countries, have been stereotyped as suitable for female or male students. Missionaries and colonial educators designed education programs whose main objective was to prepare African girls for their future roles as housewives and mothers while boys were educated for their supportive role in the colonial administration. In the later period of colonial rule, African boys had access to higher levels of education while the education of African girls emphasized gardening, cooking, cleaning, sewing and child-care skills which they obtained from studying Domestic Science.

Although most African countries became politically independent over forty years ago, school subjects are still viewed as being female or male. University programs and professions are also categorized as either masculine or feminine. These stereotypical views are reflected
in girls’ tendency to enrol in Domestic Science (Home Economics), Social Sciences and Humanities programs and in their professional choices.

Among those who join the sciences, most will opt out of studying mathematics as soon as there is a possibility to do so (Galabawa, 1996). Those who pursue higher education within the biological sciences have until recently also tended to study nursing rather than medicine. Between medicine and engineering, women are more likely to study medicine than engineering. As Eshiwani (1985) cited in Kamau (1996) points out with regard to his research in Kenya:

Unlike engineering, medicine is regarded by the Kenyan society in general and by Kenyan women in particular to have a feminine touch. Few eyebrows will be raised when a woman is introduced as a doctor but a woman engineer is regarded by most people not to be feminine (p. 98).

In his discussion of research findings in relation to girls’ attitudes towards science, Eshiwani (1988) points out that Kenyan girls have a limited knowledge about science and related careers that require a background in mathematics, science and technology. This is an indication that girls’ high schools do not pay much attention to guidance and counseling in scientific and technical fields. By the time they were in high school, the girls in his study had a very limited knowledge of the opportunities in higher education apart from academic and medical courses. Eshiwani suggests that Kenyan girls’ secondary schools should design well-prepared guidance and counseling services in science education from the time students are in Form Three (third year in high school).

Girls’ uneven participation in higher education programs has also been observed in Zambia. Zambian Ministry of Higher Education Policy documents reveal that in Zambia most female students enrolled in the science programs join the Biological and Life Sciences programs while there are no female students in engineering and other technology-oriented university programs (Republic of Zambia, 1995). The only area where there is virtual parity between Zambian women and men is in the primary teacher training colleges. This observation is similar to the one made by Kamau (1996), who points out that in Kenya, parity between female and male students has only been achieved at Kenyatta University (KU), where the major area of specialization is education. Kamau further observes that although most Kenyan women are farmers, women are most under represented at the Jomo Kenyatta
University College of Agriculture and Technology (JKUCAT), where there were only twelve females in a total enrolment of 112 students in the 1989/1990 academic year.

A look at other African countries indicates that, in general, women’s participation in science based university programs is low, as shown in Table 1. Table 1 also indicates that in 1989, Tanzania had one of the lowest percentage of female science graduates in Africa (8%). In Ethiopia, female science graduates were only 7% of all science graduates, while Madagascar had the highest number (315 or 37%) of female science graduates (Kinabo and Pereka, 1997).

Table 1

<p>| Graduate Production in Selected African Countries by Gender and Field of Study⁶ |
|-------------------------------------------------|-----------------|-----------------|--------|-----------------|-----------------|--------|</p>
<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>F</th>
<th>M</th>
<th>F%</th>
<th>F</th>
<th>M</th>
<th>F%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madagascar</td>
<td>1989</td>
<td>315</td>
<td>539</td>
<td>37.0</td>
<td>772</td>
<td>1025</td>
<td>43.00</td>
</tr>
<tr>
<td>Tanzania</td>
<td>1989</td>
<td>28</td>
<td>317</td>
<td>8.0</td>
<td>115</td>
<td>488</td>
<td>19.00</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>1989</td>
<td>89</td>
<td>1164</td>
<td>7.0</td>
<td>160</td>
<td>884</td>
<td>22.00</td>
</tr>
</tbody>
</table>


Many educators tend to agree that performance plays an important role in a student’s decision to study any subject. In her study on science education in Nigeria, Erinosho (1994) found that apart from personal (interest, attitudes and cognitive ability) and home characteristics (fathers’ education and career), girls’ performance in physics, chemistry and mathematics is influenced by the type of school they attend. Erinosho’s study revealed that girl’s performance in physics was best in single-sex Girls Only secondary schools. She also found that girls’ performance in Chemistry and Mathematics was better in co-education (mixed sex) schools. She argues that based on her study, girls’ decisions to study science are

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⁶This table is based on Table 5 in Kinabo and Pereka (1997) which included the following countries: Burundi, Ghana, Sudan and Swaziland.
influenced by a number of factors, including the girl’s performance in mathematics; career aspirations; career models; reasons for career choice; academic experience in science; what she likes in science; her father’s occupation; and student’s rating of ability. Erinosho argues that her study demonstrates that girls who chose to study science did so with a career in mind.

Both Eshiwani’s (1988) and Erinosho’s (1994) studies report very important findings in terms of the need to link career and guidance and counseling services to strategies aimed at promoting girls’ participation in the sciences at the higher education levels. However, their studies are limited because their findings may not characterize the experiences of girls and women in other African countries where there are different societal, cultural, educational systems and limited resources.

Although many efforts have been made to encourage more girls to pursue education in greater numbers and for longer periods in many African countries in recent years, not much is known about the classroom environment where teaching and learning take place. But based on classroom research done in developed countries, gender inequity exists in and outside the classroom. These findings have influenced similar studies in African countries. Anderson-Levitt and Soumare (1998) cite Biraimah’s studies in Togo (1980) and Nigeria (1989) as some of the earliest African studies on classroom interaction, and they point out that Biraimah’s research findings of classroom studies influenced their approach to the study of girls in Guinean schools. They assumed that because they are a minority, Guinean girls would be “invisible spectators” (p. 99). Other early studies had indicated that girls also hesitate to raise their hands in class and are infrequently called on by teachers to contribute to class discussions. Anderson-Levitt and Soumare (1998) stress that although their study of Guinea classrooms reinforced most of the earlier findings, their study also revealed more complex findings about teachers’ and male students’ treatment of female students. Anderson-Levitt and Soumare assert, that the male students’ treatment of female students has not yet been widely studied. But based on their study, male students intentionally or otherwise used masculine power and even physical force to restrict female students’ participation in class discussion, as indicated in the following extract from their article:

The most dramatic case of physical interference took place in a rural college classroom where the teacher had initiated a discussion of the pros and cons
of excision (female circumcision, which is widely practiced in Guinea). The sole girl in the classroom -- who might have been expected to make a contribution on this of all topics -- raised her hand and held it up as the teacher continued to call on the boys. Eventually the boy sitting next behind her pulled her arm down. She persisted, however, raising her arm again and rising in her place. At last the teacher called on her, and she succeeded in making her comment. Although the boy’s intervention did not actually prevent the girl from participating, its symbolic message was clear. In combination with the teacher’s delay in calling on her, it signaled that members of the class discourage her participation. (p. 120)

Anderson-Levitt and Soumare’s study also revealed that the relationship between teachers and students (both female and male) is influenced by the teaching and learning environment in Guinea classrooms. This environment, which is characterized by extreme poverty, is reflected in overcrowded classrooms, scarcity or lack of teaching and learning resources such as textbooks, and students who are frequently insulted by teachers who tell them that they “must suffer in order to learn” (p. 123).

Additionally, Guinean girls have to endure other barriers unknown to their male counterparts. Anderson-Levitt and Soumare list some of these as follows: a heavier workload at home; lack of female role models of successful women; derogatory comments from people who question girls’ and women’s intelligence; overt sexism; and frequent hostility and lower expectations from teachers. Anderson-Levitt and Soumare also report that gender stereotypes are built into school practices -- for example, the expectation that girls should do the daily housekeeping chores that symbolically punish girls for being girls. Anderson-Levitt and Soumare stress that due to these barriers, girls tend to be discouraged and are more likely to be less motivated to learn than the boys.

Although Anderson-Levitt and Soumare’s study of Guinean girls focuses on girls’ experiences in lower-level classrooms, its findings provide new insights into the classroom experiences of female students in poverty stricken African countries like Tanzania. Their study is relevant to my study in terms of its analytical framework. Anderson-Levitt and Soumare argue that in classroom situations such as those discussed above, gender is continually being constructed by the interplay between the teacher, the male students and the female students, who continually feed each other with messages that influence each other’s actions and behaviors. Anderson-Levitt and Soumare also acknowledge that within the
classroom context, the teacher is still the single most powerful player in charge of what happens in the classroom. This argument is shared by Brenner (1998) whose study revealed that, although both teachers and students (female and male) contribute to interactional patterns that give female students few opportunities to participate in classroom interactions, classroom activities are dominated by teacher questioning.

The research findings discussed above indicate that there is a need for new strategies that will promote women’s participation in education in Africa. The findings of the studies cited also show that mere increases in school enrolment do not ensure that African girls will benefit from their schooling experiences. However, as Anderson-Levitt and Soumare (1998) stress, “the larger the number of girls entering public school the better, and the longer the girls stay in school the better...” (p. 103). I also agree with Byrne (1978) who maintains that education is the key to equal opportunity and the ladder to advancement. Byrne also points out that when knowledge is in the hands of the few, it means that those few have power over the majority who are less educated. This observation is particularly relevant in the 21st century (the information age) in which knowledge is power. It is within this context that the need for African women’s participation in higher education becomes neither a luxury nor a privilege, but a prerequisite to their active democratic participation in decision-making and to their economic and personal independence.

**Women’s Participation in Higher Education In Tanzania**

The small number of secondary schools available to girls is one of the factors that has historically limited women’s access to higher education in Tanzania. Since university education was established in Tanzania over forty years ago, women’s total enrolment at the university level has always been lower in comparison with men’s total enrolment. Moreover, there was a decrease in women’s total enrolments at the University of Dar es Salaam between 1984 and 1991. In 1984, women were 26% of the first degree graduates, by 1991 women were only 15% of the first degree graduates (United Republic of Tanzania, 1992).

A review of research on women’s participation in university programs by the Gender Dimension Task Force of the University of Dar es Salaam (1996) and Kinabo and Pereka (1997) revealed that women’s participation in university programs is not uniform across disciplines. It varies from one university to another and among departments and programs.
The University of Dar es Salaam, in general, has the lowest percentage of women’s enrolment in Tanzania. However, within the University of Dar es Salaam, data from faculties indicate that in the 1994/95 academic year, the Faculty of Education had the highest percentage of women (31.6%) enrolled while the Faculty of Engineering (FoE) had the lowest percentage of women (3.2%) enrolled (University of Dar es Salaam, 1996). The University of Dar es Salaam’s report on gender cites the Muhimbili University College of Health Sciences (MUCHS) as the campus which has the highest percentage of female students in undergraduate programs in Tanzania (University of Dar es Salaam, 1996). It is possible that a comparison of percentages between the two universities could be misleading because the numbers involved are very different. For example, in the 1992/93 academic year, total enrolment at the University of Dar es Salaam’s main campus was 2,672 students and women represented only 17% of the total student enrolment, or 451 in real numbers. On the other hand, in the 1992/93 academic year, the total student enrolment at MUCHS was 316 and female students constituted 33% of the total enrolment at MUCHS, or 104 in real numbers.

MUCHS campus programs also have lower enrolments as a whole in comparison with those at the University of Dar es Salaam (UDSM) main campus and at the Sokoine University of Agriculture (SUA). Total undergraduate students’ enrolment at the Faculty of Nursing at MUCHS, for instance, had a total of only eleven students in all the four years of study in the 1996/97 academic year. Of these students, five were female and six were male (45.5% and 55% of total faculty enrolment respectively) (Muhimbili University College of Health Sciences, 1996). Data from the BSc Nursing program at MUCHS shows that a comparison of percentages alone can be misleading.

Also, historically, Home Economics (previously known as Domestic Science) and Nursing (at the Certificate and Diploma levels) have been stereotyped as female disciplines in Tanzania. Therefore, there is a need to critically examine women’s participation in these programs, especially women’s over representation and the unpopularity of these programs with men.

Perhaps because of their numerical invisibility, female students at Tanzanian institutions of higher learning experience sexual discrimination and sexual harassment on campus. The University of Dar es Salaam Gender Task Force Report (University of Dar es Salaam, 1996) confirms findings observed by Mosha (1991), who asserted that sexual
harassment exists at the University of Dar es Salaam. Although sexual harassment has existed at the University of Dar es Salaam for many years, it became a topic of discussion for the first time in 1990 when a first-year female education student committed suicide after she was allegedly sexually harassed by male students. The Gender Task Force also revealed that even after the death of the female student, the University of Dar es Salaam administration did not do anything significant to prevent such an incident from recurring. The report also stresses that lack of gender-sensitive rules at the University of Dar es Salaam to regulate employment and promotions and further studies are other forms of discrimination against women.

Because of the lack of research on women in higher education in Tanzania, my study is an attempt to take women’s crucial role in higher education seriously and to answer important questions about the purpose of women’s education. What type of education do Tanzanian women want? Do Tanzanian women want an education that limits their career choices to the unskilled labor market? Or, do they want an education that enables them to participate in higher levels of leadership and professional positions? In 1975 Kurt Waldheim said, “We must think positively about how the position of women in their own societies and in international affairs could not only be improved but how their larger potential contributions can be better utilized for the benefit of all” (Kurt Waldheim, Secretary General, United Nations, quoted in Byrne, 1978, p. 13). My assumption is that education is potentially a powerful force. Education can bring about social change, and women have the potential to be effective change agents in their societies. Through an examination of the oppressive social, political and economic structures, we can better understand how this can be achieved.

**Relevance of the Study**

The relevance of a study that examines the role of women in higher education in Tanzania cannot be overemphasized. This study departs from earlier gender and education studies that have been limited to issues of women’s access to adult, primary and secondary education. The current study focuses on women’s participation in higher education through an examination of the career decision experiences of Tanzanian female undergraduates in university programs such as agriculture, engineering and medicine where women are most under represented. The findings of this study will contribute to our increased understanding
of the role of women in university programs that have historically been dominated by men. It is important to point out that these findings should have significant effects on the development of new educational policies.

Another crucial contribution of this study lies in its examination of the influences of ethnicity, class, religion and regional variations on women's participation in higher education in Tanzania. Unlike other studies that focus on the role of the family in women's participation in education, this study also takes an integrated approach by examining how personal, family, schooling, peers and societal factors influence women's participation in higher education.

I also hope that the findings of this study will create an awareness among educators and policymakers about the need for career guidance education in Tanzania and that it will serve as baseline data for designing future studies of women's participation in other university programs in Tanzania.

As well, the findings will contribute to the creation of knowledge in areas such as the teacher-student and female-male interaction in and out of the classroom. Few educational studies in Tanzania have focused on the role of the teacher in female students' participation in higher education. Therefore, this study will contribute to an understanding of how power and domination influence and shape the teaching and learning process and its outcomes.

This study makes a special contribution to methodology through its use of multiple data collection strategies: qualitative and ethnographic methods, focus group discussions, classroom observations and the case study method, contributing to the creation of new knowledge in the use of qualitative and ethnographic research methodology in Tanzania.

It also contributes to the development of a conceptual framework formed from an integration of an African-centered feminist and anti-colonial perspectives. The African-centered feminist perspective views gender as one of the complex and multiple sites of oppression influenced by not only racial, ethnic, cultural, religious, social class and regional disparities, but also as a form of identity with implications for resistance. The anti-colonial perspective (Devi, 2000) that guides the analysis in this study, focuses on liberating and alternative ideologies that give agency to the oppressed (Fanon, 1992). Therefore some sites of systematic inequities in education which are part of the colonial legacy are highlighted.
The study is significant to the Tanzanian female undergraduates and their teachers who participated in this study because it gave them space to air their views about everyday issues that they would have otherwise brushed aside as "non-issues."

It is significant to me personally because it has been a home-coming for me. As I interacted with the female students, I re-lived most of my own schooling and career decision-making experiences first as a student and later as an instructor in one of the Tanzanian universities. It has also been an opportunity to share these experiences with my fellow university instructors and to learn about their teaching strategies. The classroom observations, the informal staff room conversations, the student and teacher interviews and the total research experience have been very special to me, providing me with both a challenge and a learning experience.

**Limitations of the Study**

This is a qualitative research that employs ethnographic and case-study methods in data collection and in its analysis. Its findings are limited to the area of study and to the experiences of the participants.

No attempt is made to generalize the findings of this study to other areas or to other students. Patterns, associations, similarities and differences observed during the course of this study are critically analyzed in relation to the micro and macro socio-economic, political and structural issues prevalent in Tanzanian society and in the international community.

**Organization of the Dissertation**

Chapter One introduces the study and states the research objectives. This is followed by a statement of the research problem, the personal relevance of the study and the general context of education in Africa which is then followed by a discussion of women's participation in higher education in Tanzania. The section stresses that women are most under represented in higher education, particularly in male-dominated science and technology fields such as engineering. This is true not only in Tanzania but in many other parts of Africa. The last two sections of Chapter One highlight the relevance of the study and its limitations.
Chapter Two locates the research problem within the context of Tanzanian geographical, environmental, climatic and demographic conditions. The chapter also provides an overview of the various changes that have taken place before colonialism through 1961 (the time of independence) to the late 1990s. The purpose of the discussion about the colonial legacy is to refute claims made by some well-known early British administrators that when Tanganyika became a British Trusteeship in 1916, there was an education vacuum. Instead, the discussion provides evidence to show that there were three systems of education in existence in Tanganyika by 1916: an indigenous education system noted for its practical nature; the Koranic education that emphasized mastery of the Holy Koran; and a colonial education system offered by missionaries whose main purpose was to obtain semi-educated African clergymen and supporting staff for the former colonial power, Germany. Most of the German colonial schools collapsed during the First World War and many of them were never revived.

The historical context of education in Tanzania is very important in understanding how the Tanzanian education sector has changed from pre-colonial through two colonial periods (German and British) to the present. Although Tanzania is now said to have fewer and less developed educational institutions and lower school and college enrolments than other East African countries (Kenya and Uganda), before it became a British Trusteeship in 1916, Tanganyika (Mainland Tanzania) was far more advanced in education than Kenya and Uganda as the discussion in Chapter Two indicates. The state of education in late 1990s is also briefly discussed.

The development of social institutions in Tanzania -- language, religion, health, politics, economics and formal and informal education -- discussed in Chapter Two because they are relevant to the status of women and their participation in higher education in Tanzania. Chapter Two also examines the status of women in Tanzania by pointing out among other things, that although they constitute more than 51% of the total Tanzanian population, under Tanzania law (Customary and Modern Law), Tanzanian women are not equal to men. Moreover, women are under represented in almost all levels of education, especially in non-traditional fields of study in university programs. Consequently, they are under represented in the professions, as wage earners and in politics, particularly at high level of decision-making. Chapter Two ends with a summary of the discussion.
Chapter Three has two parts. A review of the related literature on women’s participation in higher education with a special focus on women’s participation in mathematics, science and technology is discussed in part one. Part two provides the conceptual framework used in the analysis of women’s participation in higher education in general and women’s participation in the sciences, mathematics and technology including agriculture and medicine in particular.

This is a qualitative study that employs ethnographic methods in data collection. The methodology used in this study also makes use of the case study and historical methods in data collection and analysis. Methodology is discussed in more detail in Chapter Four, which also discusses issues related to access and ethical considerations, researcher/participant roles and limitations of the study.

Chapter Five presents the research findings. It uses descriptive statistics in the presentation of the demographic characteristics of the participants, with regard to their personal characteristics and family backgrounds. This section is followed by the presentation of the research findings in relation to the broader and more specific research questions: What is the role of women in higher education in Tanzania? and to the more specific research questions: What factors influence Tanzanian women to pursue higher education? Why did the participants of this study join undergraduate programs in the science based programs where women are under represented?

Chapter Six focuses on understanding the role of women in higher education in Tanzania based on the experiences of Tanzanian female undergraduates’ decisions to pursue higher education in non-traditional fields. It examines teaching and learning from the female students’ perspective.

The emerging themes of the study are discussed in Chapter Seven. These are: choice, policy and school-related factors, difference, participants’ experiences in undergraduate programs, language as well as identity and knowledge.

Chapter Eight offers the summary, conclusion and recommendations for policy, action and further research. It also highlights the pedagogical and instructional implications of the research findings in relation to the need to rethink schooling and education in African contexts.
Chapter Two: Tanzania, History of Education and Social Institutions

In any post-colonial state, education is a contested terrain because education represents struggles for meaning and struggles over power relations within society...The political economical structures of the post-colonial state define the parameters of the nature of the struggle on the basis of race, gender, social class, ethnicity and regionalism...(Dzvimbo, 1992, p. 1-4)

This Chapter presents an overview of Tanzania and the history of educational and social institutions. Women’s participation in education in Tanzania must be viewed against the historical and cultural setting from which it developed. This chapter acknowledges the existence of indigenous forms of education and traces the historical development of school-based education in Tanzania. The discussion begins by an assertion that formal education was first introduced by the Persians around 700 ACE7 and not by the first Europeans who visited these areas. When the Portuguese (the first Europeans to visit the East African coast) went to Kilwa and other coastal towns, there were many Africans who were literate in Kiswahili and Arabic. A fact which Vasco Da Gama and his team refused to acknowledge (Wizara ya Elimu ya Taifa [Ministry of National Education, 1979; and Davidson, 1964]

As it will become evident in this chapter, school-based education was neither based on indigenous education nor on the kind of formal education that existed before colonialism in the region that is now recognized as Tanzania. Moreover, because the purpose of colonial education was to educate a few African boys who were needed to facilitate colonial administration, girls’ education was not viewed as a priority. Although many changes have taken place since Tanzania became independent, this historical reality has persisted.

This study examines women’s participation in education in the United Republic of Tanzania (URT), popularly known as Tanzania, which consists of the area formerly known as Tanganyika and Zanzibar (the islands of Unguja and Pemba). Tanzania shares its border with eight other African countries: Kenya, Uganda, Rwanda, Burundi, the Republic of Congo (formerly Zaire), Zambia, Malawi and Mozambique. To the east of Mainland Tanzania, and surrounding the Islands of Zanzibar and Pemba, lies the Indian Ocean.

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7 In history texts (Wizara ya Elimu ya Taifa) [Ministry of National Education], 1979; Cameron and Dodd, 1970; Davidson, 1964); this is written as AD 700 (anno domini, Gove, 1966, p. 23).
In order to understand the role of women in higher education, one has to bear in mind that they constitute 51% of the total Tanzanian population based on the most recent Population Census conducted in 1988 (United Republic of Tanzania, 1992). Table 2 provides basic population data based on the 1997 estimates (United Republic of Tanzania, 1998) and indicates that women are faced with many problems. For instance, literacy among women was only 56.8% (the African [on-line] 2000 June 7.newafrica.com,) while among men, it was estimated at 68%. Childbirth is one of the main causes of death among Tanzanian women of a childbearing age and as indicated in Table 2, fertility rate\(^8\) per adult woman was 5.49 children in 1996. Associated with this high fertility rate is a high infant mortality rate which was 96.94 children per 1000 infants in 1992 (United Republic of Tanzania, 1992). All these issues affect women as mothers and as individuals, and I argue that with more education, women, their children and Tanzanians in general, will live longer and enjoy a better quality of life.

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\(^8\) The 1992 figures are based on the 1988 Population Census and the 1997-2000 figures are based on 1997 estimates
Table 2
Select Basic Data on Tanzania

<table>
<thead>
<tr>
<th>Data</th>
<th>Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population, United Republic of Tanzania (est. 1997)</td>
<td>31,300,000.00</td>
</tr>
<tr>
<td>Yearly growth of population</td>
<td>2.90</td>
</tr>
<tr>
<td>Life expectancy at birth</td>
<td>51.00</td>
</tr>
<tr>
<td>Agriculture, average annual growth</td>
<td>3.90</td>
</tr>
<tr>
<td>Infant mortality rate (per 1000 infants)</td>
<td>96.94</td>
</tr>
<tr>
<td>Total fertility rate (per adult woman)</td>
<td>5.49</td>
</tr>
<tr>
<td>GDP Average annual growth rate (% projected for 1998-2000)</td>
<td>5.50</td>
</tr>
<tr>
<td>Literacy (Total population)</td>
<td>68.00</td>
</tr>
<tr>
<td>Literacy female</td>
<td>56.80</td>
</tr>
<tr>
<td>Per capita GNP</td>
<td>US$ 210.00</td>
</tr>
</tbody>
</table>


The last published population census in Tanzania was the 1988 Population Census cited in Table 3. This table indicates that the Tanzania population has historically been characterized by an unbalanced distribution of age and gender. Between 1967 and 1988, there have been more young people than old. According to the 1988 National Population Census Report women are the majority in Tanzania (51% of the total population) (United Republic of Tanzania, 1992). But their participation in the economy is influenced by their low level of education.
Table 3
Population Distribution by Broad Age Group

<table>
<thead>
<tr>
<th>Age Group (in Years)</th>
<th>Census Years (by gender, in percent)</th>
<th>1967</th>
<th>1978</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>0-14</td>
<td></td>
<td>43</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>15-64</td>
<td></td>
<td>52</td>
<td>49</td>
<td>45</td>
</tr>
<tr>
<td>65+</td>
<td></td>
<td>5</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Total (All Age Groups, in Millions)</td>
<td></td>
<td>6</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>


Ethnic and Racial Groups

There are at least 120 officially acknowledged indigenous African ethnic groups in Tanzania (Rubagumya, 1990; Kurtz, 1972; Ogot and Kieran (eds) 1968); Bienen; 1967) (see Appendix B) and three major racial groups -- Africans, Arabs and Indians (Asians), and a few Europeans (Caldwell and Okonjo, 1968). While paving the way for the future of racial relations in a new nation at the time of independence in 1961, Mwalimu Nyerere, the first president of Tanzania, said:

We intend to build a democratic country in which all citizens, irrespective of their race, sex and creed, enjoy equal rights as citizens, a country in which the color of a person's skin, the texture of his [her] hair, will be irrelevant to his [her] value as a citizen of our country (Nyerere, 1961, cited in Stahl, 1964, p. 5).

Despite Nyerere's commitment to racial harmony, one of the few things for which Tanzania has been internationally credited, the Tanzanian economy has for many years been in the hands of a small Asian community and participation in higher education has been limited to political and government personnel recruitment needs, and dominated by men from a few ethnic and religious groups.
**Language**

Kiswahili, the most popular of all the 120 African languages in Tanzania, is the national and official language in Tanzania. Kiswahili has evolved as the national and official language through a long history. Rubagumya (1990); citing Whitely, 1969) observes that although “some form of pro-standard Kiswahili was being spoken on the coast of East Africa before the 10th century,” it was not until the 19th century that Kiswahili spread into the interior of East Africa.

German rule in Tanganyika is remembered most for forced labor, for the beheading of Mkwawa, the warlike Chief of the Hehe (who committed suicide because he would rather die than be ruled by the Germans and whose head was taken to Berlin as evidence of his death), for the merciless killing of those who opposed the Germans, especially the local chiefs in Southern Tanzania who took part in the liberation wars known as Maji Maji Wars\(^9\) and individual chiefs who mobilized their people to resist German rule, such as Chief Sang’wa of Singida and others who disappeared without a trace. But few people are aware that it was also the Germans who used Kiswahili as a language of government administration, promoted its use as the medium of instruction in schools and transliterated Kiswahili from the Arabic to the Roman alphabet\(^11\) (Kurtz, 1972). They did so mainly out of necessity because they wanted to pacify the coastal people, most of whom spoke Kiswahili and were Moslems. They also did not think that Tanganyikans could learn to speak German sufficiently.

Kiswahili was also used as a language of administration during the British rule. But, unlike the Germans who did not think that Africans could be competent in German, the British preferred to promote the use of English as a medium of instruction in schools and

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\(9\) Kiswahili is the name of the language and the word “Swahili” is an adjective. Thus we have “Swahili” culture and Swahili speakers, but the language is **Kiswahili**. But in most books written during colonialism, the word “Swahili” is used to refer to the language.

\(10\) The Swahili words “Maji Maji” (water water) were used during the liberation wars which were organized by local chiefs in the southern part of Tanganyika [Tanzania]. The chiefs used “magic water” as protection against the Germans between 1902 and 1905.

\(11\) The Germans wrote Kiswahili in Roman alphabet ‘ABC...to Z’ instead of Arabic script which was used before, as pointed out by Kurtz, (1972). See Appendix B: Arabic and Roman Scripts of Swahili alphabet.
as an official language in Tanganyika. The following quote is an example of unsuccessful efforts whose objective was to eliminate Kiswahili as a lingua franca in Tanganyika:

If a distinctive African contribution is to be made to the world it must be based on the African’s love and respect for the mental inheritance of [her/ his] people and much of this is enshrined in [the vernacular] language. The existence of Swahili in Tanganyika and its place in school teaching is unfortunate for it seems to have affected adversely the teaching of both vernacular and English. It is worth recording that this view was endorsed by everyone of the many African groups with whom the question was discussed. We suggest, therefore, that because the present teaching of Swahili stands in the way of the strong development of both the vernacular and English teaching, a policy should be followed which leads to its eventual elimination from all schools where it is taught as lingua franca (a recommendation by the Binns Mission report published in 1953, and quoted by Cameron and Dodd, 1970, p. 110).

Fortunately, as Cameron and Dodd point out, the British colonial government rejected this recommendation and instead insisted on retaining Kiswahili as the medium of instruction up to Standard VI. Kiswahili also continued to be a school subject in the African school system.

Kiswahili also spread quickly into the interior of Mainland Tanzania between 1950s and 1960s. During the struggle for independence, the Tanganyika African National Unity (TANU) under Mwalimu Nyerere’s leadership used the Kiswahili language to mobilize Tanganyikans against colonial rule. Bienen (1967) points out that during the struggle for independence, Kiswahili was equated with “Tanganyikaness.” that is, national identity. After independence, the promotion of adult education and other official decisions helped to spread the use of Kiswahili to the older people in the rural areas of Mainland Tanzania. The TANU government decided to make Kiswahili the official and national language in Tanganyika soon after independence. Also, in 1965, Kiswahili became a compulsory subject for students in all secondary schools and an examinable subject for the Certificate of Secondary Education. It also became the medium of instruction in primary schools and teacher training colleges.

English which is an international and commercial language is taught as a subject in Primary schools from Standard Three (Third Grade) onwards. It is the medium of instruction in Secondary schools, colleges (except Teachers’ Colleges) and universities.

Despite the popularity enjoyed by Kiswahili among Tanzanians of all walks of life, efforts to make Kiswahili the medium of instruction in secondary schools, colleges and
universities have been made many times without much success. Many reasons are given to justify the continued use of English as the medium of instruction in secondary and higher education. People in the physical sciences (including mathematics) and technological fields argue, among other things, that Kiswahili has a limited vocabulary, which lacks scientific and technical words. But Mazrui (1995) points out that Kiswahili is probably the most eligible African language anywhere in black Africa for the transformation of modern scientific and technological knowledge into the first indigenous African language. He argues that “Japan has been able to become one of the major technological powers of all times while conducting a substantial portion of its own technological discourse in its native language, duly technicalized” (p. 33-34). Mazrui stresses that there is a need for East Africans to make Western science accessible to the masses in East Africa not through a foreign language (English) but in Kiswahili, the lingua franca for East Africa. The use of Kiswahili as a medium of instruction in higher education in Tanzania is further discussed in Chapters Four, Seven and Eight.

**Religious Affiliations**

There are three major religious affiliations in Tanzania. People who identify themselves as “indigenous religions believers” make up 20% of the Tanzanian population (Mainland) while Moslems make up 35% and Christians 45%. The Zanzibar population is given as more than 99% Moslems (newafrica.com/profiles/tanzania.htm, 2000 July 18, *Tanzania Profile*). But such a distribution of the Tanzanian population by religious affiliations is not easy to find in the recent national population census reports. Moreover, although 20% of a segment of the population belongs to the “indigenous religious believers,” Islam and Christianity are the only officially recognized religions in Tanzania whose religious holidays are observed as public holidays.
The Political System

Tanzania obtained political independence from the British in 1961 under the Tanganyika African National Union (TANU)\(^\text{12}\) and it became a one-party state in 1965. Many changes have taken place in the Tanzanian political scene since 1961. The changes include the introduction of the Arusha Declaration in 1967, which sought to promote an “African Socialism” (TANU, 1967) defined as “familyhood” (Nyerere, 1967), differentiating it from the kind of socialism which existed in Russia, China and other socialist countries. The Arusha Declaration advocated a political ideology of socialism and self Reliance for Tanzania. The Tanzanian “familyhood” of African Socialism ideology was based on the principles of equality, respect and human dignity. In the education sector, the Arusha Declaration became the foundation of a philosophy of education known as “Education for Self-reliance (ESR)” (Nyerere, 1967).

In the early 1990s there was a change from a one-party political system to a multi-party system. Yet even though there were eleven political parties in Tanzania in 1992, Chama cha Mapinduzi (CCM) has continued to be the ruling party in the Tanzania Mainland and in Zanzibar since it was established in 1977. And, although women constitute up to 51% of the Tanzanian population, they are under represented in politics and decision making.

The Formal Economic Structure and Structural Adjustment

The United Republic of Tanzania (URT) has an agricultural economy that is characterized by peasantry agriculture. Although agriculture is the backbone of Tanzania’s economy, cultivation is limited to only 5% of the land most of which is used for the cultivation of maize alone. In 1992 for instance, agriculture constituted 62.3% of the Gross Domestic Product (GDP) (United Republic of Tanzania, 1992). Agriculture also provides 85% of the exports and employs 90% of the labor-force. (odci.gov/cia/publication/factbook/tz./economy.html, 2000 July 18).

\(^{12}\) In 1977 TANU was amalgamated with the Afro-Shiraz Party (which was the ruling party in Zanzibar then) to form Chama cha Mapinduzi, the current ruling party in Tanzania. *Chama cha Mapinduzi* officially has no English translation, but the word “*Chama*” means association or party, “*cha*” means of, and “*Mapinduzi*” means revolution.
Tanzania like many Developing Countries (DC) was hit by the 1980s world economic crisis. The economic crisis that faced Tanzania between the late 1970s and early 1980s was due to a variety of factors some of which were global and others that were specific to Tanzania (Shao, Kiwara and Makusi, 1992). However, in their discussion about the economic crisis of the early 1980s, Shao et al also point out that between 1961 and 1978, Tanzania enjoyed a positive economic growth and an increased quality of life. For instance, the annual per capita growth was estimated at 2.7 per annum, the (Gross Domestic Product) GDP growth rate was 6% per annum between 1970 and 1978 according to the Bank of Tanzania. They also point out that between 1965 and 1979 (almost 11 years) the agricultural sector’s average rate of growth was greater than that of the population, and the average rate of growth production for marketed crops such as maize, tea and tobacco was high until it started to fall because of drought.

The quality of life also improved, as indicated by a decline in infant mortality rate from 144 in 1960 to 101 in 1980. Life expectancy at birth also rose from 41 years in 1960 to 52 years in 1980. Shao et al argue that this positive trend has been attributed to Tanzania’s socialist policies (Nyerere, 1967), which emphasized the provision of social services particularly education, health and water. The second reason was the accumulated financial reserves.

Shao et al stress, however, that this scenario changed dramatically in the early 1980s because of drought; oil prices which rose to four times their regular level; and an underdeveloped agricultural sector whose foreign-dependent nature could not sustain serious economic shocks. They point out that despite these economic realities, the Berg Report which was influential in the World Bank’s decision to change “its position and role from project aid, development loans and sectoral policy undertakings to structural lending” (p. 1), had a different explanation for the economic crisis. Published in 1981, the report focused more on the macro-economic policies than on other factors that contributed to the economic crisis. According to the World Bank and the International Monetary Fund (IMF) the economic crisis that existed in Tanzania in the 1980s was due to: (1) over-valued exchange rates; (2) the excessive costs of import substitution; in (3) industrialization; (4) an urban bias-oriented development; and (5) overemphasis on public expenditure, particularly in education and health. Shao, Kiwara and Makusi stress that according to the Berg Report these macro-
economic policies were the sole cause of the economic crisis experienced in Tanzania and it was these policies that needed to be "adjusted."

At first the Tanzanian government refused to implement the Structural Adjustment Program as stipulated by the World Bank and the International Monetary Fund. Instead, Tanzania formulated its own National Economic Survival Program (NESP), in 1981 followed by a three-year Structural Adjustment Program (SAP). Both were aimed at getting Tanzania out of the economic hardships it was facing. But these programs did not work. Dei (1994) makes similar observations about the 1983 National Economic Restructuring program for Ghana, initiated by the Provisional National Defense Council (PNDC) government. The PNDC program also aimed at improving the local economic conditions and reversing the deteriorating living conditions for Ghanaians. Dei points out that this locally initiated economic recovery program was integrated into the World Bank and the International Monetary Fund-inspired SAPs in the mid-1980s. The purpose of the IMF-inspired structural adjustment programs in Ghana was to promote economic growth through an export-led development approach and to improve rural conditions. The implementation strategy in the case of Ghana involved taking the following measures:

Rationalization of the public sector by requiring good management and accountability, restraints on wages and government expenditure, reduction of state budget deficits through cutbacks and/or removal of government subsidies on social services, the sale of some state assets, the institution of incentives for agricultural (export) production, monetary and exchange rate incentives and liberalization of trade (Dei, 1994, p. 130, citing Hooper 1990 and Loxley 1998).

Similar measures were taken in Tanzania in 1986 when the International Monetary Fund and the World Bank imposed their own SAP on the Tanzanian government. It was then that the Tanzanian government took measures at the macro and sectoral levels to consolidate and rehabilitate the national economy. The government’s decision to introduce user-fees (cost-sharing) for social services such as water, education and health in 1988 was part of the implementation of IMF and the World Bank-designed SAP at the sectoral level (United Republic of Tanzania, 1992).

Thus, Tanzania, an African country that sought to promote African Socialism and Self-reliance (Nyerere 1967), slowly regressed into capitalism in 1986 when it agreed to be
part of the open-market economy and implement the SAP. Many people who supported the socialist ideals of equality and self-reliance, such as Mbilinyi, view these drastic changes as "counter reforms." She observes that, "There are already signs that Tanzanian society is becoming a white-dominated society like Kenya and Zimbabwe as a result of the present counter reforms" (1994, p. 45). In terms of education, the private sector has been growing as indicated by the rapid expansion of the private secondary school sector and very little expansion of the public education sector. This implies that, unlike the past, when girls from economically disadvantaged families could pursue higher education that was free to those with the basic academic qualifications, in the future, more girls from rich families will attain higher education, while girls from poorer backgrounds will be excluded.

Those who favor the capitalist approach have insisted that the Economic Recovery Program (ERP) announced in 1986 generated notable increases in agricultural production and financial support by the bilateral donors. (odci.gov/cia/publication/factbook/tz./economy.html, 2000 July 18). However, others, like Shao, Kiwara and Makusi (1992), maintain that one of the major weaknesses of SAP policies is that they do not give adequate attention to the small holder peasants, the majority of whom are women. Shao et al stress that unless women peasants are given the help to transform their economy technologically, there is no way the rural sector, and the women themselves, can advance. Moreover, Shao et al. seem to overlook the fact that most women who are active in the agricultural activities do not own the land which they cultivate. Moreover, illiterate women might not benefit from new technologies envisioned by Shao, Kiwara and Makusi. However, Dei (1994, 1992) points out that based on the experiences of women from the Ayirebi community in a Ghanian village, illiterate women can also influence social and economic change in their communities. Dei argues that research findings of his longitudinal study of the Ayirebi community indicated that the Ayirebi women "can identify their own problems and working in groups, utilize available economic opportunities to their mutual benefit" (p. 141). Dei stresses that development experts should not only ensure that rural people are involved in the development process, but should also learn from the rural peoples. Particularly, they should learn from rural women. More specifically, Dei points out that so far African governments and development experts have failed to make an adequate assessment of the local (cultural) resource base of indigenous peoples and little attention has been paid to the few success
cases at the micro-level of some of Africa’s rural communities like the Ayirebi women. Dei’s observations are particularly relevant to Tanzania, where policy makers and development agents have paid more attention to imported than indigenous development strategies. He emphasizes:

One of the many challenges for policy maker and development experts of sub-Saharan Africa is to study, understand and appreciate the characteristics of sustainability as it exists among indigenous peoples. This task is important in order to draw upon the relevant lessons that do indicate that directions for the development of a theoretical perspective which recognizes the vitality and sustainability of local and community responses to crises. It may require a shift in our focus from cases of failure to what succeeds at the micro-level in rural communities. It is important that we see rural coping strategies not as “traditions,” but as adaptive responses produced over time. These responses can be recreated to solve emerging problems. Real development is what people do for themselves (Dei, 1992, p. 118-119).

**The Informal Economic Sector**

Cameron and Dodd (1970) observe that Tanzania, like other Developing Countries (DC) has a dual but integrated economic system that is characterized by the existence of a rural subsistence economy and an urban monetary economy. Based on its urban monetary economy, Tanzania, with a GNP of US $130.00 per year, without considering its rural subsistence economy is the second poorest country in the world (University of Dar es Salaam, 1995; Winkler, Hartman and Schomburg, 1992). But, the fact that the rural subsistence economy supports Tanzania’s fast growing urban population cannot be ignored.

In addition, the Tanzanian informal sector has been growing since the mid-1980s as a result of harsh economic conditions in the country. The United Republic of Tanzania report on labor force participation indicates that the informal sector employs women second only to the agricultural sector. Street vendors as a category of employed persons in urban areas, constitute 5% of all urban employees and majority of these are women who sell food in open spaces.\(^\text{13}\) Although in principle the Tanzanian government supports the growth of the

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\(^{13}\) Women who cook and sell food in open spaces in urban areas in Tanzania are popularly known as “*Mama n’tilie*” which can be literally translated into, “Mum, give me some.” These women often have little education and a limited knowledge of health and nutrition. Their “business premises” are also not fixed and consequently are often forced to leave these premises and, their property is often seized or destroyed by City and Health
informal sector, Shao, Kiwara and Makusi (1992) point out that the government does not have any concrete plans to support those who are engaged in the informal sector, especially women engaged in small business activities in urban areas who are often unable to compete against rich businessmen. A similar concern is raised in the report on women and men in Tanzania (United Republic of Tanzania, 1992, which reveals problems faced by women in the informal sector:

However, difficulties in obtaining credits for initial investments in the activities, lack of collateral, etc, force women to limit the size of their activities to a minimum investment often obtained through upatu (that is lending by turns among women groups) (p. 45).

The Health System

There have been many changes in the health sector since independence. According to health statistics in Tanzania, the number of hospitals increased from 152 in 1987 to 173 in 1992. Similarly, the number of inhabitants per doctor decreased from 25,165 in 1988 to 19,882 in 1992 (World Bank International Economics Department, 1994). However, it has been noted that the health of most Tanzanian women is far poorer compared to men’s health. Many Tanzanian women especially in the rural areas, are overworked, experience frequent un-spaced births and are undernourished. All these and other factors contribute to diseases and malnutrition that affect not only the women themselves but their children as well (United Republic of Tanzania, 1992).

Therefore, improvements in health care that measure the increase in the number of hospitals and a decrease in the number of patients per doctor as indicators of the quality of a health system in a country, do not reflect the health situation of women in Tanzania, many of whom die without ever seeing the inside of a hospital. It is evident that there is a need for better health services for women. There is also a need for well-trained medical personnel, especially doctors and, in particular, female doctors to work in rural areas in Tanzania, where many women die due to poor health services.

officials.
The Status of Women in Tanzanian Society

Women make up 51% of the total Tanzanian population (United Republic of Tanzania, 1992). However, Tanzanian women like women in many other African societies, continue to occupy a very low social status. Writing about the Structural Adjustment Program (SAP) and how it affects women and development in Tanzania, Shao, Kiwara and Makusi (1992) express their concern that in Tanzania, despite the emphasis on the socialist principles of equality, respect and human dignity, women are a marginalized group. They particularly point out that Tanzanian women lack power, assets, participation in formal and informal institutions and their views are not wholly heard. Shao et al suggest that there is a need to design a deliberate policy of involving women fully in the formal and informal sectors.

Although in theory and according to the Tanzanian constitution women and men are equal before the law, in reality they are not. This is demonstrated by the existence of two separate but complimentary legal systems in Tanzania: customary law and English (modern) law. Under both systems, Tanzanian women are equal to men in theory only. On the practical level, Tanzanian women are not equal to men. This is very evident in the marriage and divorce laws that govern the division of matrimonial assets, the custody of infants in the applications of customary law and enactments about affiliation and inheritance. These laws categorically state that women have no equal rights with men (United Republic of Tanzania, 1992). In the report on the status of women and men in Tanzania, the United Republic of Tanzania stresses that customary law practices limit efforts aimed at giving women equal rights to men. Similar concerns are raised by a popular women’s Swahili newsletter, Mwenzangu (Women, Research and Documentation Project (WRDP), 1986), which points out that in many parts of Tanzania, it is very difficult for women to own a farm, a house or any kind of property because of local customs and traditions. Some labor laws also restrict the employment of women in certain sectors of the economy (United Republic of Tanzania, 1992).

In Tanzania, as in other parts of Africa, women’s participation in education is influenced by their roles as mothers, wives and domestic workers. Women’s fulfilment of these three roles often limits not only their educational chances, but also the type, quantity and quality of education they receive.
Kurtz (1972) points out that in 1957 the UN Visiting Mission felt that "education was the most pressing of all the problems connected with the emancipation of women." By 1957 it was estimated that only 7.1% of females aged over fifteen years had received any schooling at all in Tanganyika. Kurtz also points out that while there were 5,458 boys in secondary schools in 1961, there were only 850 girls at this level of education in the whole country. She also confirms that the lack of high level manpower which existed immediately before independence, prompted major educational expansion in Tanzania that occurred soon after independence was achieved. "In 1960 and 1961 there were only sixty one graduates of university level, no qualified African judges, less than twenty qualified African lawyers. Moreover, Tanganyika could not fill its quota in Makerere University" (Kurzt, 1972, p. 58). Although she does not say how many of these were women, it has been noted that most of the educated Tanzanians were men.

Despite the glaring gender disparity in education throughout the colonial period and at the time of independence, early educational reforms in Tanzania did not include the elimination of gender inequity in education. More specifically, educational reforms did not address the gender stereotype embedded in the education provided to girls and women which emphasized skills in crafts and home economics as a way to prepare girls only to be future wives and mothers.

Between 1960 and 1970 gender disparity was very well pronounced at the primary school level in Tanzania. Dubbledam (1970) writing about education in Mwanza District at this period, observes:

The only group where the number of girls in school at least for the lower standards, equals that of boys is in the Moslem schools. Apparently, Moslem parents, once they have overcome their hesitation to send children to a secular school instead of a Koranic school, do not discriminate between boys and girls before Standard Five, after which the number of girls is lower than that of boys (p. 37).

Dubbledam also points out that judging from the numbers of the educated people in Mwanza region, it appeared that one "needed religion to be educated" because although one-third of schools in Mwanza were Local Authority schools, which unlike religious schools were open to everybody, those with "no foreign religion" did not attend school. After comparing Mwanza and Shinyanga with Kilimanjaro, West Lake and the Coast Region Dubbledam
found that in Mwanza and Shinyanga regions there was a lower initial intake for girls and a higher drop out rate at Standards One, Four, Five, and Eight than in any other region in Tanganyika as indicated in Table 4.

Table 4  
The Percentage of Girls' Primary School Enrolment in Kilimanjaro and Kagera (West Lake)  
Compared with Three Regions and The Country in 1965

<table>
<thead>
<tr>
<th>Region</th>
<th>Std One</th>
<th>Std Four</th>
<th>Std Five</th>
<th>Std Eight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilimanjaro</td>
<td>48</td>
<td>45</td>
<td>42</td>
<td>31</td>
</tr>
<tr>
<td>Kagera</td>
<td>46</td>
<td>43</td>
<td>31</td>
<td>23</td>
</tr>
<tr>
<td>Shinyanga</td>
<td>34</td>
<td>26</td>
<td>23</td>
<td>14</td>
</tr>
<tr>
<td>Mwanza</td>
<td>38</td>
<td>34</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td>Coast</td>
<td>42</td>
<td>36</td>
<td>29</td>
<td>27</td>
</tr>
<tr>
<td>Tanganyika (T)</td>
<td>41</td>
<td>38</td>
<td>31</td>
<td>24</td>
</tr>
</tbody>
</table>


Table 4 indicates that the gender inequity in education in Tanzania has historically been mediated by regional differences. These need to be taken into account when designing programs aimed at promoting women’s education at all levels. Table 4 also indicates that Kilimanjaro stands out as the only region with the highest percentage of girls in all years of study from Standard One to Standard Eight.

The number and percentage of girls’ enrolled in primary schools in Tanzania have increased since independence. Tanzania basic educational statistics known as “BEST” show that by 1988, girls were 49.7% of the total enrollment in primary schools (United Republic of Tanzania, 1992). Despite their increase in numbers and percentages, many girls drop out of school and do not complete the seven years of primary education. Girls drop out of primary schools in Tanzania for many reasons: early arranged marriages, pregnancy while

14 In 1965 The Coast Region included the present Dar es Salaam Region. The two regions became separate regions in 1974. Also, the present Kagera region was known as West Lake Region.
at school (Puja and Kassimoto, 1995; and Ministry of Education, 1984, cited in Puja 1992); inability to pay school fees (Sumra and Katunzi, 1991) and truancy (United Republic of Tanzania, 1992). While it is easy to obtain data on most factors that contribute to girls’ dropouts, data on pregnancy cases as a reason for girls to drop out of school are often dumped under “truancy” because of the social stigma attached to the idea of a school girl becoming pregnant before marriage (Puja, 1992).

Gender disparity in education becomes more noticeable at the secondary school level. Secondary education in Tanzania was poorly developed during colonial rule, and after independence it was promoted only on the basis of [hu]manpower needs. Because women were seen basically as home makers, wives and mothers, they were completely absent from the [hu] manpower development plans as reflected in the small number of girls’ secondary schools (Hongoke, 1991).

Another reason that contributes to the limited number of girls in secondary education is their low performance in national examinations (Malekela, 1997, National Examination Council of Tanzania, 1996). In addition, by 1990, it was noted that more girls than boys were dropping out of school due to the reintroduction of school fees and cost-sharing in primary education in mid 1980s (Sumra and Katunzi, 1991). This implies that the increases in girls’ enrolment that were a result of the 1974 Musoma Resolution which declared primary education in Tanzania compulsory and universal, were short lived. In the future, less girls from the lower social economic backgrounds in urban and rural areas will be able to afford any form of education.

Girls’ participation in science education at the secondary school level indicates that there is an imbalance between the number of girls who study science and mathematics and those who study the social sciences. More secondary school girls in Tanzania tend to prefer arts and social sciences and domestic science, and many of them avoid mathematics and the physical sciences such as physics and chemistry. In 1986, for example, although girls were 94% of the total enrolment in domestic science (home economics), and 43% in commerce, they were only 15% of those studying technical subjects from Forms One to Four (United Republic of Tanzania, 1992).

Mushashu (1997) provides the following factors that contribute to girls’ low participation in science based fields of study: (1) the way science is taught and learnt in
Tanzanian schools (too much emphasis on rote learning and lack of practical experience); (2) the absence of girls and women in Science books; (3) the limited availability or non-use of female scientists to act as role models for young scientists; (4) the societal view that mathematics and science are difficult subjects and hence more suitable for boys; (5) the treatment of girls (and often female mathematicians and science teachers) by male students and teachers, especially in co-education secondary schools (sexual harassment); (6) over demanding national examinations; and (7) limited or lack of study time for female students due to their participation in household chores. She also explains the meaning of gender equity as follows: "gender equity means more than finding places for girls in non-traditional areas. It means attending to knowledge in the curriculum and gender relations in the classroom as well as confronting the powerful institutional discourse which keeps women and minorities marginalized" (Mushashu, 1997, p.4, citing Erye, 1992).

A special report known as Women and Men in Tanzania, (United Republic of Tanzania, 1992 ) indicates that women's low participation in higher education in Tanzania, which reveals a wide gap, does not reflect girls' increased rate of participation at the primary and secondary school in relation to boys. For instance, in 1990, there was a total of 2,827 students at the University of Dar es Salaam, (including the Muhimbili University College of Health Sciences (MUCHS), but there were only 531 female students. A similar gap appears in the students' enrolment at the Sokoine University of Agriculture (SUA) -- out of a total enrolment of 383 students, only 59 were women. Combined enrolment for both universities shows that women were only 18% of the total enrolment of 3,210 university students in 1990.

The report also indicates that although women make up 51% of the total population of the United Republic of Tanzania, due to their low level of education, women are not actively involved in higher levels of decision-making in institutions. The percentage of women who take part in higher decision making at the ministerial and cabinet level has historically not exceeded 3%. As recently as 1975 there was not one woman at this level of political decision-making. Women's participation in politics and decision-making decreases at higher levels. This report gives data that show that more women tend to be members of committees rather than hold decision-making positions in those committees. In 1989 for
instance, 498 women were members of various committees at the village, district and regional levels (10%), but only five of them were chairs and fourteen were secretaries.

Women’s Participation in the Labor-Force

The 1967, 1978 and the 1988 Population Census reports show that the employment of women aged fifteen years and above increased from 5,541 (73%) in 1967 to 10,499,000 (91%) in 1988 (United Republic of Tanzania, 1992). However, most of these women (4,591,000) are engaged in agriculture compared to 3,656,000 who live in urban areas. Most of the urban women are self-employed, housewives and students. These reports also show that most of the women involved in the agricultural sector work on their husband’s land producing food crops and have little or no access to most agricultural inputs available to those engaged in the cash crop growing agricultural sector.

Despite women’s apparent increased participation in the economy, the 1988 Population Census report indicates that only 3% of the economically active women are employed in the wage or salary employment sector. This implies that the rest of the economically active women (97%) are self-employed in the informal domestic sector, which is poorly developed, less attended to by the government and unco-ordinated. As such, women who are engaged in it face many problems such as limited access to capital, lack of an established work premise, operate without licences, lack appropriate training and have no reliable markets -- all of which limit their activities and minimize their performance.

Labor statistics in Tanzania also indicate that there is a difference between rural and urban women’s participation in the labor force. According to the Labour Force Survey 1990-91 (United Republic of Tanzania, 1993), Tanzanian women have a 71% participation rate in the labor force. This rate is lower than the overall participation rate (72.4%), especially because women make up 51% of the total population in Tanzania. The Labour Survey report also indicates that labor participation rates for rural women are higher than the rates for urban women:

Close to half of the urban female population is idle as many of them are engaged in non-economic duties such as house work, going to school, etc. The low rate of participation of urban females in the labour force is however affecting the overall level of female participation and provides potential labor force if women are engaged to participate. Building day care
centers and availability of easy credit facilities for women are among the measures which can activate large numbers of economically idle human resources (p. 1-85).

The above quote raises important questions about the official perception of women’s participation in the agricultural sector, although it is also understood that most of these women work in farms which belong to the male family members, the so called “own-farm category” of the family where 45% of the women work. The rest of the agriculturally employed women work as unskilled laborers in commercial farms (2.0%) (United Republic of Tanzania, 1993, p. 1-15). Moreover, it is erroneous to state that those who are “housewives” are “idle” members of the society because they are engaged in “non-economic duties.” I would rather state that the urban women who are not employed as salaried employees do perform economically useful work as housewives and mothers, both of which are neither paid for nor acknowledged as “work.” This is why many women who are not employed state “just a housewife” when asked about their occupations. The word “just” stresses that being a housewife is not as important as being a nurse or a primary school teacher.

Women’s participation in the professions, as indicated in the 1988 Population Census report, is very low. By 1988 there were only 88,000 female professionals compared with 244,000 male professionals in Tanzania. In addition to being few, in comparison with men, female professionals in Tanzania are most under represented in the scientific and engineering professions. According to the report, Women and Men in Tanzania cited earlier, it is pointed out that:

Women are employed and clustered in the female stereotype occupations such as nursing, midwifery, typing, machine operating and performing activities which are monotonous and with minimal pay. There are very few women who occupy high position[s] of responsibility in the public service. In addition, there are provisions in the statutes book (e.g. the Employment Ordinance Cap. 366 (1) which restrict and discourage employment of women (United Republic of Tanzania, 1992, p. 10).

It is further pointed out that by 1992, for instance, women were only 6% of professionals employed in the scientific and engineering professions, 69% of the nurses and midwives and 27% of the teachers in Tanzania. The 1990-91 Labour Survey report also indicates that in
Tanzania in general, professional occupations have the lowest proportion of the total employed persons (0.2%), while sales and laboring occupations employ 4.7% of all employed persons (United Republic of Tanzania, 1993).

Like other sectors of the economy, the industrial sector in Tanzania is barely developed and is currently undergoing structural changes as a result of the government’s decision to implement Structural Adjustment Programs (Shao, Kiwara and Makusi, 1992). Structural changes in the industrial sector include, among other things, the reduction of state-owned industries, which existed in Tanzania before the implementation of SAPs. But, while discussing the Faculty of Engineering research reports (Winkler, Hartman and Schomburg, 1992) caution that the reduction of state-owned industries in 1990, either because they were sold or owned in partnership with foreign companies as a result of SAPs, has employment implications for the Faculty of Engineering graduates. An emphasis on an open-market economy and competitive policies places Tanzanian’s engineering and other Tanzanian graduates at a disadvantage because they have not been well prepared to compete internationally.

**The Education Sector**

**Indigenous African Education**

Indigenous African education is part and parcel of indigenous knowledge. In his discussion about the role of indigenous knowledge in decolonizing the academy, Dei (2000) defines indigenous knowledges as:

Common-sense ideas and cultural knowledge of local peoples concerning the everyday realities of living...the epistemic saliency of cultural traditions, values, belief systems and world views that in any indigenous society are imparted to the younger generation by community elders (p. 2).

Moreover, Dei discusses three broad aspects of indigenous knowledge that are relevant in the discourse of all forms of indigenous knowledge: traditional knowledge, passed on by elders from one generation to another; empirical knowledge, based on everyday careful observations of one’s surroundings (nature, culture and society); and revealed knowledge, experienced through dreams, visions and intuition. Dei also points out that such Indigenous knowledge is characteristically personal and is tied to the perceptions of the speaker. He also
argues that there is a need to critically examine how African indigenous cultural values, traditions, mythology, thought and history, which were ignored by colonial educators when designing curricular for African children might be integrated into the formal school curriculum. Colonial education in Africa emphasized neither the achievements of Africans in their own right nor their contributions to academic scholarships on world civilizations. Instead, indigenous African knowledge was marginalized and subordinated to Euro-American and other dominant knowledge engaged in conventional processes of knowledge production. Similarly, Nyerere (1967), writing about one form of Indigenous knowledge (traditional education) in Tanzania, argues that:

The fact that pre-colonial Africa did not have “schools,” except for short periods of initiation in some tribes did not mean that the children were not educated. Rather, young people learnt by living and doing. In the homes and in the farms they were taught the skills of the society, and the behavior expected of its members...education was thus informal...but this lack of formality did not mean that there was no education, nor did it affect its importance to the society. Indeed, it may have made the education more directly relevant to the society in which the child was growing up (p. 2).

Emphasizing the similarities between African and European education in terms of its purpose, Nyerere points out that even though European education has been formalized for a long time, it has always had similar objectives as African education namely, “to prepare children and the young people for the place they will occupy in that society” (p. 2). The role of informal indigenous education is also acknowledged by Sheffield and Diejomaoh (1972), who assert that in Africa most people acquire their skills, knowledge and attitudes from institutions other than the formal schools.

Cameron and Dodd (1972) particularly criticize colonial education in Tanzania saying, “In spite of all the concern expressed for African interests there was thus a persistent tendency to prescribe for the Africans only what an alien race thought was good for them. Yet, although muted and neglected, this third factor was an ever-present one and the educational history of the period is not complete without taking it into account” (p. 47). Cameron and Dodd argue that it was not true that European visitors to Tanzania and other parts of Africa moved into “completely educational vacuum” because each society, as Dei (1998) and Nyerere (1967) emphasize, had its own system of transmitting its values, beliefs,
life skills, history and behaviors, which gave its members their identity and ensured their survival.

Missionary and colonial educators disregarded the existing indigenous forms of education when designing education for African children in Tanzania. Instead, they made Africans feel that their ways of life were inferior to those of their colonial masters as revealed in the following statement: “The African has been taught that European ways of life are superior to his...the African shall, in due course reach full maturity and take his place among peoples of the world...” (Great Britain, 1937, p.7). They saw it as not only inferior, but as morally degenerate and dangerous -- and not civilized. Such was the arrogance which formed the foundation for the destruction of all forms of indigenous African knowledge and education in Tanzania and other African countries. However, such an observation runs contrary even to what was documented during colonial rule in Tanzania. In 1940 Raum documented what seems to be the first written account of indigenous education in Tanzania. *Chagga Childhood* (Raum, 1940), traces the birth of a Chagga child and her/his socialization into adulthood. Raum states that this book validates the existence of indigenous education in one East African tribe. I therefore agree with Nyerere (1967) who argues that colonial education made deliberate attempts to change the African values and to replace indigenous knowledge with knowledge from a different society in order to make Africans passive recipients of colonialism.

Discussions about the need to integrate indigenous knowledge into the school curriculum should also take into account some of the differences between school and indigenous thought and practice. Yakubu (1994) argues “indigenous thought and practice” and “science” appear to be compatible and that both have important contributions to make as he points out:

> It may appear that the two cultures are somewhat compatible. They both have contributions to make to each other to enhance their aims of explaining and controlling the environment. It is here that integration arise. Is it possible to integrate indigenous thought and practice with science and technology? (p. 345).

Based on the above quote from Yakubu, it appears that there is a perceptual difference of the aims of “indigenous thought and practice” (Yakubu) and Dei (1992) who advocates
“indigenous knowledges.” Dei holds the view that indigenous knowledge is holistic, relational rather than hierarchical and its purpose is to maintain a harmony of nature rather than to control it as problematically asserted by Yakubu. The view of indigenous knowledge presented by Yakubu seems to indicate, the purpose of the integration is to “westernize” indigenous “thought and practice,” while Dei’s type of integration would mean an introduction of indigenous world views into western science. The fact that these authors present differing views on this topic implies that integration of indigenous “thought and practice” or indigenous knowledge into western science has to be critically analyzed and questions such as “What kind of integration?” and “What would be the purpose of such integration?” need to be answered. Yakubu (1994) also acknowledges the fundamental differences between modern and indigenous thought and practice which science educators need to understand. He points out that the importance of indigenous thought and practice lies in the fact that in Ghana (and Tanzania), the “scientific education given in the developing countries has not succeeded in instilling the scientific spirit in the educated; the indigenous ‘common-sense’ knowledge is so deeply rooted that it appears difficult to change” (p. 344). Yakubu further points out that it is for this reason that, when educated people in African are faced with problems ..."sometimes the scientific solutions are put aside and the indigenous ones are adhered to” (p. 343). He therefore posed the question, “Can indigenous thought and practice be integrated with science and technology?” In response to this question Yakubu suggests:

School science teaching should not be confined to the laboratory, once a week and forgotten for the rest of the week. It should be based on the actions and problems of the community. A community approach to science teaching is the most effective method in this case. The pupils could be organized to be participant observers of indigenous medicine or farming in the community. While participating in these activities they will be learning them through testing ideas of measurement or quantification used by indigenous people against the scientific ones they have learned in the classroom. For instance, if in class they learned about malaria they will find out how their parents and elders explain the disease and treat it, they can look for mosquitoes larvae in pools of water lying about...(p. 359).

It is noted that in addition to using a community approach, classroom science should also involve problem solving and the development of critical thinking. Because science is
tentative, all theories need to be tested through experimentation. Moreover, students and teachers should strive to tackle real life problems instead of relying solely on textbooks as the only source of problems that require scientific solutions.

Although I agree with Yakubu’s argument about the need to use the community approach in teaching classroom science, I differ with him with regard to his distinction between ‘science and technology’ on one hand, and ‘indigenous thought and practice,’” on the other. It appears to me that he holds a hierarchical view of science in which ‘science’ is higher than ‘indigenous thought and practice’ which still need to be tested to become ‘scientific,’ hence the use of the words ‘thought and practice.’ Dei on the other hand seems to view indigenous knowledges as more than the contents of knowledge, but as ways of life, or ways of being which are complete by themselves, and different from western science.

**Islamic Education**

Formal education in Tanzania dates from the time when the coastal areas came into contact with the Persians around 700 ACE. Cameron and Dodd (1970) observe: “Formal non-indigenous education as we know it did not begin with either the European missionaries or the first colonial power but with the Arabs” (p. 50). Similarly *Wizara ya Elimu ya Taifa* [Ministry of National Education], (1979) points out that by 1920s there were 700 Koranic schools, known as *Madras*, with a total enrolment of 8,000 students. Most of these schools were in the coastal areas (Kilwa, Bagamoyo and Tanga and in Zanzibar). Although *Madras* education emphasized ability to read the Holy Koran and the medium of instruction was Arabic, graduates from these early religious schools served as the first Tanzanian civil servants, known as the *Akidas*, under German colonial rule. The *Akidas* were also responsible for keeping the earliest cultural records of modern Tanzania. Cameron and Dodd (1970) point out that:

> Not enough attention has been given in history to their [the Koranic schools] importance and influence, partly because the missionaries have either deliberately ignored or underestimated them and partly because the Government took the view that a purely religious, non-secular system of education had no call on its support (p. 50-51).
Colonial Western Education

Education Under German Colonial Rule. Tanganyika became a German colony in 1891, it was first ruled by Carl Peters Company (1884-1891) (Kurtz, 1972). The first western type of school in Mainland Tanzania was established by the Holy Ghost Fathers at Bagamoyo in 1868 (Ministry of Science, Technology and Higher Education, 1995).

By 1892, the German colonial government had decided to focus on the development of local semi-skilled African men through education. This decision was based on the German colonial government’s conviction that “the climate of Tanganyika was not found suitable for much European settlement, so the African,\textsuperscript{15} had to be developed to help in administration, and in the exploitation of the resources within Tanganyika for the profit of the ruling country” (p. 20). It was within this setting that the need for semi-skilled Africans to carry out supportive administrative tasks in German East Africa emerged. The establishment of a government school came about because government officials viewed Missionary education as inadequate to meet their needs. First, the best graduates of mission schools were employed by the missions and the “rubbish” (p. 19) was absorbed by the government. Secondly, Christianity was a source of friction in Moslem areas where the Germans faced strong opposition from the coastal people, most of whom were Moslems and were not willing to attend Mission schools. Therefore, to make things easier for themselves, the German colonial administrators pacified the coastal Moslems partly by promoting Kiswahili into the medium of instruction in government schools which were open to all children regardless of their religious backgrounds. The German colonial government also employed Moslem teachers to teach Koranic classes in government schools.

The first German colonial government school in Tanganyika was Tanga, established in 1892. Tanga School was the German colonial government center for teaching and training African boys to work mainly as messengers and tax collectors. Other government schools developed later were located in the Eastern (coastal) and Northern (mainly Tanga and Kilimanjaro) parts of Tanganyika.

\textsuperscript{15} The expression “the African” as used in colonial records, could have gender and racial meanings. It often meant African men, but it could also imply that the “African” has no gender, or that gender is not important to the “African”
Table 5 shows the level of literacy reached in Tanganyika during German colonial rule. It also shows that by 1914, there were 99 government and 1,852 Mission schools with 6,100 and 155,287 pupils respectively (Kurzt, 1972, p. 22).

Table 5

Education During German Colonial Rule: Tanganyika Schools and Their Enrolment in Selected Years, 1903-1914

<table>
<thead>
<tr>
<th>Year</th>
<th>Government School</th>
<th>Mission School</th>
<th>Pupils in Government School</th>
<th>Pupils in Mission School</th>
</tr>
</thead>
<tbody>
<tr>
<td>1903</td>
<td>8</td>
<td>15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1911</td>
<td>83</td>
<td>918</td>
<td>3,192</td>
<td>63,455</td>
</tr>
<tr>
<td>1914</td>
<td>99</td>
<td>1,852</td>
<td>6,100</td>
<td>155,287</td>
</tr>
</tbody>
</table>


Dolan (1970) points out that Tanganyika education under German colonial rule, before the outbreak of the First World War, was highly praised by the British civil officials who took over Tanganyika after the war:

The natives of Tanganyika were advanced far beyond those in the British colonies. The British officials were particularly impressed that government officials in Tanganyika could communicate with chiefs and village headmen (Akindas) in writing and receive reports from them in writing in Kiswahili, whereas in British colonies such as Kenya, the civil servant would have to risk the mutilation of his instructions to a chief by having to send them verbally (Dolan, 1970, p. 27).

A similar argument is made by Kurtz (1972) who points out that German education in Tanganyika before the outbreak of the war was well developed and was credited for its strong emphasis on practical education, teacher education and health improvement. The German colonial government’s decision to establish schools for boys only and to leave the

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16 The year 1914 has a historical significance in the history of education in Tanzania (former Tanganyika). Most of the schools that existed in 1914, before the outbreak of the First World War, were closed down and were never revived at the end of the war when Tanganyika became under British colonial rule.
education of girls to missionaries however, laid the foundation of gender inequity in education which still exists in modern Tanzania. Hongoke (1991) points out that historically there have been more secondary schools for boys than for girls. German missionary education promoted a curriculum that was gender stereotyped, emphasizing sewing, cooking and crafts for girls while boys learned carpentry, woodwork and masonry. Girls’ education was also to be limited to the lower levels, they were not expected to pursue higher education.

**Education Under British Rule.** Galabawa (1990) and others have noted that for the period they ruled Tanganyika (1914 to 1961), the British demonstrated little interest in Tanganyika’s education and in other sectors of the economy. The British lack of interest was basically because they had taken control of Tanganyika in order to limit power of Germany in Africa. It took the British six years (1914-1920) to appoint a director of education. Kurtz (1972) observes that the British started to take an interest in Tanganyika in order to develop Tanganyika as a white man’s land through the use of African labor, pointing out that not much was done in the education sector after Tanganyika came under the British until 1924 when the Phelpes-Stokes Commission was formed (Great Britain, 1937). This commission made recommendations known as “education for adaptation,” a model of education used for African Americans in the USA. The wholesale importation of this model was racist. It seemed to suggest that an education suitable for African-Americans was just as good for other African people, whatever their local circumstances might be. Education for adaptation was aimed at teaching practical skills and moral education to Black people in the US and Africans such as those in Tanzania. It was believed that Africans or Blacks are lazy and need to be ‘civilized’ and their brains are not good enough for intellectual work.

The recommendations restricted the education of girls to the primary school level. Their curriculum prepared them to be homemakers, wives and mothers but not as future employees, except perhaps as primary school teachers. This is confirmed by the following statement about the participation of women in the higher College (that is, Makerere College):

The secondary education stage will have to be organized. When that has been accomplished women will, in due course, be admitted to the Higher College, but we fear that it will be some years before there are any African students qualified for this (Great Britain report, 1937, p. 69).
According to the above statement, African girls were not admitted into secondary and post-secondary school institutions such as Makerere because they did not qualify. This argument was used to deny African girls access to an education that was being offered to boys although boys’ education was also restricted. As Rodney (1972) points out:

Africans were being educated inside the colonial schools to become junior clerks and messengers. Too much learning would have been both superfluous and dangerous for clerks and messengers. Therefore, secondary education was rare and other forms of higher education were virtually non-existent, throughout most of colonial epoch (p. 267).

Unlike boys, African girls and women were not educated because colonial administrators did not need women in these semi-skilled jobs. Women’s role was to stay at home and bear children, that is, reproduce future labor force. Some educational researchers, Dubbledam (1970) and Mbilinyi (1969) blame African girls’ low participation in education on the attitudes of their fathers’ towards the education of their daughters. African fathers were not more powerful than the colonial educators and they could not refuse to send their daughters to school if that was the colonial administration’s policy.

Moreover, the marginalization of African women in education was a reflection of the European middle-class model of education, upon which colonial education was based. According to this model, women belong to the “private” sphere (in the kitchen and home) while men dominated the “public” sphere. But this dichotomous thinking was not wholly applicable to the Tanzanian context where both men and women work in the farms even though women do the cooking as well. This dichotomous treatment of education was problematic for Tanganyika because while farming was done jointly by women and men, colonial agricultural education was accessible to men only and women were only taught cookery, needlework, housekeeping and child care.

Colonial education in Tanzania also discriminated against students on the basis of race. Table 6 shows that although Europeans were a minority group in Tanganyika, by 1947 the British colonial government was spending Sterling Pounds 37.6 for the education of one European child and only 2.2 Sterling Pounds for an African child (Galabawa, 1990). Table 6 gives an overview of students’ enrolment and unit cost per student by racial breakdown for 1947.
Table 6

Enrolment and Net Expenditure on Education by Race in Tanganyika’s Schools in 1947

<table>
<thead>
<tr>
<th>Race</th>
<th>School Age Population</th>
<th>School Enrolment</th>
<th>Percent Enrolled</th>
<th>Cost per Student in £</th>
</tr>
</thead>
<tbody>
<tr>
<td>African</td>
<td>5,480,391</td>
<td>113,198</td>
<td>2.1</td>
<td>2.2</td>
</tr>
<tr>
<td>Asian</td>
<td>50,332</td>
<td>9,831</td>
<td>19.5</td>
<td>5.2</td>
</tr>
<tr>
<td>European</td>
<td>14,727</td>
<td>958</td>
<td>6.5</td>
<td>37.6</td>
</tr>
</tbody>
</table>

Source: Galabawa (1990, p. 5).

Apart from allocating less funding for the education of African children than for European or Asian children, the British colonial government in Tanganyika had three separate education systems for Europeans, Asians and Africans based on different curricular. While African children were required to become competent in agricultural and animal husbandry, the curriculum for European and Asian children was elitist in nature. They learned the academic subjects only and were not required to learn either Agriculture or animal husbandry (Cameron and Dodd, 1970).

Low enrolment of African children in schools is also discussed by Kurtz (1972) who points out that although there was an increase in African children’s enrolment between 1947 and 1960, Tanganyika’s literacy rate was estimated only at 16% in 1960. The low literacy rate and lack of high level humanpower were the major reasons for the post-secondary educational expansion immediately after independence.

Colonial education also laid the foundation for religious, ethnic and geographical disparities in education. The current situation in Tanzania, where the Chagga and the Haya (most of whom are Christians) are over represented in all levels of education is not accidental. It has its roots in colonialism when mission schools favored economically advantaged areas as Rodney (1972) observes:

Inside Tanganyika, a map showing the major cotton and coffee areas virtually coincides with a map showing areas in which colonial education was available. It means that those whom the colonialist could not readily exploit were not offered even the crumbs of education (p. 266-67).
I agree with Rodney about the close relationship between cash crop growing and availability of education. However, climate also contributed to this situation such that even though cotton was grown in Mwanza, Shinyanga and Mara, these areas did not seem to have been very attractive to white missionaries who established the first European kind of schools in Kilimanjaro, West Lake and Southern Highlands.

**Tanzanian Public Education in 1961 and After**

Nyerere (1967) points out that at the time of independence in 1961 most people in Tanganyika were illiterate. There were only 11,832 students in secondary schools, of whom only 176 were in Form Six. But Nyerere does not provide the breakdown of how many of these students were women or men. As a result of this dismal situation, the Education Ordinance intended to eliminate racial, religious and regional inequality in education at all levels and create an integrated education system, was enacted in 1961 but became operational in 1962 (Eliufoo 1964). As well, the government nationalized private schools in order to eliminate discrimination based on race and religion. However, gender inequality, which had also existed since the colonial period, was not seen as a problem and was not addressed.

The declaration of the Education for Self-Reliance (ESR) Policy in 1967 (Nyerere, 1967) was a translation of the Arusha Declaration into a philosophy of education. The purpose of ESR was to make the Tanzanian education curriculum relevant to Tanzanian society by preparing the primary school graduates for life in the village. Secondary education was seen as preparation for higher education for those few who were expected to serve the community (based on manpower needs. By 1967, only 13% of Primary school graduates were selected to join secondary schools. These changes were introduced to allow more African children to complete the full primary school program. During the colonial rule, most children completed only four years of primary education.

Other policy decisions included the Musoma Resolution (Tanganyika African National Union (TANU 1974) which brought in the Universal Primary Education (UPE). The Musoma resolution also introduced a two year work experience requirement for university entrance for men while women could join the university immediately after completing secondary education. Following the Musoma resolution, the 1978 Education Act was enacted by parliament to reinforce the implementation of these policy changes.
Nonetheless, the policies still privileged some over others, and although female students were exempt from the two year work-experience requirement for university entrants, this political strategy did not address the fundamental factors which contribute to women’s low participation in higher education such as the smaller number of secondary schools for girls, limited curriculum options, negative attitudes towards female students and sexual harassment in university campuses. Therefore, gender disparities in higher education were left intact.

The diversification of the secondary school curriculum in 1976, was also part of the implementation of the Education for Self-Reliance and the Universal Primary Education at the secondary school level. Secondary School subjects were diversified into two academic streams: arts and science and there were four vocational streams: agriculture, commerce, domestic science and technical subjects. While all agricultural, commercial and technical streams were open to both girls and boys, the Domestic/Home Economics bias was only offered to girls. This diversification policy had two major objectives: to give secondary education a practical orientation and to satisfy the manpower requirements (Psacharopolous, 1990).

Sifuna (1992) points out that research done so far reveals that: (i) diversification programs have not yet met their intended objectives, although there is interest in vocationalizing formal education; (ii) problems that commonly face these programs include the following: high unit costs, an absence of clarity in the aims and objectives, a shortage of qualified teachers and a low status of vocational subjects as viewed by students and the community. He recommends that diversification programs should relate to more realistic goals through a wider community participation and through the work orientation of post-school training. Sifuna, however, does not analyze diversification from a gender equity perspective. But Malekela (1997) observes that in Tanzania, boys look down upon Home Economics, a subject that is only taught in Girls’ Secondary schools in Tanzanian.
The Form One selection mechanism known as the "quota system" (Almasi, 1993) was introduced at the district and regional level to minimize regional and ethnic differences. Later, in mid-1970s, the quota system, was extended to include girls as a way of commemorating the United Nations's decade for women (1975 to 1985). Despite its good intentions, the quota system like other policy decisions aimed at promoting equality among Tanganyikans, was criticized for contributing to poor quality in education. It was argued that those who were selected through the quota system were not academically competent. The quota system has since been eliminated at the regional level and for girls.

**The Tanzanian Private Education Sector**

Unlike education in the neighboring countries of Kenya and Uganda, private education in Tanzania is not very much developed. Immediately after independence, the 1962 Education Ordinance (Eliufoo, 1964) was passed to abolish discrimination in education based on racial and religious differences. Private schools which discriminated against students on the basis of race and religion, were discouraged and existing ones were nationalized. But important ideological changes which took place in Tanzania in early 1990s when public demand for secondary education forced the government to allow private schools to be established.

Consequently, by 1997 there were many new (and old) private secondary schools run by religious organizations (mainly Moslem and Christian), individuals, community organizations, and the international secondary school system. With the exception of the international school system, mission and Asian secondary schools, the majority of the private secondary schools suffer from inadequate teaching and learning resources, are staffed by unqualified teaching personnel and have a higher student-teacher ratio compared with public

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17 The Quota System involved the allocation of Form One places in government secondary schools in all the 20 regions in Tanzania Mainland by using the following formula:

\[ A = \frac{(B \times D)}{C} \]

Where A=the regional share of Form One places;
B=the number of standard seven pupils taking the Primary School Leaving Examination;
C=the total number of Standard Seven in the whole country [Tanzania Mainland];
D=the number of Form one places available in Mainland Tanzania (Almasi, 1993, p 33. citing Mbilinyi, Mbughuni and Meena, 1990; Mosha 1989; Malekela, 1983).
secondary schools. At the end of Form Four and Form Six students from private secondary schools take the same national examinations set by the National Examination Council of Tanzania.

Educational data indicate that by 1990, the percentage of girls in private secondary schools (46%) was higher than it was in public/government secondary schools (37%) (United Republic of Tanzania, 1992). The fact that private education sector is growing more quickly than the public sector implies that more girls from wealthy families now have access to higher education than those from poorer families. Private education is far more expensive than public secondary school education.

The shift from socialist and self-reliance to market economy (capitalism) and an increase in foreign investments gave boost to the private sector. The bottom line of SAP is to reduce and finally eliminate the role of the state in the economy. The IMF and the World Bank are more concerned about the need to stabilize and adjust economic measures than satisfying peoples’ basic needs such as education, health care or even water.

**Higher Education in Tanzania**

**Higher Education During British Colonial Rule**

The decision by the British colonial office in 1923 to set up a Permanent Advisory Committee on native education in Africa has been cited as the foundation of university education in tropical Africa including East Africa (Berry, 1970). But other critics of colonial powers’ interest in promoting higher education for Africans point out that Britain, France, Portugal, Spain and Belgium were very cautious in their decision to introduce higher education in Africa. Makerere college which was established in 1922, was the only university college in East Africa that enroled students from Uganda, Kenya, Tanganyika and Zanzibar. Although each country had a special allocation of students at Makerere, based on each country’s financial contribution to the college, most Makerere students (100) came from Uganda. Tanganyika and Kenya contributed less money than Uganda and annually sent forty and twenty students respectively. While most Kenyans went to study abroad, Tanganyikans on the other hand, depended more on their Makerere quota because most of them could not afford to go to study overseas. Tanganyika and Zanzibar children had lesser chance of moving from secondary to university in both countries due to poor location of educational
facilities and preparatory educational systems. Consequently, at the time of independence there were very few Tanganyikans (mostly men) who had higher education. The Ministry of Science, Technology and Higher Education (1995) asserted that by 1964, only 173 Tanganyikans had been admitted to the University of East Africa (0.002% of the primary school cohort). At the time of Tanganyika’s independence in 1961 the need for high level manpower was a more crucial problem in Tanganyika than it was in either Kenya or Uganda. Tanganyika’s and Zanzibar’s low participation rate in higher education throughout British colonial rule has had a backwash effect in turn even after independence, particularly in relation to the number of high level professionals.

The only institution that offered post-secondary education in Tanganyika during British colonial rule was the Dar es Salaam Technical Institute (DTI), which was established in 1957 to train Technical Assistants (TA). But due to lack of qualified applicants the DTI was used to train secretaries and clerks instead. Later, when suitable applicants were available the DTI was upgraded to train TA and offer the Ordinary Technical Diploma (OTD) in civil, mechanical and electrical engineering (Alphonse, 1989). Thus Makerere laid the foundation of elitist and expensive western higher education in the East African countries. Furley and Watson (1978) compare the luxurious campus life enjoyed by Makerere students in the 1950s to the “Asquithism” tradition at the University of London. The Asquithism tradition was characterized by “expensive halls of residence, individual rooms, dining halls, large common rooms, professional faculties such as medicine, laboratories, technical equipment and staff houses,” (p. 308) a university environment only a few East Africans were able to enjoy! Furley and Watson point out that most of the Makerere students came from poor social backgrounds. This implies that Makerere graduates were far removed from their own communities, including their own parents.

Because of this elitist nature, higher education in East Africa was viewed as a tool for the creation of the African middle-class and hence the creation of classes within society. But Greenough defends the role of higher education in development in the following statement: “Among the corridors along which strong winds of change are blowing is the one that leads to higher education” (Greenough, 1966, p. 52). It is also because of the potential of higher education as a catalyst for social change that the need for women’s participation in higher education in Tanzania is advocated in this study.
The University of East Africa was established in January 1963, and Julius Nyerere, the first president of Tanganyika, was its first and last chancellor. The need to link the development of the University with manpower needs to train the high level personnel who would replace the colonial manpower after independence was felt more in Tanganyika than in either Kenya or Uganda. Moreover, as time went on, there was less and less co-operation in sharing the professional programs. This situation was closely related to the decision to link university education with government planning which had its origins in the British colonial rule:

The Universities entirely accept the view that government has not only the right but the duty to satisfy itself that every field which, in the national interest, ought to be cultivated in Great Britain is in fact being cultivated in the university system, and that the resources which are placed at the disposal of the universities are used with full regard both to efficiency and economy. We accept this statement as indicating the proper relation between the university and the government (Furley and Watson, 1978, p. 331).

This supervisory and controlling role of the government was achieved through the University Grants Committee. This relationship laid the foundation for government control of universities in East Africa, which has, over the years, had some negative influences on the development of higher education, especially university education.

Chagula (1968) points out that the British officials in East Africa had anticipated that Kenya, Tanganyika and Uganda would form an East African Federation soon after independence. But when it became clear that a political federation was far from reach, even in the future, some people in each country, but especially in Uganda, felt that belonging to the University of East Africa was not that profitable. Therefore, the University of East Africa, which had evolved with so much promise and hope, was dissolved in 1970 in favor of three national universities: Makerere University for Uganda, the University of Nairobi for Kenya and the University College Dar es Salaam for Tanzania. Chagula further observes that many people in each country still hoped that collaboration and co-operation among them would continue. However, Chagula, like other educators in East Africa at this time, was aware that "education and politics are inextricably interwoven" (p.19). As a source of power, higher education was too sensitive a theme for inclusion in the treaty for East African co-operation because it would have been very difficult to control the source of power for each country.
The Establishment of University Education in Tanzania

Higher education in Tanzania is mainly public. By 1997, there were no private institutions of higher education. College education lasts between two and four years and university education takes between three and five years. But this pattern is expected to change because of the ideological shift from socialism to capitalism and an increase in private investments (Ministry of Science, Technology and Higher Education, 1996).

The oldest university in Tanzania is the University of Dar es Salaam. Established as the University College Dar es Salaam (UCD) in 1961 under the University of East Africa (UEA) system and partly through funds contributed by Tanganyikans. But much care was taken to avoid duplication of the programs offered at Makerere and Nairobi. The UCD was established as a full university and renamed the University of Dar es Salaam (UDSM) in 1970 under the 1970 University Act. Commenting about the role of the university in the Tanzanian society soon after the University of Dar es Salaam was established, Nyerere explained that Tanzania started its own university in order to train its own high level humanpower who were expected to be committed to serve Tanzania’s socialist society. The need for high level humanpower in Tanzania is also stressed by Kanduru (1997) who quotes the official document that was used:

No problem facing this government is more urgent than that of increasing the supply and improving the organization of highly qualified humanpower needed for economic and social development (Kanduru, 1997, p.5, quoting Government paper No 2. p.1).

Kanduru stresses that at the time of Tanganyika’s independence in 1961, there was a need for highly skilled people in the civil service, engineering, medicine, management and administration.

Berry (1970) questions the role of university education in the preparation of “manpower.” He argues that emphasis on the university’s role as an institution for the preparation of high-skilled personnel was itself a major weakness of the inter-territorial approach towards higher education in East Africa. He also criticizes the lack of national

18 The first amount of contributions towards the establishment of a Tanganyika university that was made by at least 74 Tanganyikans [Tanzanian] (4 women and at least 70 men) in 1958 was over 7,971 Shillings (see Appendix C).
focus on the type of higher education needed. He queries the significance of starting the University College Dar es Salaam with only seventeen law students:

In a country where water is almost an ubiquitous problem, and we do not yet have a course in Earth Science and Hydrology, where land use and soil conservation are important issues and we do not have coordinated courses in Soils and Ecology, where rural development is the keynote and we have not yet outlined our tactics for producing the right sort of educated manpower for this sector, where there is resurgence of national culture and yet where our arts departments are worried about their future: where agriculture is the occupation of 90% of the people and our faculty [of Law] has only 17 students obviously much needs to be done... (Berry, 1970, p. 21).

It is true that there were hidden colonial agendas in the distribution of the special faculties, such that medicine was deemed more needed in Uganda, technology in Kenya and law in Tanganyika. Why law? And, which law? Whose law? I agree with Berry’s criticisms of the higher education curriculum, the inequalities underlying the distribution of the special faculties and his criticisms of the “manpower” approach to higher education. But he, too, seems to take for granted that the need for high level personnel meant men, hence the term “manpower.” For instance, while he questions the seventeen law students, he does not go further to wonder why only three of them were women? Women’s low participation in higher education is therefore historical. If we convert three female students into a percentage, it comes to approximately 18%. Although the numbers involved are small, women’s participation in higher education at the University of Dar es Salaam has remained less than 20% (United Republic of Tanzania, 1992).

The Inter-University Council of East Africa had anticipated that within ten years, Kenya and Tanganyika would need universities to reflect their national and political characters as well as education and training needs after independence. The decision to start the University College Dar es Salaam with the Faculty of Law School was part of the whole plan concerning the three members of the University of East Africa. Each college was to have a specific professional focus. Makerere, for instance, was to specialize in medicine, Nairobi in technology and Dar es Salaam in law. Each college was to provide training in arts, science and education. The major rational for this decision was to avoid duplication and minimize costs, particularly in the expensive professional programs.
The University of Dar es Salaam (UDSM) was the only university in Tanzania until 1984, when the former Faculty of Agriculture at Morogoro was elevated into a full university and named the Sokoine University of Agriculture (SUA). By 1997 there were three universities in Tanzania. The University of Dar es Salaam has four campuses: the Mlimani Campus also known as the main campus; the Institute of Marine Science (IMS) in Zanzibar; the Muhimbili University College of Health Sciences (MUCHS) and the University College of Lands and Architectural Studies (UCLAS). The second university is the Sokoine University of Agriculture (SUA) which has three campuses: the main campus, Mazimbu and the Olmontonyi campuses. The third university is the Open University of Tanzania (OUT) and by the 1996/97 financial year, there were plans to establish new public and private universities.

The colleges which offer higher education in Tanzania operate under the jurisdiction of various ministries. These post-secondary institutions offer higher education at the diploma level in various specialized areas such as education, financial management, administration, business, accounts and journalism, to name just a few. This implies also that higher education in Tanzania is not well co-ordinated since many ministries are involved in its provision.

Although Tanzania was to be self-sufficient in high level [hu]manpower by 1980, higher education planning in Tanzania is still based on the outdated manpower needs policy. This means that only about 1,200 Tanzanians are admitted to university programs each year (Ministry of Science, Technology and Higher Education, 1995).

The Ministry of Science, Technology and Higher Education outlines a number of problems facing higher education in Tanzania in the late 1990s. One of the most critical is poor financing. As Leshabari and Masesa (1997) point out, the government budget for education declined from 13.3% in 1982/83 to 4% in 1991/92. The Tanzanian education budget is the lowest when compared with what neighboring countries such as Kenya (27%), Uganda (22.5%) and Botswana (15.9%) allocate to education. The effects of such a

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19 "Sokoine" was the surname of a very popular Tanzanian prime minister and the first high level Maasai politician in Tanzania, Edward Moringe Sokoine who was tragically killed in a car accident on April 12, 1984, in Morogoro region where the Sokoine University of Agriculture named after him, is located.
diminishing education budget are reflected in poor teaching resources and low motivation among teachers and students.

Although inadequate financing of education is the most pressing problem, the Ministry of Science, Technology and Higher Education states that the “first problem facing higher education in Tanzania is limited and declining student enrolments in institutions of higher learning” (United Republic of Tanzania, 1995, p. 22). The Ministry points out that student enrolment at the higher levels of education does not correspond either with the enrolment at lower levels or with student enrolment in institutions of higher learning in neighboring countries. As Table 7 shows, students’ enrolment declined as the level of education increases.

Table 7
The First Year Tanzanian University Students’ Entrants as a Percentage of School Age-Cohort, 1993

<table>
<thead>
<tr>
<th>Age Group in Years</th>
<th>Education Level</th>
<th>Number of Students</th>
<th>As percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-13</td>
<td>Primary Std One</td>
<td>850,000</td>
<td>100.00</td>
</tr>
<tr>
<td>14-17</td>
<td>Secondary Form One</td>
<td>80,000</td>
<td>9.40</td>
</tr>
<tr>
<td>18-19</td>
<td>Secondary Form Five</td>
<td>5,600</td>
<td>0.70</td>
</tr>
<tr>
<td>20-24</td>
<td>University First Year</td>
<td>2,000</td>
<td>0.24</td>
</tr>
</tbody>
</table>

Source: Extracted from the United Republic of Tanzania (1995, p. 22)

Only 9.4% of the 850,000 children of the school going age manage to get into the secondary school Form One. The number continues to decline such that of these, only 5,600 manage to be admitted into Form Five (0.7%). At the university level the number diminishes even further with only 2,000 students making it to the university level (0.24%) and about 2,600 students are admitted into various tertiary institutions (0.3%) creating a very steep educational pyramid in Tanzania. As it has been pointed out elsewhere in this discussion, this steep educational pyramid is a direct result of the [hu]manpower approach towards higher education in Tanzania. This situation is not so common in Kenya, Botswana, Ethiopia and Namibia, comparisons which the Ministry of Science, Technology and Higher Education always draws on. The expansion of student enrolment should be balanced with the
availability of adequate fiscal, physical and human resources and should not be so much concerned about comparison with enrolments in other countries.

Another problem facing higher education is the imbalance in student intake. The Ministry of Science, Technology and Higher Education is concerned that Tanzania will enter the 21st century without the anticipated critical mass, which was expected to exist by the year 2000. By 1995, only one third of students in Tanzanian universities were enrolled into the science based disciplines. It is argued that failure to produce a critical mass is due to lack of scientific tools, laboratory equipment and trained science teachers.

The gap in students’ enrolment in higher education is wider between female and male students than between students’ enrolment in the Physical and the Social Sciences. However, the Ministry of Science, Technology and Higher Education’s policy is more concerned with the overall difference between Physical and Social Science students’ enrolments and only barely includes a short last paragraph under “the imbalance in student intake” (Ministry of Science, Technology and Higher Education, 1995, p. 22). Table 8 shows that over the years, women have been more under represented in technical training programs and at the university level than in teacher training and at the lower levels of education.
Table 8
Trends in Female Enrolment in Education and Training Programs by Levels of Study and Percentage Between 1988-1993

<table>
<thead>
<tr>
<th>Year</th>
<th>Primary</th>
<th>Secondary Public/Private</th>
<th>Teacher Training</th>
<th>Technical Training</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>49.7</td>
<td>41.1</td>
<td>41.6</td>
<td>5.2</td>
<td>16.2</td>
</tr>
<tr>
<td>1989</td>
<td>49.6</td>
<td>42.6</td>
<td>40.8</td>
<td>6.9</td>
<td>17.1</td>
</tr>
<tr>
<td>1990</td>
<td>49.5</td>
<td>41.5</td>
<td>42.7</td>
<td>6.8</td>
<td>21.8</td>
</tr>
<tr>
<td>1991</td>
<td>49.4</td>
<td>43.2</td>
<td>44.8</td>
<td>6.5</td>
<td>19.2</td>
</tr>
<tr>
<td>1992</td>
<td>49.1</td>
<td>43.4</td>
<td>49.6</td>
<td>6.2</td>
<td>18.6</td>
</tr>
<tr>
<td>1993</td>
<td>49.2</td>
<td>43.2</td>
<td>51.1</td>
<td>6.5</td>
<td>16.0</td>
</tr>
</tbody>
</table>


The mushrooming of tertiary institutions is a new problem facing higher education in Tanzania in the 1990s. Although by 1982/83 there were only forty two tertiary institutions in Tanzania, a survey of higher education institutions shows that by 1992, there were 142 tertiary institutions. The fast rate at which such institutions have been established by ministries and parastatal organizations has led to other problems such as lack of coordination, duplication and poor utilization of existing resources.

Summary

Chapter Two has provided the research context. It has briefly described Tanzania, its geographical location, area and climatic conditions. It also gives a historical overview of Tanzania, the people and their political, economic and social institutions. The chapter also discusses the status of women in Tanzanian society and emphasizes that although women are the majority demographically (51% of the Tanzanian population, 1992) they are under represented in all formal and informal institutions.

The chapter has also traced the development of the Tanzanian formal education sector and has stressed that the current education system needs to be historically contextualized. The development of higher education in Tanzania according to [hu]manpower needs has
historically contributed to women's low participation, especially in science-based university programs and non-traditional fields of study. Women's low participation in science-based fields and mathematics influences their participation in science, mathematics and technology-based careers.
Chapter Three: Review of Related Literature and Conceptual Framework

Chapter Three is divided into two parts. Part One opens with a general overview of the research on women’s participation in education, at both the lower and higher levels of education. The general overview is followed by a review of the literature, which is divided into girls’ education and women’s participation in higher education. Special attention is paid to women’s low participation rates in higher education, particularly their participation in mathematics and science and in technological university programs such as agriculture, medicine and engineering.

Major issues raised in the review of the related literature are summarized and the research questions are considered at the end of Part One. Part Two discusses the anti-colonial African-centered feminist conceptual framework. My views on this conceptual framework are influenced by the writings of a number of African and other feminist scholars such as Steady (1985), Amadiume (1987), Okeke (1994), Mohanty (1989) and Mbilinyi (1969, 1994). I advocate women’s increased participation in higher education, especially in university programs (agriculture, engineering and medicine) where women are under represented. And, bearing in mind the diversity that exists among Tanzanians in terms of their access and success in education, I particularly advocate an increased participation in higher education of Tanzanian women from under represented ethnic, regional, religious, and socio-economic backgrounds.

Part One: Review of the Related Literature

A General Overview

Girls’ Education. Many studies have been carried out in developed countries on girls’ education and on their career aspirations and choices, mainly by liberal feminists who demanded equity in education and employment. In this study I refer to only a few of these. Glaze (1979) studied the factors that influence career choices of white middle-class high school girls in Ontario, using quantitative methods. Some of Glaze’s research findings are worth mentioning in relation to my study. For example, her study revealed that although white middle class girls aspired towards upper-class and the science-based careers that are considered “non-traditional” for women, these girls expected that they would enter middle-class, “traditional” female occupations. This finding contradicts the commonly held view that
girls as a group have low self-esteem and low career aspirations and that they need to be encouraged to develop self-confidence and higher career aspirations.

Another research finding on girls' education in developed countries that is relevant to my study was reported by the Toronto Board of Education (1982). In this report, statistical data on secondary education is reviewed in order to establish the extent to which sex-related differences exist in mathematics related courses among the Toronto Board of Education secondary school students. The study revealed, among other things, that mathematics avoidance by girls is influenced by a number of factors including girls' lack of awareness of the use of mathematics and their perception of mathematics as a male subject; influence of significant others (parents, teachers and counselors); and sex-role stereotyping in school textbooks and other instructional materials. The Toronto Board of Education report stresses that the main factor contributing to girls’ avoidance of mathematics is the socialization process through which children acquire values, beliefs and attitudes which are reproduced when they grow up.

Other research findings focus on the appropriate research methodology for studying girls' participation in education. Walkerdine, the Girls and the Mathematics Unit (1987) have criticized British studies on girls’ issues for relying on quantitative methods whose main interest is to establish the statistical significance of research findings and to make generalizations. Walkerdine and her colleagues argue that issues concerning girls and women are very specific and that these issues are better understood through the use of qualitative research methods. This observation validates the qualitative research approach employed in this study.

Women in Higher Education. Women’s low participation in higher education is a worldwide problem. Writing about women’s participation in higher education in Great Britain, Deem (1978) points out that although university education in Britain existed long before the 19th century, the resistance to admit women was so great that it was not until the passage of legislation in 1875 allowing universities to grant degrees to women that any of the higher institutions in Britain began to admit female students. She stresses that even then, some British universities continued to see female students as a separate category from the male students or what we might call now “the Other”. Deem points out that Oxford University for instance did not admit female students until 1920 and Cambridge not until
1948. Deem further observes that although women became a common sight in many university campuses in Britain [and other countries] in the last half of the 20th century, higher education has remained an area in which women are excluded as potential students and faculty members. Although Deem's discussion was based on the situation of women in Britain over twenty years ago, women are still under represented in high status subjects with relatively good career opportunities such as mathematics, the physical sciences and technology in developed and third world countries.

Citing Sells (1972) Gadalla (1998) points out that women’s low and uneven participation in higher education in North America was first documented and reported in 1972. It was noted that although there was evidence that female students’ performance in high school was better than the performance of male students, the bright female students were not applying to join higher education institutions in equal numbers with male students. Sells’ review of the applicants who sought admission into the University of California at Berkeley revealed that although girls’ performance in high school was better than boys’, only 8% of the women, but 57% of the men, were applying for university undergraduate programs in economics, calculus, chemistry, physics, engineering sciences, statistics and computer science.

Although many improvements have been made in the USA on women’s participation in higher education since 1972, Chamberlain (1991) wrote that by 1991, parity in higher education had been reached only in four university programs: biological sciences, business, mathematics and premedical sciences. Male students were still dominant in engineering programs. In 1986, women constituted only 2.9% of first year engineering students who made 19.9% of all freshmen [sic] in American universities. Chamberlain also stresses that, by 1991, women were still working in low paying jobs in greater numbers than men.

Similarly, in Canada, Gadalla (1998) reviewed statistical data on women’s participation in mathematics, engineering and computer science to explain women’s under representation in mathematics, science and technology at the university level. Her study revealed that there are a variety of sociological, psychological, institutional and economical factors that interact in complex ways in limiting women from pursuing careers in these disciplines. In addition, discipline specific factors such as the curriculum, course content, instruction methods, and context interact with more general factors in modifying their effects.
on female students’ participation. The curriculum instructional methods and career opportunities in these disciplines may affect their career decisions. The relevance of discipline specific factors has long been emphasized in studies that examine classroom environment in different university programs. Astin (1965) established that “the nature of environment in any specific classroom still depends on the field of study, regardless of the particular college attended” (p. 282).

In comparison with the developed countries, few studies have been carried out in third world countries that examine women’s participation in higher education. Moreover, due to the cultural differences between developed and third world countries, the issues being studied are also different. I refer here to a UNESCO study on the status of women in three Asian countries -- the Peoples’ Republic of China, Nepal and the Philippines (UNESCO, 1990). The studies analyzed: (a) the progress of women’s participation in the higher education; (b) the socio-cultural factors affecting women’s participation in higher education; (c) the review of the policies, programs and strategies for the promotion of women’s participation in higher education; (d) the in-depth empirical case studies in particular institutions and groups which highlight problems and issues related to women’s participation in higher education; and (e) conclusions and recommendations.

The findings of the UNESCO study indicate that women are still under represented in higher education in China and Nepal. Additionally, the Nepal study revealed that in real numbers, very few women have been recruited into higher education in comparison with men in relation to their number in national population. The UNESCO study also reveals that, in contrast to the situation in China and Nepal, women in the Philippines, are over represented in almost all aspects of higher education. However, Filipino women are still under represented in professional, managerial and leadership positions.

The Education of Girls in Tanzania

[In a secondary school classroom in Tanzania] Teacher: Why are there so few girls in this class? Male student: “This is a Physics class.”

Girls’ Access to Education. Access to education as discussed in this study refers to the number of schools that are made available to girls and women by the government at the
primary, secondary and tertiary levels of education. Although many improvements have been made in the education sector since independence in 1961, access to education in Tanzania is still influenced by educational policies, gender, religion, socio-economic and regional factors. One of the improvements that has been made is an increase in the participation of girls in education, especially at the primary school level, and, to some extent, at the secondary school level.

While primary education in Tanzania was declared universal and compulsory in 1974 through the Musoma Resolution (Tanganyika African National Union (TANU), 1974), decisions about a student’s entrance into secondary education in Tanzania are still based on the availability of space in secondary schools and a student’s performance in the Primary School Leaving Examination. According to the National Examination Council of Tanzania (1996), there were more female than male candidates for the 1996 Primary School Leaving Examination in twelve of the twenty Tanzania Mainland regions. These examination statistics also indicate that the Kilimanjaro region was one of the twelve regions which had more female than male candidates. Also, with a total of 28,136 candidates, Kilimanjaro region had more candidates than any other region in Tanzania. In comparison, Lindi Region had only 7,593 candidates for the Primary School Leaving Examination in 1996.

Regional disparity in education is closely associated with ethnic disparity. As pointed out in Chapter Two, the Chagga and the Pare for instance consider Kilimanjaro their “home region” while the Haya’s home region is Kagera. But the 1988 Population Census report does not provide the ethnic breakdown of the population.

Research also indicates that access to education in Tanzania is influenced by religion. The fact that most educated people in Tanzania are Christians validates the role played by Christian missionaries in not only educating Tanzanians but also converting some of them into Christianity as a result of attending mission schools and following a Christian biased school curriculum. Dubbledam (1970) confirms that access to education in Tanzania, especially the education of girls, has historically been influenced by religion. His study of the school and the community in Mwanza District revealed that Moslem parents were more

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20 Home Region is used to refer to the region in which people under discussion have historically resided.
likely to send their daughters to school than Christian parents. However, his study also revealed that Moslem girls were more likely to drop out of school immediately after reaching puberty than Christian girls. This situation has not changed much. Puja and Kassimoto (1995) report that in Zanzibar and in Tanzania Mainland, Moslem girls are more likely than Christian girls to drop out of school after they reach puberty or as a result of arranged marriages.\(^{21}\)

**Girls' Performance in National Examinations.** For many years now, girls' overall poor performance has been consistently reported in all national examinations (Malekela, 1997; National Examination Council of Tanzania, 1996). Table 9 is based on the 1996 Primary School Leaving Examinations and provides an overview of performance in terms of grades scored by girls and boys who sat for the Primary School Leaving Examination nationally. Based on these results, more girls scored E (57%) and D (50%) than any other grades while more boys scored A (82%) compared to 18% of the girls who scored A. Malekela points out that poor performance in national examinations contributes to girls' low participation in secondary education and consequently in higher education. But factors that contribute to girls' poor performance in National Examinations have not been explained through research. Citing Cooksey and Ishumi (1976) Almasi (1993) observes that in Tanzania "the [gender] disparity is not only conspicuous but also the unequal attainment between the sexes has been accepted as a normal phenomenon" (p. 64). And, apart from Hongoke, 1991), the small number of secondary schools available to girls has not been critically analyzed.

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\(^{21}\) Unlike in Tanzania Mainland, school girls in Zanzibar are allowed to get married after reaching the age of eighteen years, according to the 1982 Marriage Law and to continue with school. But an interview with female education officials in Zanzibar and Pemba in 1992 (Puja, 1992) revealed that most girls drop out of school after marriage due to marital and other problems.
Table 9

<table>
<thead>
<tr>
<th>Grades Obtained in the PSLE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>A</td>
</tr>
<tr>
<td>Boys</td>
<td>82.0%</td>
</tr>
<tr>
<td>Girls</td>
<td>18.0%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Compiled from the 1996 Primary School Leaving Examination results (National Examination Council of Tanzania, 1996).

Malekela (1997) attributes poor performance among Tanzanian students at all levels of education to a poor “learning environment, qualifications, training and motivation of teachers and the availability of teaching and learning materials which leave much to be desired” (p.5). He also argues that an analysis of examination results by gender indicates that girls’ performance is far worse than that of boys. Malekela also suggests that quality issues: like a poor teaching and learning environment, that influences students’ performance should be adequately addressed before programs such as the Girls’ Secondary Education Support Program can succeed. He further points out that analysis of national examinations results by subjects reveals that, unlike what has been observed in other countries, in Tanzania girls do not excel in either language or biology. Citing earlier studies Malekela (1997); suggests that there are multiple explanations for girls’ poor performance in national examinations:

Girls’ low motivation and poor performance are partly due to low expectations from their families, low self-concept, belief that they do not have to work very hard because eventually they will find husbands who will take care of them, lack of time for study at home due to being overburdened by household chores, biased school curriculum and teaching materials, and low expectations from teachers (p. 7).

Malekela also cites the observation made by the Tanzania Development Research Group (1990) that although in general girls’ performance in all national examinations is poor,”... girls’ best chances of success are in the non-growth sector (state or public boarding
schools) and their worst chances are in the largest growth sector (private day schools)” (p. 12).

**Curriculum Options for Girls.** Malekela (1997) traces girls' low participation in mathematics and the sciences to historical factors. Girls' poor performance in mathematics goes back to a time when girls in Tanzania studied the so called “soft subjects” identified as Domestic Science and later renamed, Home Economics. Table 10 indicates that by 1988, Home Economics was the only secondary school subject in Tanzania which had a 100% female enrolment. In contrast to that, girls were less than 2% of those enrolled in the technical secondary schools (Ministry of Education, 1989).

Table 10

**Students' Enrolments in Public Secondary Schools by Vocational Bias Forms One to Four, 1988**

<table>
<thead>
<tr>
<th>Vocational Bias</th>
<th>Girls</th>
<th>Boys</th>
<th>Total</th>
<th>Girls as %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>5,817</td>
<td>13,519</td>
<td>19,366</td>
<td>33.0</td>
</tr>
<tr>
<td>Commerce</td>
<td>7,038</td>
<td>9,468</td>
<td>16,505</td>
<td>32.8</td>
</tr>
<tr>
<td>Technical</td>
<td>543</td>
<td>3,153</td>
<td>3,696</td>
<td>0.7</td>
</tr>
<tr>
<td>Domestic Science</td>
<td>2,027</td>
<td>-</td>
<td>2,027</td>
<td>100.0</td>
</tr>
<tr>
<td>Academic</td>
<td>1,955</td>
<td>2,511</td>
<td>4,466</td>
<td>44.0</td>
</tr>
<tr>
<td>Total</td>
<td>17,380</td>
<td>28,651</td>
<td>46,031</td>
<td>26.0</td>
</tr>
</tbody>
</table>

**Source:** Based on Basic Education Statistics in Tanzania (BEST) (Ministry of Education, 1989).

The systematic discrimination against girls in the school curriculum is imbedded in educational planning. Moreover, most science teachers (especially physics teachers) are men, and there are very few female science role models. These factors send a hidden message to Tanzanian girls that science is a male/masculine subject and Domestic Science is presented as a female/feminine subject.

By 1997, the Tanzanian secondary school curriculum, especially at the advanced secondary school level was hierarchically organized. The curriculum systematically discriminated against female students by making some subject combinations that lead to
highly valued and well paid professions available to boys while denying them to girls. Table 11 shows that there were more advanced level secondary schools for boys. In a total of 56 advanced level secondary schools, which offered science subjects combinations, only 14 were girls' secondary schools while 31 were boys' secondary schools. Although 11 advanced secondary schools were labeled as being "co-educational" they were in fact originally boys' secondary schools. When they became "co-educational" they mainly accepted female students at the lower level and a few girls at the advanced level. But overall, the girls attended a school whose physical and social environment was basically designed for male students.

Table 11

<table>
<thead>
<tr>
<th>Science Subject Combinations</th>
<th>Girls' schools</th>
<th>Boys Schools</th>
<th>Co-education Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM</td>
<td>3</td>
<td>16</td>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>PGM</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>PCB</td>
<td>6</td>
<td>12</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>CBG</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>CBN</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>31</td>
<td>11</td>
<td>56</td>
</tr>
<tr>
<td>As %</td>
<td>25.0</td>
<td>55.4</td>
<td>19.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>


Key to Table 11:

PCM= Physics, chemistry, mathematics
PGM= Physics, geography, mathematics

Great Britain (1937) explains that the term "co-education" is a often applied to describe "a school which does not offer equal educational opportunities to girls and boys but is in reality a boys' school with a few girls attending it" (p. 70).
PCB = Physics, chemistry, biology
CBG = Chemistry, biology, geography
CBN = Chemistry, biology, nutrition

Table 11 for instance, indicates that although the physics, geography and mathematics (PGM) combination which has wider career opportunities was available to in Boys’ Secondary Schools, it was not available in Girls’ Secondary Schools. Instead, the chemistry, biology and nutrition (CBN) and home economics (HE) were offered in only two separate girls’ secondary schools. In addition, the chemistry, biology and geography (CBG) subject combination that has fewer career options was available in only one boys’ secondary school, but in four girls’ secondary schools. So, one wonders, what hidden messages does the Ministry of Education and Culture convey to Tanzanian girls and women? And, why is the small number of girls’ secondary schools and the limited curriculum options available to them not given as much, if not more emphasis than the issue of girls poor performance in the limited subjects into which they are selected? It is important also to stress that the subject combinations that are more available to girls than to boys at the Advanced Secondary school level later lead to professions which are less valued, poorly paid and have less advancement opportunities.

In Tanzania, decisions about which subject combinations a student takes are made mostly on the basis of her or his marks. Some students may score well in subjects they choose to take, but a student may also score high marks in a subject she does not like but has to take. In general, students with the highest marks are selected to join the science subject combinations such as physics, chemistry and mathematics; those with average marks are assigned to study arts and social science, commercial [business] subjects that are lowly regarded especially by students in the sciences. But science combinations which have more female than male enrolments, or, like chemistry, biology and nutrition are available, only to girls, are also lowly regarded, and lead to dead-end professions. But how many girls or their parents are aware of these realities when the students are “selected” to study these science combinations? Those with the poorest marks are selected to study Home Economics, which is available only to girls.
Girls' Career Aspirations and Choices. A study by Brock-Utne and Possi (1991) is one of the few Tanzanian educational studies to examine secondary school girls' career expectations. The purpose of this study was to narrow the knowledge gap on "the girls own expectations for themselves in comparison to boys on their motivation and school performance" which had been identified by Mascarenhas and Mbilinyi (1983) in their annotated bibliography, *Women in Tanzania* (cited in Brock-Utne and Poss, 1991).

Brock-Utne and Possi’s study involved 155 students (83 boys and 72 girls) from co-education and a girls’ secondary schools in Morogoro region. Girls from the girls’ secondary school rated themselves higher than girls from co-education secondary schools. Among these, 27 were identified by their teachers as “bright girls.” Brock-Utne and Possi point out that the participants of their study were aware of the harsh economic conditions in Tanzania and were planning to hold more than one job to make ends meet. Some of the bright girls planned to be architects and raise chickens or ducks at the same time to supplement their incomes. The 15 girls who ranked themselves as very clever chose the following six occupations: 8 chose to be doctors, 2 a pharmacist, 2 an economist, 1 a dentist, 1 an accountant and 1 a lawyer. Brock-Utne and Possi also observe that, unlike the girls who ranked themselves as “average,” none of the bright girls wanted to be a nurse, housewife or secretary. Brock-Utne and Possi (1991) conclude, “there is an acute need for career guidance among secondary school girls. Though Tanzania needs doctors, it also needs expert farmers, technical experts, scientists and managers. And it needs women in these jobs too” (p. 54).

Girls' and the Study of Mathematics, Science and Technology (M, S & T). The teaching and learning of mathematics, natural sciences and technical (M, S & T) subjects in Tanzania is influenced by the selective and examination-oriented secondary education (University of Dar es Salaam, 1995). Additionally, science subjects like other secondary school subjects are taught in classrooms that lack the basic facilities (laboratories, equipment and chemicals) required for experiments. Other problems in the teaching and learning of science include inadequate preparation of science teachers, frequent science curriculum reforms which are not followed by adequate in-service programs, and teachers’ low motivation due to their poor working and living conditions (low salaries and poor housing conditions) and a lack of materials and textbooks (Leshabari and Masesa, 1997).
The Rockefeller Foundation-supported project known as “DARE” promoted girls' participation in science subjects at the secondary school level in Tanzania. Galabawa (1996) who has studied their morale points out that, although mathematics is compulsory in secondary school, most girls find a reason not to attend:

Girls, while numerically remaining enrolled, intellectually drop out of these subjects either by refusing to attend classes, or attending but refusing to participate in productive ways, or by deciding to give little time and effort to learning and revising content in these subjects (p. v).

In the above quote Galabawa problematically argues that girls' lack of interest in mathematics and the natural sciences contributes to the girls' low participation and performance in science and mathematics. He explains that girls' poor performance later translates into women's low enrolments in undergraduate programs and consequently to women's low participation in the highly valued and well-paid careers in science and technology. Galabawa seems to suggest that girls are the problem -- they lack the will, discipline, motivation and the necessary work-ethics required to succeed in mathematics and the physical sciences.

But Galabawa does not explain the existence of girls who have a strong interest in mathematics and physical sciences. Nor does he explain why girls who have interest in mathematics at the ordinary level may opt out of science at the earliest available opportunity or why those who remain “numerically enrolled” “intellectually drop out of these subjects by refusing to attend classes” or attend but refuse to participate in meaningful ways...” Galabawa's description may sound familiar to many girls in Tanzania. But, it is equally important to raise and answer some questions such as: What happens to girls who show initial interest in sciences and mathematics but who may not study these subjects at higher levels of their education? Besides, there is so much emphasis on the fact that girls' performance in these subjects is “generally poor” (Malekela, 1997) that little credit is given to the girls who do excel in mathematics and the physical sciences.

Moreover as Leshabari and Masesa (1997) point out, lack of career guidance and counseling on the need for women's participation in careers in mathematics and science based occupations has not been adequately addressed. Therefore many students are selected into subject combinations which lead into specific careers. Unfortunately, once they are in
these careers, they have to stay there because there are no alternative educational programs that could help them change their careers.

This study is a shift from other studies on women's participation in higher education in Tanzania. It focuses on those who are less understood — the few girls who, despite all the odds against them, have persistently shown an interest in mathematics and the natural sciences and decided to pursue higher education programs such as agriculture, engineering and medicine where women have historically been under represented.

**Women's Participation in Higher Education in Tanzania**

Women In Undergraduate Programs. Women's participation in education in Tanzania is influenced by multiple factors at all levels, from primary through secondary to university. These include poverty, and underdevelopment as reflected in poor educational planning, limited schooling opportunities and an overall poor quality of education.

Tanzania is economically poor. Most of the problems facing higher education, however, began in the 1986 when the Tanzanian government decided to reduce the budget allocation for education as part of the implementation of the Structural Adjustment Program (SAPs) (United Republic of Tanzania, 1986). The government's reduction of its budget for basic social services such as education led to the introduction of user fees. These included the reintroduction of school fees at the primary and secondary schools and cost-sharing at the university level. Historically, girls and women's participation in education has been limited.

As Dubbledam (1970) reports about the Mwanza District, when resources are scarce, many peasant parents are more likely to educate their sons than their daughters. This is confirmed by women's low participation in education before school fees were eliminated. Sumra and Katunzi (1991) report that the preliminary findings of their study indicated that the reintroduction of school fees and cost-sharing in education was likely to further reduce the number of women in higher education.

A review of Tanzanian educational statistics reveals that women's participation in higher education in Tanzania is not only low, it is also unevenly distributed across faculties, departments, programs and years of study. More women are enrol in the social sciences and arts programs while only a few women are enrol in mathematics, the physical sciences and technology, particularly in engineering. In the 1993/94 academic year, for instance,
women made up 36% of the undergraduate enrolment in the Faculty of Medicine; but there was no woman enrolled in the Agricultural Engineering program, only two were in geology and seven were in the computer science program. Moreover, studies done by the Faculty of Engineering (University of Dar es Salaam, 1995, 1993) and discussed by University of Dar es Salaam (1996) and Winkler, Hartman and Schomburg (1992) indicate that female students’ enrolment at the Faculty of Engineering has never been higher than 3%. In the 1996/97 academic year, there were no female students in the first-year and second-year Agricultural Engineering programs, and the Electrical Engineering program with only nine female students, had more female students than all the other engineering programs as shown in Table 12.

Table 12
Summary of the Total Undergraduate Students’ Enrolment at the Faculty of Engineering, 1996/97 Academic Year

<table>
<thead>
<tr>
<th>Undergraduate Program (All Years)</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>Female as %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Engineering</td>
<td>-</td>
<td>20</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>8</td>
<td>321</td>
<td>329</td>
<td>2</td>
</tr>
<tr>
<td>Chemical and Process Engineering</td>
<td>4</td>
<td>93</td>
<td>97</td>
<td>4</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>9</td>
<td>159</td>
<td>168</td>
<td>5</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>4</td>
<td>182</td>
<td>186</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
<td><strong>775</strong></td>
<td><strong>800</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

*Source: Compiled from the Faculty of Engineering Students’ Enrolment, 1996/97 Academic Year (University of Dar es Salaam, 1996).*

The University of Dar es Salaam Gender Dimension Task Force report (University of Dar es Salaam, 1996) cites the Muhimbili University College of Health Sciences (MUCHS) as the only university in Tanzania which had a high enrolment of female students.

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This program is offered in collaboration with the Sokoine University of Agriculture, where third and fourth year students are enrolled.
But Table 13 shows that as a whole, MUCHS has far lower student enrolments than the other two Tanzanian Universities, Dar es Salaam and SUA.

Table 13

Summary of the Total Undergraduate Students’ Enrolment at the Muhimbili University College of Health Sciences, Academic Year 1996/97

<table>
<thead>
<tr>
<th>Undergraduate Programs (All Years)</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>Female as %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor of Medicine</td>
<td>57</td>
<td>172</td>
<td>229</td>
<td>24</td>
</tr>
<tr>
<td>Doctor of Dental Surgery</td>
<td>20</td>
<td>39</td>
<td>59</td>
<td>33</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>18</td>
<td>62</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>Nursing</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>279</strong></td>
<td><strong>382</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

Source: Compiled from Students’ Enrolment (Muhimbili University College of Health Sciences, 1996).

Table 13 shows that the only undergraduate program where parity seems to have been achieved is in the Faculty of Nursing, which had a total of five female and six male students in the 1996/97 academic year. Moreover, with a total enrolment of only eleven students, in the 1996/97 academic year, the Faculty of Nursing was in danger of being discontinued. According to university sources, the University of Dar es Salaam Senate minimum number of students in an undergraduate class is 15 students. The total enrolment of eleven students was far less than the class minimum. And, in second-year which is the focus of this study, there were only two BSc Nursing students, one female and one male in 1996/97 academic year. The reasons behind the unpopularity of BSc Nursing program are discussed in Chapter Four.

As Table 14 shows, the only undergraduate program in Tanzania where women are over represented is the Home Economics and Human Nutrition (HE and HN) program in the Department of Food Science and Technology, Faculty of Agriculture at the Sokoine University of Agriculture.
Table 14
Summary of the Total Undergraduate Students' Enrolment at the Sokoine University of Agriculture, 1996/97 Academic Year

<table>
<thead>
<tr>
<th>Undergraduate Program (All years)</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>Female as %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Engineering</td>
<td>1</td>
<td>14</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>Agriculture General</td>
<td>66</td>
<td>286</td>
<td>352</td>
<td>18</td>
</tr>
<tr>
<td>Agronomy</td>
<td>8</td>
<td>55</td>
<td>63</td>
<td>12</td>
</tr>
<tr>
<td>Animal Science</td>
<td>17</td>
<td>112</td>
<td>129</td>
<td>13</td>
</tr>
<tr>
<td>Food Science and Technology</td>
<td>27</td>
<td>99</td>
<td>126</td>
<td>21</td>
</tr>
<tr>
<td>Home Economics and Human Nutrition</td>
<td>74</td>
<td>18</td>
<td>92</td>
<td>80</td>
</tr>
<tr>
<td>Horticulture</td>
<td>31</td>
<td>48</td>
<td>79</td>
<td>64</td>
</tr>
<tr>
<td>Forestry</td>
<td>12</td>
<td>85</td>
<td>97</td>
<td>12</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td>10</td>
<td>87</td>
<td>97</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>804</td>
<td>1050</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: Compiled from the Sokoine University of Agriculture undergraduate students' enrolment, 1996/97 academic year (Sokoine University of Agriculture, 1996).

In the 1996/97 academic year for instance, female students made up 80% of the total enrolment in the Home Economics and Human Nutrition program. As pointed out elsewhere in this discussion, school subjects in Tanzania are hierarchically organized, viewed and valued. Thus the natural sciences enjoy a higher status than the social science, the arts and commercial subjects are at the bottom. Moreover, within the natural sciences, those sciences which tend to have higher female enrolments are less valued than those with more male students and very few or no female students enrolments. Hence Home Economics and Human Nutrition (HE and HN) program which is being offered at the undergraduate level at the Sokoine University of Agriculture, and has more female than male students enrolment, is lowly regarded by most people in Tanzania, including educational policy makers and administrators. This is reflected in the status accorded to the Home Economics and Human Nutrition program -- it is the only program at SUA which does not have a graduate program. No wonder, the majority of its participants are women.
Undergraduate students' enrolment data show that female students' enrolment varies from one university to another. Table 15 is based on the report by the Gender Dimension Task Force (1996, p. 65-66) which indicates that in the 1992/93 academic year, the UDSM main campus had the lowest female student enrolment in comparison with the MUCHS and SUA. Table 15 also indicates that the Muhimbili University College had the highest percentages, but in terms of absolute numbers, there were very few students at MUCHS compared with those at the University of Dar es Salaam Main campus. The Faculty of Nursing for instance, which is discussed above, had an unusually low total enrolment of only 13 students in 1993/94.

The Gender Dimension Task Force also cites the Faculty of Education at the University of Dar es Salaam as the faculty with the highest percentage of female students. But the Faculty of Education had a total enrolment of only 98 students in 1993/94, which was the lowest student enrolment at the University of Dar es Salaam. The Faculty with the most students was the Faculty of Arts and Social Sciences which had 1,368 undergraduate students. Therefore, there is a need to point out that the use of percentages alone can be misleading, especially when percentages based on small numbers are compared with those based on big numbers.

Table 15
Students' Enrolment by Gender and Institution in Tanzania Universities

<table>
<thead>
<tr>
<th>Institutions</th>
<th>1988</th>
<th>1992/93</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>UDSM</td>
<td>429</td>
<td>2024</td>
</tr>
<tr>
<td>F as %</td>
<td>17</td>
<td>83</td>
</tr>
<tr>
<td>MUCHS</td>
<td>58</td>
<td>232</td>
</tr>
<tr>
<td>F as %</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>SUA</td>
<td>56</td>
<td>420</td>
</tr>
<tr>
<td>F as %</td>
<td>12</td>
<td>88</td>
</tr>
</tbody>
</table>

In 1982, the Tanzanian government stated its intention to reduce and finally eliminate gender inequity in education in its 1982 Presidential Commission recommendations: “Any imbalances which exist in the allocation of places for girls and boys in Secondary and Higher Education will be removed” (Ministry of Education 1984, p. 11). However, by 1992 this objective had not been achieved as revealed by the following statement: “the participation of women in higher education in Tanzania has not changed appreciably in the last three decades” (United Republic of Tanzania, 1992, p.9). Table 15 shows that the overall percentage of women in university programs in Tanzania decreased in percentage from 26% to 14%, and in real numbers (from 202 to 113 female students between 1984 and 1988 respectively (United Republic of Tanzania, 1992).

24 There were no graduates in 1990 because the University was closed.
Table 16
First Degree Graduates at the University of Dar es Salaam, 1984-1991

<table>
<thead>
<tr>
<th>Year</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>F as %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>202</td>
<td>585</td>
<td>787</td>
<td>26</td>
</tr>
<tr>
<td>1985</td>
<td>135</td>
<td>630</td>
<td>765</td>
<td>18</td>
</tr>
<tr>
<td>1986</td>
<td>145</td>
<td>643</td>
<td>788</td>
<td>18</td>
</tr>
<tr>
<td>1987</td>
<td>144</td>
<td>640</td>
<td>784</td>
<td>18</td>
</tr>
<tr>
<td>1988</td>
<td>113</td>
<td>689</td>
<td>802</td>
<td>14</td>
</tr>
<tr>
<td>1989</td>
<td>123</td>
<td>628</td>
<td>751</td>
<td>16</td>
</tr>
<tr>
<td>1991</td>
<td>115</td>
<td>657</td>
<td>772</td>
<td>15</td>
</tr>
</tbody>
</table>

Source: United Republic of Tanzania (1992, p. 31).

Almasi (1993) investigated the extent to which equalizing policies, socio-economic status (SES), school related, motivational, peer and gender factors are associated with post-secondary schooling in Tanzania. His research involved 280 first year university students randomly selected. Findings confirmed held beliefs that in Tanzania access to higher education is associated with gender. More specifically, Almasi's research findings indicated that: (1) most underdeveloped regions, peasants, women and lower socio-economic (LSEC) families are under represented in higher education while developed regions and higher SES families are over represented; (2) peer groups have positive influence on their members; (3) there was no relationship between SES and field of study; (4) there were significant relationships between field of study and gender, and between public and private schools attended by participants of his study. Almasi also uncritically reports that his study revealed that teachers interact equally with male and female students and that his study showed that most university students are from public rather than from private secondary schools. He makes a number of recommendations for improving the education system and bringing about equity in higher education in terms of regional, social class and gender.

25 The term 'developed regions' is used here in the same way that it is used by Almasi, 1993 to describe Kilimanjaro, Kagera and Mbeya regions [coffee-growing areas] where most missionary schools were started.
Women's uneven enrolment in scientific and technological programs raises many questions. For example, why is it that women constituted 35% of the total enrolment in the Faculty of Medicine when no woman was enrolled in the agricultural engineering program? What are some of the policy or institutional-based factors (institutional ecology) and discipline specific factors that may explain women's low and uneven participation in university undergraduate programs? This implies going beyond the commonly held view in Tanzania that women's low participation in mathematics and science-based university programs is due to girls' lack of interest and poor performance in these subjects at the secondary school level. This calls for an examination of women's participation in specific university programs in order to tease out factors which contribute to gender imbalances specific to each discipline.

Female Student Enrolment in Graduate Programs. Based on a report on women's participation in graduate programs (The University of Dar es Salaam, 1995), graduate programs are not quite established in many departments in Tanzanian universities. Some faculties such as the Faculty of Doctor of Dental Surgery and the Faculty of Pharmacy have had fluctuating male enrolments in graduate programs. For instance, in the 1993/94 academic year, there were three male graduate students in the faculty of Pharmacy, and in 1992/93 only one male graduate student and no female student.

Other programs, such as the Home Economics and Human Nutrition at SUA and the BSc Nursing Program at MUCHS which are also stereotyped as "female fields," have never had graduate programs since they were established. The faculties which have well established graduate programs include medicine at MUCHS, engineering and science at the UDSM.

Girls' and women's participation in education in Tanzania declines as the level of education increases. Fewer female students tend to pursue higher education beyond the first degree. The small number female undergraduates is reflected in the small and unevenly distribution of female graduate students among the university campuses, faculties, departments and programs. A review of graduate students' enrolment data in the "Facts and Figures" of the University of Dar es Salaam (University of Dar es Salaam, 1995), indicates that in 1994/95 there were only 12 (17.6%) female graduate students at the Muhimbili University College of Health Sciences in a total of 68 graduate students. Also, there were
only 38 (14.1%) female graduate students at the University of Dar es Salaam out of a total 354 graduate students.

**Female Academicians.** Women’s low participation in undergraduate programs is reflected in the low number of female members of the academy. Kinabo and Pereka (1997) point out that by December 1996 at the Sokoine University Agriculture, there were no full women professors and only three of the thirty associate professors at SUA were women. The largest group of female faculty at SUA was at the lecturer level, where there were seventeen female faculty members. Kinabo and Pereka are concerned that although three men were recruited as tutorial assistants, no female faculty members were employed at the tutorial assistant level. The University of Dar es Salaam (1996) cites the Department of Food Science, with seven female faculty members among the twenty-one faculty members in that department, as the only department at the Sokoine University of Agriculture with the highest ratio of female to male faculty members. But in a discussion about the female-male ratio of faculty members at the University of Dar es Salaam, the university report (University, of Dar es Salaam, 1996) points out that women in departments which have female faculty, occupy jobs at the lower ranks of the academy. For instance, in 1996 the Faculty of Arts and Social Sciences had 13 women faculty members but one of them was a full professor. The Faculty of Engineering on the other hand had only 2 female Faculty members— one Senior Lecturer and one Lecturer.

The University of Dar es Salaam report on gender makes similar observations about the female faculty at the Muhimbili University College of Health Sciences. By 1994/95, there was a total of 231 faculty members 185 male and 46 female. Women were 20% of the total faculty at MUCHS. But there were no female faculty member at the “professor” level, and only 4 of the female faculty members were at the “senior lecturer” level. The majority of the female faculty members occupied the lower ranks as follows: 22 lecturers, 14 assistant lecturers, and 6 tutorial assistants. The exception was noted in the Faculty of Nursing where 9 of the 10 faculty members were female.

**Strategies for Promoting Women’s Participation in Education**

Many efforts have been made to increase the participation of women in various levels of education in Tanzania. The quota system introduced in the 1970s for instance, was one of
these. It was aimed at eliminating regional and gender inequity in the selection of Form One entrants. But Almasi (1993) concluded his study by outlining the inequities that remain in place:

(1) equal access policies introduced nearly two decades ago have not realized the objectives for which they were instituted. Most regions are still under-represented in post-secondary education; (2) children from peasant homes are under-represented in institutions of higher learning while those from the high SES families are over-represented; (3) most of the students in our sample attended public schools; <4;... (5) significant association is revealed between gender and the field of study where it was found that females rather than males participated less in math[s] and science subjects; <6;... (7) females and males tend to have similar aspirations especially when it comes to factors which motivate them to pursue further studies... (p. 241).

Almasi’s observations call for a reassessment of other initiatives such as DARE (Galabawa, 1996) and the Teacher Education Assistance in Mathematics and Science (TEAMS) University of Dar es Salaam, 1995), which were also addressing girls and women’s under representation in the sciences and related professions. One possible reason for the continued inequities in the provision of equitable educational opportunities to girls and boys is the tendency to overlook the specific needs of the various social groups. Strategies intended to bring about gender equality for all Tanzanians continue to benefit girls and women from the same regions, ethnic, socio-economic and religious groups and overlook those from the under represented groups. Almasi’s study also revealed that there was no difference in aspirations of female and male students. So why do we have fewer female than male students in mathematics and the sciences programs? It is not enough to say that girls are not interested in the sciences as Galabawa (1996) uncritically claims:

It has been consistently documented that girls have enthusiasm for mathematics, biology, chemistry and physics at their initial enrolment in secondary school, However, as soon as they have the chance to do so, many of them drop out of chemistry and physics (p. v.).

At least two things can be said about the above statement. One, it appears that something happens when these girls are studying mathematics at the lower level. There must be something that takes away their enthusiasm for chemistry and physics and encourages them to drop these subjects at the soonest available opportunity. Two, the girls who decide to
remain in the sciences seem to be taken for granted. Very few studies have explored why so few of the girls who show enthusiasm in mathematics pursue these subjects at the university level. Understanding what influences girls to pursue these subjects at the university level would provide insights that are based on the experiences of those who have persistently remained in these programs despite all the odds against them. Such a strategy might be far more rewarding than some of the current programs such as DARE and TEAMS that are based on assumptions that girls/women are a homogenous group of unmotivated failures who will drop mathematics and the physical sciences at the earliest opportunity available to them.

It is within such an understanding that the current study sets out to explore the factors that influence Tanzanian women to pursue higher education in disciplines such as agriculture, engineering and medicine which are stereotyped as “male subjects.” It is assumed that the experiences of the participants in these disciplines will enhance our understanding of women’s role in higher education in Tanzania.

**Summary of Part One**

Part One examines the related literature on girls’ and women’s participation in education with a special focus on girls’ and women’s participation in mathematics and science related education. A review of the research literature on girls’ and women’s education locates the study within the larger context of gender and education. The remainder of the section discusses girls’ and women’s education in Tanzania. Major areas of concern — such as gender, ethnic, region and religion — in the Tanzanian education system are stressed. It is also pointed out that gender inequities in higher education are not only conspicuous but have come to be accepted as “normal” and therefore do not feature as a priority in higher education. Moreover, because women are viewed as a homogenous group, needs of specific women groups are not taken into account when designing strategies aimed at eliminating gender inequity. Consequently, women from the same privileged social groups continue to benefit. It is noted that although women’s achievement in mathematics, physical sciences and technology is low, there are also less advanced level secondary schools for girls and only a few of them offer science subjects combinations. It is stressed that girls’ poor performance in these lower-level subjects is not the only factor contributing to women’s low participation
in careers requiring competencies in mathematics, science and technology. Moreover, there is a need to find out why girls’ performance in these subjects is so poor.

**Part Two: Theoretical Framework**

Part Two examines the potential of feminist theories as an analytical framework for intersecting factors influencing Tanzanian women to pursue higher education. It begins with an introduction of my own feminist standpoint. The second section analyzes the anti-colonial African-centered feminist perspective. This discussion is guided by the following questions: What are some of the major issues concerning Tanzanian women? What kind of feminism can better explain Tanzanian women’s schooling and career decision making experiences? My views and ideas about feminist theory are influenced by many scholars especially African, African-American and Third World feminist scholars (Collins, 1991; hooks, 1989; Mohanty, 1989; Amadumue 1987; Steady, 1985 and Association of African Women Research Development, 1980).

**Speaking from Within: Personal Location and Feminist Standpoint**

I approach this study as an African woman who is a product of the education system [the Tanzanian education system] I am studying, although I am also a product of the North American education system [United States and Canada]. As such, I am aware of the biases and limitations that, I as an individual, bring to this discussion on feminist theory as a potential catalyst for social change in an African context as already alluded to. My socialization has rural African, Moslem and Christian influences. I also lived in mission and government boarding schools for almost the same number of years as I did with my family. These experiences separate me not only from my family and relatives but also from other women in my community who do not share my experiences. Yet, I share these experiences with some Tanzanian women who have been educated under the same education system -- a system which has a lot more in common with a western way of life than with people in the rural areas. I also acquired one of my master’s degrees in another North American country before coming to Canada to pursue my present program. Most of my education has had a Euro-American bias in form and content. For instance, I believe I know more about the
European and American history than I do the history of my own ethnic group which, according to the history books I read, did not have much of a history.

Many other experiences have influenced my way of seeing the world and women's experiences. My social reality resembles what Mazrui refers to as a "Triple Cultural Heritage" (Mazrui 1972). I see the world as a rural African woman whose way of life has been influenced by Islam and who has been educated in Christian mission and government boarding schools.

Knowledge is socially constructed (Dei, 1998), but historically, some forms of "knowledge" have been treated as legitimate while other forms have not (Bourdieu, 1978). The legitimate knowledge are the hegemonic ideas that represent specific interest groups in society, but are portrayed as "objective" or factual. As Dei points out, many educators and others in Africa and other parts of the world now question the "conventional ways of knowledge production in educational institutions that privilege some knowledge forms in order to set up a hierarchy of knowledge" (p. 94).

I am aware that because knowledge is socially constructed and biased, many ideas reflect the views, beliefs, interests and concerns of those who advance them. I agree with Collins (1991) and others who advocate the need for a Black women's standpoint which is based on theory developed on everyday actions and experiences of Black women. Socially constructed knowledge is therefore not value free. I am interested in understanding the different locations in which women find themselves. I want to learn from the experiences of the women in this study because I am convinced that knowledge about their experiences will help me develop a stronger consciousness regarding my own personal location in feminism.

As Dei (1999) asserts, knowledge is accumulative. My understanding of gender inequality in Tanzania has developed over the years. It has been influenced by many factors, including the kind of socialization I went through in my family and school and work experiences in and outside Tanzania. In Tanzania, the word "feminism" is not very common. I therefore did not know about "feminism" even when I read about gender inequity in the education system in Tanzania. The first two books I read on gender inequity in Tanzania were written by Mbilinyi (1969) and Dubbledam (1970). Mbilinyi and Dubbledam carried out their studies separately but around the same area and period. In this discussion I refer

In her book, Mbilinyi (a well-known female Africanist) explores the attitudes of African fathers towards the education of their daughters. The book is based on a research project report of a study that Mbilinyi and her Tanzanian university students carried out in the following areas: Mwanza Town, Mwanza Rural District, Dar es Salaam and Mzizima District. The study revealed that when faced with limited resources, rural African fathers would rather send their sons to school than their daughters. A number of reasons were given to justify this decision, including fears that girls may become pregnant while attending school and be expelled from school, or, that they might become married before completing their education. Mbilinyi cites "these traditional attitudes," which she says were expressed by urban and rural parents:

A daughter is as a lost asset once she marries into another household, in which case school represents a "waste" expenditure; some parents want to have a daughter married early in order to receive dowry; and finally, girls do not belong to the school, they belong at home (p. 43).

Mbilinyi stressed that there was gender inequality in her area of study as reflected in parents' preference to educate their sons and not their daughters. Mbilinyi's research findings introduced a new dimension in educational research in Tanzania, and her approach to gender inequality has been the basis upon which gender issues in Tanzania, have come to be analyzed and discussed. There are two things about Mbilinyi's research that need to be pointed out. First of all, she fails to inform her readers that she is a white middle-class American woman interested in studying African parents' and their daughters' attitudes towards western education. She fails to declare that her biases are different from those of African Tanzanian woman. Because as Dewey (1938) points "experience" has a continuity element such that a person's experience may have positive or negative influences on her or his future experiences. Experience, Dewey explains further, helps decide the quality of future

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26 The present Coast and Dar es Salaam regions were one before 1974 when they became two separate regions, Coast and Dar es Salaam. Mzizima District was the rural section of Dar es Salaam municipality.
experiences by setting up certain preferences and aversions thus making it easier or difficult to act in one way or the other. This implies that a white middle-class woman and a black working class woman are likely to have different experiences based on their previous experiences. This is why it is important for white female scholars like Mbilinyi to inform their readers what racial and class biases they bring into a research situation or discussion of say, attitudes of African peasants and their daughters towards western education. This political stand is important especially because it may explain to the reader that by treating gender as the only site of inequity experienced by African girls in the Mwanza and Coastal areas, Mbilinyi reflects her liberal white middle-class feminist views. Mbilinyi’s white middle-class American biases are especially evident in her silence about the historical experiences of Africans in Tanzania under colonial rule when western education discriminated against African children (boys and girls) while favoring Asian and European children. Nor does Mbilinyi question the colonial governments’ intentions in building schools for boys only or the relevance of Western oriented school curriculum to the everyday lives of girls in the Mwanza and Coastal regions. Because of this silence, I argue that Mbilinyi’s study tells only half the story. Nevertheless, her gender analysis was how I first understood gender inequity in education in Tanzania. For instance, I was not aware that as a white middle-class American woman Mbilinyi’s view of gender inequity in education in Tanzania were different from mine. Nor did I know that as a rural African girl with a Moslem background, my everyday experiences were not necessarily shared by my Christian classmates. Moreover, I did I know that later, as a Christian, my chances of being educated were much higher than those of my Moslem sisters and brothers.

It was at the Ontario Institute for Studies in Education, as a doctoral student in the 1990s that I was exposed to the writings of feminist scholars such as Steady (1985) and Amadiume (1987). I also read Elson, (1991) who points out that although some women are in position of authority, relatively speaking, women are less powerful than men of similar economic and social positions. I was particularly influenced by the writings of Amadiume and others who advocate an anti-colonial African-centered feminism. It was then that I became aware of the existing feminisms: liberal, radical, marxist, socialist political economy of sex, Black (Afro-centric) and African feminism to name but a few.
African Feminism and the Need to Fill the Gaps

Steady defines “African feminism” as:

a feminism that combines racial, sexual, class and cultural dimensions of oppression to produce a more inclusive brand of feminism through which women are viewed first and foremost as human, rather than sexual beings. It can be defined as that ideology which encompasses freedom from oppression based on the political, economic, social and cultural manifestations of racial, cultural, sexual, and class biases. It is more inclusive than other forms of ideologies and is largely a product of polarization and conflicts that represent some of the worst and chronic forms of human suffering (Steady, 1985, p.4).

I agree with Steady’s definition of an African feminist standpoint. However, I am convinced that an anti-colonial African-centered feminist conceptual framework can better serve as an analytical tool in my study of the expectations and experiences of Tanzanian female undergraduates. An anti-colonial African-centered feminist approach is an integrated analytical framework that views social reality, practices and experiences from the perspectives of those who are members of the marginalized and subordinated social groups. The anti-colonial conceptual framework that is the entre-point of the anti-colonial African-centered feminist perspective is defined by Dei (2000b) as, “an epistemology of the colonized anchored in the indigenous sense of collective and common colonial consciousness” (p.3). The anti-colonial African-centered feminist perspective is a discursive framework that views the African woman as a subject with agency to articulate her own experiences, one who has power to resist domination and seek solutions for her problems from within her indigenous resource-base. The second-year Tanzanian female undergraduates were the focus of this study and I analyzed their schooling and career decision making experiences from their perspectives.

Like the anti-colonial conceptual framework, the anti-colonial African-centered perspective interrogates the power relations that emerge from colonial and colonized relations. I decided to use this conceptual framework in my analysis of the career expectations and experiences of the Tanzanian female undergraduates because it offers an opportunity to analyze and make sense of the power relations embedded in the gender relations that I observed in this study. I use the term ‘colonial’ as defined by Dei, (2000b) who states that, “the term colonial is conceptualized not simply as foreign and alien but also
as imposed and dominating” (p. 3). The gender relations observed during this study are examples of colonial and colonized relations.

There is also a need to emphasize that, like all other African women, Tanzanian women need to take a leading role in defining themselves and their feminist standpoints. This argument is based on my understanding that there is close link between knowledge and power, and claiming the right to represent one’s own experiences is both a refusal of domination (and dominant knowledge) and a matter of self-empowerment.

The anti-colonial African-centered feminist framework that I am proposing should be based on concepts of self-reliance (Nyerere, 1967). Dei (1994) writing in a different context points about the importance of self-reliance and community bonding for peoples in Africa in using local creativity and resourcefulness to address contemporary problems of survival and to move beyond the post-coloniality. This implies that such a conceptual framework needs to view women’s issues from multiple rather than two dimensional perspectives. The a feminist conceptual framework that Tanzanian women can identify with when analyzing their everyday- and taken for granted issues is defined by the things which matter to them as Tanzanians, Africans and as women. Some of the issues that are highly valued by Tanzanian women and other African women include the need for respect and human dignity as human beings who were not only exploited, racially discriminated and colonized, but also denigrated as being less than human. Tanzanian women and other African women also value their roles as mothers. They are actively involved in their struggle for justice and economic independence through their active participation in the professions, policy-and decision making at home and in public forums. Educated African women [and men] also see the need to revive African cultures that were destroyed by the colonialists for claims that they were “uncivilized” and “barbaric”. This calls for valuing multiple ways of knowing that were used to transmit knowledge from one generation to another such as the role of orality in songs, proverbs, parable and symbolism (Dei, 2000).

The anti-colonial African-centered feminist perspective also draws ideas about feminisms developed by women in other countries but also acknowledges the specific conditions and historical realities within which such ideas were developed. This includes the contributions made by western (liberal, radical, Marxist, socialist and Afro-centric) feminists. Although feminist ideas developed in western countries do not address all the sites of
oppression for African women in Tanzania, these feminist stand-points are useful in analyzing Tanzanian women's experiences, particularly their experiences in western education. When formal western education was exported to Africans, it carried with it white middle-class values and assumptions about women (white middle-class) and about African women in particular. Colonial educators ignored the existence of a practical-oriented indigenous African education for girls and boys. They instead introduced Western education, which was gender biased in preparing boys to serve in the so called "public sphere" while girls were doomed to be housewives and mothers, in the so-called "private sphere."

An African-centered feminist perspective is grounded within the principles of an anti-colonial framework that is well articulated by Dei (2000, and Dei 2000b). Dei describes an anti-colonial framework as a shift from a search for broad generalizations to an emphasis on the local, specific and historically informed analysis that is situated in spatial and cultural contexts. He identifies issues that are seen to be at stake by those who advocate an anti-colonial framework: identity, difference, representation, collective histories, group marginality, shared histories of collective resistance. An anti-colonial framework is also anti-oppression and it advocates the need to decolonize power. An anti-colonial African-centered feminist approach acknowledges the relevance of all the issues identified so far, but in addition, it is views gender inequity in education from an integrated, holistic and relational approach. It is based on an understanding that although there are many differences among African women, there are themes that are common among them as Africans, women and as colonized subjects. Writing in a different context, Dei (1998) points out that Africans, including African women, "share a history of colonial and imperial imposition of external ideas and knowledge" (p.96) which needs to be problematized. He also argues that an anti-colonial framework uses indigenous knowledges as an entry point. He further asserts that:

As a theoretical perspective, anti-colonialism interrogates the power configurations embedded in ideas, cultures and histories of knowledge production and use (Dei, 2000, p. 117).

The anti-colonial African-centered feminist stand-point also acknowledges difference, not only among African women but also between African women and men especially their experiences in education and in the formal employment sectors. Colonial rulers did not only use the policy of divide and rule to separate ethnic groups, they applied it to differentiate
African women from African men, although as Africans, they were both racialized subjects. Amadiume (1987) clarifies this point thus: "primitive women stood at the lowest end of the scale, described as no better than beasts and slaves, while the Victorian lady stood at the apex" (p. 2). Thus an anti-colonial African-centered feminist perspective acknowledges these and other historical experiences of African women in indigenous societies and under colonialism. Amadiume stresses that an African feminism should be based on a social-cultural theory basically because values and beliefs about the world are centered in the culture of any society. Amadiume implies that an African-centered feminism should be grounded in culture. She argues that issues such as motherhood and domestic responsibilities are better understood when viewed within specific cultural settings being discussed, rather than as universal concepts. These terms, which are central in the lives of the majority of African women (educated or not), do not carry the same values in all human societies and within the same societies, they are not resistant to change.

An anti-colonial African-centered feminism centers the African woman and allows her a self-definition. It acknowledges her agency and points out how different groups of African women at their various locations in African society have resisted their multiple oppression over the years. An anti-colonial African-centered feminist perspective draws on the role of history, culture (Amadiume, 1987, Steady, 1985) and the indigenous knowledge resource base (Dei, 1998). This feminism recognizes the rights and responsibilities of Tanzanian women in their respective communities. It seeks to be holistic, inclusive and is based on the indigenous African belief that all things are connected, interrelated and interdependent. An anti-colonial African-centered feminism is aimed at decolonizing education and bringing together educated and illiterate African and Tanzanian women. Together the educated and uneducated, rural and urban women, from various social locations can identify and analyze their problems and suggest locally specific solutions. Women in Tanzania need to work together, and in their diverse communities, define themselves and their ideas, issues and problems and seek solutions for their problems as women and as Tanzanians.

A review of feminist theory developed in western countries helps women in Tanzania and other African countries begin to understand why agricultural education, for instance, was denied to African girls. As pointed out earlier, colonial western education reflected white-
middle class values that are rigidly divided into “private and public” spheres. These ideals were reflected in a gender-stereotyped curriculum whose remnants are still evident in most education systems in Africa. Okeke (1994) cites a Nigerian study by Achier which revealed that “Nigerian female university students tend to settle for gender stereotypical career choices even though, in proportion to their male counterparts, more of them come from high social class background” (p. 38). It is important to stress that the writings of sociologists like Parsons and Bales were reflected in the occupational oppression experienced by women in Western countries and in the colonies as a result of systematic discrimination in education and at the work place. Parsons and Bales’s arguments reinforced the stereotyping of occupations into female and masculine categories:

The distribution of women in the labor market clearly confirms this general view of the balance of sex roles. Thus, on higher levels typical feminine occupations are those of teacher, social worker, nurse, private secretary and entertainer. Such roles tend to have a prominent expressive component, and often to be “supportive” to masculine roles. Within the occupational organization they are analogous to the wife-mother roles in the family. It is much less common to find women in the “top executive” roles and the more specialized and “impersonal” technical roles. Even within the professions, we find comparative differentiations in medicine: women are heavily concentrated in the two branches: pediatrics and psychiatry than surgeons (Parsons and Bales, 1955, p. 15).

After reading Parsons and Bales and western feminist theory, I understand why in countries like Tanzania, many women are primary and secondary school teachers but very few are university instructors. Likewise most nurses are women. I even recall that one of my teachers wanted to know if I wanted to be a nurse. She did not ask me if I wanted to be a doctor although I had the best performance in my class.

Functionalism and anthropology have also been criticized by African women like Okeke (1994) and Amadiume (1987). They argue that functionalism provided an impetus for superimposing western cultural ideologies on other societies through the schooling process, the church and colonialism. Amadiume cites early anthropological writings that portrayed a distorted and negative view of African women as “primitive, barbaric, savage” (p. 2). Citing Evens-Pritchard’s essay “Women in Primitive Societies and our Own” and she points out that the essay was considered a master-piece in western societies and was not challenged.
by white middle-class women who criticized Parsons’ other writings about themselves. Amadiume points out that although racism is part and parcel of functionalism and anthropology, white liberal and radical feminists who are very critical of functionalism, have not identified racism as one of the issues that feminism should examine. White liberal and radical feminists have therefore been criticized by women of color for their limited focus on the individual and for their silence about racist and capitalist structures that contribute to women’s oppression. Other criticisms of liberal and radical feminisms have focused on their universalization of the term woman and their perception of gender oppression as experienced by third world women in general and African women in particular, hence defining what constitutes feminism in these areas.

Many studies have been carried out on rural African women, but few of these have been done by educated African women. Moreover, most of these studies have focused on middle-aged rural women who are engaged in economic activities. Not many studies have paid attention to younger rural women (that is, girls). I understand that due to various limitations the acquisition of higher education or at least post-secondary education alone does not guarantee that a woman will be liberated. But the higher the education level, the better a woman’s employment opportunities. I argue that more education for rural girls should be seen as a long-term investment and should accompany the bank loans or donation money given to rural women, most of whom are not trained in financial management. More education for rural girls will assure rural women that their daughters will have better chances to live better lives. I also argue that educated African women have the responsibility to document and analyze problems facing women in their communities and to suggest strategies to solve those problems. This argument is better stated by Okeke (1994) who stresses that African women need to interrogate their cultures. Emphasizing the relevance of higher education for Igbo women in Nigeria, Okeke argues that colonialism hindered women’s education and that the culturally legitimized gender inequalities reinforced this trend. She argues that the evolution of formal education and wage employment as avenues for social mobility and as vehicles for the perpetuation of cultural and foreign forms of gender subjugation have become the determining factors of Nigerian women’s social status. Okeke like other African feminists acknowledges that the collective experiences of Nigerian women are mediated by class, ethnicity, religion, political and economic trends. The
interrogation of culture and how it interacts with foreign forms of gender oppression to perpetuate Tanzanian or any other African women’s oppression needs to be done by African scholars who are familiar with their cultures and who are themselves products of foreign systems like Western education. Because of my location as a Tanzanian educated in Tanzania and North America, the boundaries of being an insider and outsider are not very firm, I am able to reflect on my experiences. It is based on these personal experiences that analyze and write about gender and other sites of inequities both from ‘within and without.’ (hooks, 1989). It is in fact this movement between positions and locations and my ability to reflect on my experiences that allows me to see the world the way I do. The anti-colonial African-centered feminist approach is based on the same argument expressed by hooks who refers to her own African-American feminist stand-points as “speaking from within.”

In her warning to her sisters in the West, Stamp (1990) articulates the dangers of universalizing women:

Not only are we ignorant of the differences in concepts of family, politics and economy of the Third World, we are also unaware that such differences exist. Our ignorance leads us to universalize our own Western categories and concepts. The concrete realities as constructed and lived by Third World people thus disappear from our view (and, often, as a result, from their own), (p. 20).

I agree that the ignorance on the part of western feminists in studying African women, including those in Tanzania, leads to problems. The solution to these problems is for African and other Third World women to be allowed space to articulate and study their own societies. This argument is also expressed by the Association of African Women Research Development (1980) where it is argued that African problems should be left to African women. The AAWORD statement stresses that African women have always handled their problems and wish to continue doing that. But AAWORD also stresses that co-operation from the West should be provided when asked for, although it should not be the responsibility of western feminists to define issues for African and Third World women.

It is possible that ignorance has influenced the way western feminists view the problems facing African women. But Amadiume (1987) holds a different view. She criticizes radical feminists for being racists: “The methods they employed indicated to Black women that White feminists were no less racist than the patriarchs of social anthropology whom they
were busy condemning for male bias" (p. 3). Despite such criticisms against radical feminists, their contributions to the development of feminist theory has been acknowledged by African and other scholars. For instance, Okeke (1994) points out that radical feminists presented an elaborate explanation of women’s oppression based on sexual power and, in so doing, challenged the taken-for-granted sex differences and complementary roles. The contributions made by radical feminists were particularly noted in gender socialization through education and employment. Radical feminists have also been credited for creating an awareness about gender inequity in many societies through practices and policies, curriculum materials and classroom interaction studies. Acker (1984) shares this view as she points out that radical feminists have used much of the literature used by Marxist feminists to examine ways in which schools and colleges shape female identity and encourage subordinate roles for women. She argues that in these studies, radical feminists have pointed out that lowered self-esteem and acceptance of inferiority are derived from women’s lack of control over and definition of “knowledge” itself (p.71). Other scholars, such as Clarricoates (1980), Hall and Sandler (1980) and Sadker and Sadker (1991), have shown that in mixed-sex classrooms, boys get a greater share of the teachers’ attention than girls and often teachers fail to notice girls at all. African classroom interaction studies confirm the research findings of studies done in western countries that male students hold negative views about women, including their female classmates and instructors. These aspects of school environment do contribute to girls’ and women’s lack of self-esteem.

While some feminists argue that girls underachieve because they have been socialized to do so, others assert that while men are trained to achieve highly, girls/women are trained to underachieve and to have low career aspirations. But as pointed out earlier in this chapter, a study by Glaze (1979) revealed that although the white female middle-class Ontario high school adolescents who took part in her study aspired to join upper-class and science related careers, they expected to join middle-class and non-scientific occupations. This implies that the social realities create what is referred to as an “institutional backdrop,” (Okeke, 1994, p. 32) -- girls who aspire for careers in fields that are stereotyped as male careers often end up in female occupations.

One of the contributions made by Marxist feminism to an understanding of the experiences of African women is its analysis of women’s oppression within the exploitative
social structures of capitalism and practices that benefit some over others. These produce women as “gendered” and “classed” beings. Stamp (1990) acknowledges that despite their short comings, Marxist feminists have made an important contribution to the development of feminist theory by shifting away from a focus on the individual as a unit of analysis in gender issues to the structures of women’s oppression, which include the state, family and class. But Amadiume (1987) criticizes the Marxist feminists for their denial of the role played by culture in analyzing women’s roles of motherhood and their domestic responsibilities.

I am aware of the limitations of the various feminist frameworks of women in developed countries, but I also realize that their ideas have created an awareness of women’s oppression. However, that oppression is defined in specific societies. I also argue that despite the diversity among women, there are common themes not only among Tanzanian and African women, but also among women all over the world, because most of us have been influenced and continue to be influenced by patriarchy, capitalism and cultural imperialism.

Summary

Part Two of this chapter has discussed feminist literature on education and has focused more on the need for developing an anti-colonial African-centered feminist perspective. More specifically it has stressed that there is a need to develop an anti-colonial African-centered feminist perspective that can explain the factors that influence the career decision-making experiences of the Tanzanian female undergraduates. Although developed in the West, other forms of feminisms such as liberal, radical, Marxist, socialist and Afro-centric, offer some insights about the experiences of Tanzanians in the education and employment sectors as gendered, racialized and classed beings. An anti-colonial African-centered feminist perspective is holistic and inclusive and is based on a social cultural theory (Amadiume, 1987; and Steady, 1985). It also acknowledges the role of history and is based on indigenous knowledge. Such a feminist perspective also takes into account commonalities and diversities among women in promoting an alliance among them, including female scholars, rural and urban women. Amadiume stresses the need for a humanistic or holistic and political feminist approach in the study of African women’s issues and the necessity of an African perspective:
Any work by Third World women must therefore be political, challenging the new and growing patriarchal systems imposed on our societies through colonialism and Western religious and educational influences. We cannot afford to be indifferent researchers, glossing over the local struggles in which women in our countries are involved. As well as looking into the social-cultural systems which guarantee women power, and making recommendations to their governments, African women and other Third World women still have a role to play in exposing the contradictions in their societies, recording their own social history with a view to challenging, where necessary, discrimination against women and positively aiming for more power for women in more egalitarian societies for everyone” (Amadiume, 1987, p. 9).

I hold the view that women in their diverse locations have the responsibility to identify, describe, analyze and develop strategies aimed at seeking solutions for their problems. Collaboration with other women should not replace any one group of women’s space and power to define themselves and their needs. It is for this reason that I use an anti-colonial African-centered feminism in the analysis of the factors that influence Tanzanian women to pursue higher education in the male-dominated areas of agriculture, engineering and medicine.
Chapter Four: Research Methodology

"We never talk, we never talk" (A second-year female undergraduate, 1997).

Chapter Four discusses the qualitative research methodology used in this study. As Glesne and Peshkin (1992) point out, one important feature of qualitative research is the important role played by face-to-face interactions. Glesne and Peshkin stress that because of the central role of face-to-face interactions, there is a need to address issues of rapport, subjectivity and ethical issues in qualitative research. They observe that these issues also touch on the relationship between the researcher and those s/he studies. Thus, the term “subject,” which is used in quantitative research, is replaced by the term “other,” “respondents” or “interviewees,” or more commonly “research participant” in qualitative research (p. xi). In this study, the term “respondent” refers to those who responded to the questionnaire while the term “participant” is used to refer to the second-year Tanzanian female students who took part in interviews and focus groups for the study.

Although this is a qualitative study, I used the questionnaire [survey] as a supplementary data collection strategy for the demographic characteristics of the study participants. My decision to combine the qualitative and quantitative data collection is mainly a reflection of my own belief that “different approaches allow us to know and understand different things about the world” (Glesne and Peskin, 1992 p. 9). It is also a reflection of my own education that has for the most part, emphasized the need for objectivity in research even though this is not the focus of my present study.

The Research Design

This qualitative study used multiple methods in its data collection, commonly known as “triangulation”27 (Denzin, 1978; Glesne and Peshkin, 1992). The use of more than one data collection method can obtain data that create a comprehensive understanding of factors that influence the career decisions and opportunities of Tanzanian female undergraduates.

27 Denzin (1978) defines triangulation as a “combination of methodologies in the study of the same phenomena...the sociologist should examine a problem from as many different methodologies as possible...survey, interviewing, document analysis, participant observation and observer participation” (p. 291).
Denzin (1978), Glesne and Peshkin (1992) argue that triangulation ensures reliability and validity of findings especially in qualitative research. Denzin explains further that viewing triangulation as the use of multiple methods is one form of strategy. He also suggests that it is convenient to conceive triangulation as “involving varieties of data, investigators, and theories, as well as methodologies” (p. 295). He names four basic types of triangulation: (1) data triangulation, (2) investigator triangulation, (3) theory triangulation and (4) methodological triangulation. Each of these have their subsets, for instance, methodological triangulation can entail within method triangulation and between method triangulation (p. 295).

In this study, I used the triangulation of methodology and data sources. The data collection methods I used were classroom observation (semi-participant observation), the questionnaire, interviews, focus group discussions, field notes and documentary reviews.

Because multiple methods were used in the data collection, it is important to point out that the main strategies for the collection of the qualitative data were the interviews and open-ended questions in the questionnaire. The closed-ended questions in the questionnaire were used to obtain biographical and demographic data. The supplementary data collection strategies included classroom observations, field notes, documentary analysis and focus group discussions. I also used the supplementary data collection strategies to help me establish the trustworthiness of the data collected from interviews and the questionnaire.

Most of the data sources I consulted for this study are primary sources mainly because research on women’s participation in higher education in Tanzania is very scarce.

Area of Study

Three Tanzanian universities were involved in this study: the Sokoine University of Agriculture (SUA) in Morogoro (the Mazimbu campus); (ii) the University of Dar es Salaam Main campus (Faculties of Science and Engineering); and (iii) the Muhimbili University College of Health Sciences (MUCHS).

The University of Dar es Salaam (UDSM) was established as a constituent college of the University of East African with the Faculty of Law in 1961 and it was known then as the University College Dar es Salaam (UCD). The UCD was established as the University of Dar es Salaam (UDSM) following the decision by the East African Authority on March,
25, 1970, to split the then University of East Africa into the three independent Universities of Tanzania, Uganda and Kenya (University of Dar es Salaam, 1996). The UDSM consists of three campuses: The Main campus (popularly known as Mlimani, or the “Hill,” the Muhimbili University College of Health Sciences as well as the University College of Lands and Architectural Studies (UCLAS).

The Main campus consists of six faculties: Arts and Social Sciences, Commerce and Management, Education, Engineering, Law and Science. There are also five institutes: Institute of Development Studies, Institute of Kiswahili Research, Institute of Resource Assessment, Institute of Production Innovations and Institute of Marine Science which is located in Zanzibar. The UDSM also operates a Computing Center, a Library, the Bureau of Research and Evaluation, the Bureau of Education in the Faculty of Education, the Bureau for Industrial Cooperation in the Faculty of Engineering and the University Consultancy Bureau. The UDSM was under going structural transformation (the UDSM 2000) when I was collecting data for this study. The Mlimani campus is located on the west side of the city of Dar es Salaam and occupies an area of over 1,600 acres on the Observation Hill, about 13 kilometers from the center of the city of Dar es Salaam.

The MUCHS is a University College of the University of Dar es Salaam. It is located in the city of Dar es Salaam and within the Muhimbili Referral Hospital which plays the role of a teaching hospital. The MUCHS consists of four faculties: Faculty of Dental Surgery, Faculty of Medicine, Faculty of Pharmacy and Faculty of Nursing. There are five institutes at MUCHS: Institute of Allied Health Sciences, Institute of Development Studies, Institute of Public Health, Institute of Primary Health Care and Continuing Health Education and the Institute of Traditional Medicine. The UDSM Main campus and the MUCHS campus are about 14 kilometers apart.

The Sokoine University of Agriculture (SUA) is the third university campus that was involved in this study. The SUA has three campuses, the Main campus and the Mazimbu campus are located in Morogoro about 200 kilometers from Dar es Salaam and are approximately 12 kilometers apart. The Olmotonyi campus is in Arusha region. Field work for this study was done at the SUA Main and Mazimbu campuses.

The Mazimbu campus is about 9 kilometers west of the town of Morogoro off the Iringga road. The beautiful and spacious Mazimbu campus was used as a settlement for the
African National Congress (ANC) of South Africa during the South African struggle for independence against the racist Boer regime. This piece of land was handed back to the Tanzanian government after South Africa became independent in 1992. Since then the Tanzanian government has been undecided about its use. At the time of this study Mazimbu was partly rented by the Sokoine University of Agriculture and was used by the first and second year students. Many faculty members and supporting staff also resided in Mazimbu but worked at the SUA main campus.

A detailed description of the Mazimbu campus is given here to highlight its characteristics which sets it apart more as a secondary school than University campus. Moreover, it is because of its location in relation to the SUA Main campus that poor transportation is one of the problems that face students and their teachers. Almost all the practical laboratory training classes take place at the SUA Main campus. Transport between the Mazimbu and the SUA Main campus is provided by two old buses that were purchased in mid 1960s when SUA was still a Faculty of Agriculture under the University of Dar es Salaam.

The library at Mazimbu was originally designed to provide reading materials for ANC secondary school students. Although the Mazimbu campus library is now run by the Sokoine University of Agriculture, most of the books and furniture, such as reading tables and chairs, are those which were meant for the ANC secondary school children.

I asked the Director of Higher Education in the Ministry of Science, Technology and Higher Education about the future plans for Mazimbu, but he refused to make any comment other than to say that he was writing a proposal about Mazimbu.

**The Study Participants**

The main research participants were the second-year Tanzanian female undergraduates drawn from three Tanzanian university campuses. The participants of the pilot study were the second-year Tanzanian female undergraduates and some of their teachers from the Faculty of Science of the University of Dar es Salaam. The participants for the main study included the second-year Tanzanian female undergraduates from the Faculty of Engineering of the University of Dar es Salaam, the Muhimbili University College of Health Sciences, and from the Sokoine University of Agriculture. In addition to the second-year
Tanzanian female undergraduates, some of their teachers, recent graduates, university administrators, educational officials from the Ministry of Education and Culture and of the Science, Technology and Higher Education, an examination officer and a curriculum developer were interviewed for this study. Moreover two Tanzanian female undergraduates, one third-year Agricultural Engineering and one fifth-year Doctor of Veterinary Medicine Tanzanian female undergraduates responded to the questionnaire, which was used to collect data from the second-year Tanzanian female undergraduates. Also, during the classroom observation, all the second-year students (male and female Tanzanian and non-Tanzanian were involved in the study.

**The Pilot Study**

I carried out a pilot study to test the proposed study I designed while I was still in Canada. The participants for the pilot study were the second-year Tanzanian female undergraduates in the Faculty of Science at the University of Dar es Salaam Main campus.\(^{28}\) I had originally planned to carry out classroom observations and to interview Tanzanian female undergraduates and their instructors in the following programs during the pilot study: Mathematics, Physics, Chemistry, Geology, Botany, Electronics, Computer Science and Zoology in which the participants were enrolled. However, due to a number of factors, including water shortage and non-availability of some instructors, I was only able to carry out the pilot study in the departments of Mathematics, Physics, Geology, Botany and Zoology.

The Faculty of Science, where the pilot study was done, had only 12% overall female enrolment in undergraduate programs in 1996/97 academic year. As such, it shares most of the characteristics of the other faculties such as Agriculture, Engineering and Medicine where women are also under represented. Women’s participation within the Faculty of Science also varies from department to department and from one program to another. In the 1996/97

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\(^{28}\) The University of Dar es Salaam Main campus is also known as the “Hill”, or “Mlimani” in Kiswahili, literally because it is built on the top of a hill, 14 kilometers from downtown Dar es Salaam city, metaphorically because it is like an ivory tower. The ivory tower metaphor makes sense in the Tanzania situation where education is so selective that only very few people mostly men] manage to “reach” the peak of the “Hill”.

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academic year, for instance, women were most under represented in the BSc Electronics program where there was only one female student in comparison to 50 male students. Moreover, in contrast to the BSc Electronics program, the BSc Education program with 46 female students had more female students than any other program in the Faculty of Science in real numbers. But in terms of percentages, the BSc General program with only 29 female students (15%) and 162 male students (85%) had a slightly higher percentage of female students.

The pilot study was aimed at testing the suitability of my data collection strategies, including the questionnaire, interview questions, the classroom observation schedule and the accessibility of the participants to the researcher. I clearly stated the objectives of the pilot study to all the participants (students, teachers, educational and university officials).

A total of seven classroom observations, which lasted between one and three hours, of theoretical and practical classes were carried out during the course of the pilot study.

The purpose of classroom observations was to explore the extent to which the classroom atmosphere is friendly to female students. Based on a number of research findings, especially in Developed Countries (Hall and Sandler 1982, Sadker and Sadker, 1991), the university classroom atmosphere is chilly for female students. It has been argued that faculty discriminate against students on the basis of gender and that such treatment favors male students. I wanted to find out whether such claims are relevant to the Tanzanian university classroom situation.

The classroom observations also enabled me to achieve the following objectives: (1) to familiarize myself with the teaching-learning process from the students’ and teachers’ perspectives and to use this information to develop supplementary interview questions; (2) to collect supplementary data that are not available from other sources, such as official records, questionnaire or interview responses; (3) to observe the Tanzanian female undergraduates in the teaching-learning environment and to examine how they interact with the teacher (female or male), male students, and other female students in class, how active/passive they are in the learning process, and later to use the classroom observation experiences to ask them about their learning concerns; (4) to introduce myself to all second-year students, including those who did not take part in this study.
After I had done the classroom observations I distributed the questionnaire to all 19 second-year Tanzanian female undergraduates in the Faculty of Science. Sixteen of them responded to and returned their questionnaire responses (at return rate of 84%), and three students did not return their responses (non-response of approximately, 16 %).

I described my study to the research participants when I had a short meeting with them, but I also enclosed the letter of introduction and consent form in the questionnaire I distributed to each participant (see Appendices G, H and J). The purpose of the letter of introduction and consent form were to invite the questionnaire respondents to volunteer for interviews.

Among the 16 second-year Tanzanian female undergraduates from the Faculty of Science who responded to the questionnaire, six volunteered to be interviewed. Four of the 5 teachers whose classes were observed were also interviewed during the pilot study.

The findings of the pilot study assisted me in improving the questionnaire, the classroom observation strategy and the interview questions for the main study. More specifically, it became clear after the pilot study that due to the economic hardships facing students and teachers in Tanzania, I needed to include a question about cost-sharing in the questionnaire and in the interviews with students and teachers.

I revised the questionnaire by removing some of the questions. For example, question number 9, which asked respondents to state the name of the region where they were born was removed. I noted during the pilot study that because Tanzanians may live in any part of the country regardless of where they were born, the place where one is born does not necessarily indicate one’s ethnicity. Instead, it was assumed that a participant’s ethnicity could be established through her parents’ ethnic background and the “language most spoken at home.” Ethnicity is a politically dormant topic in Tanzania because although there are major differences among the 120 Tanzanian ethnic groups, the major emphasis is on national identity rather than on ethnic origins of Tanzanians. National harmony among the various ethnic groups in Tanzania is reinforced by the use of Kiswahili as the national and official language and by intermarriages among different racial and ethnic groups.

I also noted that those students who had seen me in their classes were more at ease with me when I later interviewed them than those students who had not seen me before. It was because of this finding that I decided to collect data in the following sequence: first, I
would carry out a classroom observation; second, I would make arrangements to meet with Tanzanian female undergraduates informally through their Hall of Residence managers; third, I would distribute the questionnaire, ask them to respond to the questionnaire during their free time and ask one or two of them to collect the responses; four; I would ask the questionnaire respondents to volunteer for interviews.

It became evident to me during the pilot study that some students preferred to be interviewed in groups. Therefore, during the main study I announced right from the beginning that if participants wanted to be interviewed together it was okay with me.

The findings of the pilot study also revealed that contrary to my expectations, many participants were likely to prefer to be interviewed in Kiswahili rather than in English, which is the medium of instruction in institutions of higher learning in Tanzania.

It was also during the pilot study that I noted that both the teacher and the students became curious when I started to take notes during classroom observations. I therefore decided that when doing classroom observations for the main study, I would be writing all the time instead of writing only when I noticed or heard something of interest for the study. What this meant to me was that I could not wait until I went home to sort through the days’ work. I did not want to forget what was important especially on days when I did more than one classroom observation.

The pilot study gave me access to students’ lives and familiarized me with their problems. For instance, I realized during the pilot study that many students buy and prepare their own meals, a practice which is popularly known by some of them as “self-catering.” I did not know this practice existed when I was designing this study. During the main study, I was more flexible with students especially when making arrangements for interviews and in setting the length of the actual interviews, most of which lasted between 45 and 60 minutes.

At the end of the interviews I asked some of the participants of the pilot study to tell me what they thought about the classroom observation, the questionnaire, and interview questions in terms of clarity and the content. I also asked the teachers who had allowed me to carry out observations in their classes how they felt about my presence at the back of the classroom. I used their responses to revise the classroom observation schedule, the
questionnaire, the interviews, my research plans and how I would present myself to the participants of the main study.

Moreover, after being away for several years, the pilot study was a chance for me to familiarize myself with the current campus life of Tanzanian female undergraduates, their teachers and higher education in general. It was also a learning experience and a privilege to observe a variety of teaching and learning situations in Tanzanian university classrooms in their natural-everyday context.

The pilot study also indicated that I should expect to play roles other than that of being a researcher. I realized this when some teachers requested me for information about scholarships and some students asked me for sheets of paper on which to write class notes or take-home essays. Several students in different classes borrowed my pens during classroom observations.

**Data Collection**

**Access Issues**

Administrative Access. I arrived in Dar es Salaam on January 7, 1997, from Toronto. On January 9, 1997, I reported my arrival to the University of Dar es Salaam, my employer. As a faculty member of the University of Dar es Salaam, conducting research is part of my job and I was therefore expected to submit a request for a research permit from the University. This requirement is in addition to fulfilling the ethical review requirements of the University of Toronto. Research permits from the University of Dar es Salaam are issued by the Vice Chancellor who is also the Chair of the Research and Publications Committee.

After a number of visits to the Research and Publications office, I finally obtained my research permit on January 20, 1997 (letter reference number AB3/12/B, see Appendix D). The same research permit was addressed to the following officials and institutions: the Chief Administrative Officer University of Dar es Salaam; the Principal Secretaries of the Ministry of Education and Culture and Ministry of Science, Technology and Higher Education; the Principal of MUCHS) and to the SUA Registrar. The research permit introduced me to university and ministerial officials. These officials offered me administrative consent and they also introduced me to people in their respective institutions, including teachers and their students.
Negotiating Personal Access. The research clearance only offered me administrative access. But I needed to gain access to individuals and to be accepted by those I was going to interact with in each of the institutions where I was going to carry out the pilot and later the main study. Sometimes I wondered whether individual teachers and their students would be ready and willing to answer questions posed by a social scientist like me. Sometimes I recalled my school days in Tanzania when the “non-science” students were despised by the “science” students for not being as intelligent as the science students. I still recall an incident which took place when I was in Form Four. A commercial bias student (business) who had done well in her Form Four examination wrote a letter to those who were in Form Four with us (I was taking science then) to encourage them not to give up hope because since she had passed, they too could make it. The letter was read to us by our secondary school headmistress during one of the school assemblies. Until that day I had not known that those of us who were studying the physical sciences (mathematics, physics, chemistry and biology) were considered “special.” Later on, I found out that science students in Tanzania are considered the most intelligent ones, the so called “cream.” This belief is built into the hierarchical selection process through which students with highest marks are automatically assigned to the Science streams and those with the lowest marks are also automatically assigned to the Domestic Science (Home Economics) stream. I also realized there was a kind of bitterness which separated the Art and Social Sciences students from the Science students and the Home Economics students, in particular, from all the rest.

These old school memories often caused me to have doubts as I prepared to introduce my study and myself to science teachers and their students. But these disappeared during the pilot study, especially after I had met a few teachers from the Departments of Mathematics, Physics and Geology, as well as Chemistry, Microbiology and Zoology. The instructors and their students in these departments made me feel so much at ease that at times it felt like being in one of my secondary school science classes. This “inside-outside” (hooks, 1989), perspective gave me confidence about what I was about to study. It particularly equipped me with a vocabulary I would not have understood had I not had this “inside” view of the participants classroom environment and experiences. As the following section will demonstrate, I felt accepted not only by the female undergraduates, but also by most of their teachers and classmates.
Knowing most of the faculty members with whom I interacted was however not always helpful. I needed to negotiate my access to classrooms with teachers and students at a more personal level, to be accepted by participants, to develop their interest in the study and to maintain their interest throughout the study. Earlier research had shown that female students do not like to be involved in research (Biswalo, 1985). I was also told on arrival that their timetables are so tight that they hardly have any extra time for anything else that does not have a direct contribution to their studies. I took these pieces of advice into consideration when I had private conversation with the female students.

Experiencing denial can be quite challenging especially when it is so unexpected. I had not anticipated the possibility that some instructors might not allow me to enter their classes. I had assumed that since I was one of the faculty members in one of the universities my fellow instructors would be convinced that I was doing something useful for all the people concerned. But I was wrong. I was denied access to two classrooms -- one at the Muhimbili University College of Health Sciences and one at the Sokoine University of Agriculture. Both instructors were male. It was quite a challenge, but I was fortunate in both cases because the female instructors who taught these classes later allowed me to carry out classroom observations. Based on what one of these instructors asked me a few days later, I think that these incidents were not accidental but a reflection of these instructors' stand about women and gender issues.

Also, fortunately or unfortunately, I had the opportunity of meeting one of the instructors who had refused to allow me to enter his class to do classroom observation. This happened when I went to see the head of department and make future plans for classroom observation. I had made up my mind to do a classroom observation in another class. It so happened that the same instructor was now the acting head of his department. This time he was more relaxed and he asked me a lot of questions, starting with the following (in Kiswahili): “Ama, huu kweli ni mwaka wa wanawake! Kwa hiyo sasa mtasema kuwa wanaume waanze kuzaa watoto...!” (which can be translated into: “Oh, indeed this is women’s year!” So the next thing you people will demand is that men should start bearing children?!” I simply said “no” to most of his questions and at last he listened to my request. He introduced me to the instructor who was going to teach the next topic in the same class he taught that week.
**Classroom Observations (CO)**

The main purpose of the CO was to examine the teacher-student and male-female student interactions and to explore the extent to which the university classroom atmosphere facilitates learning for all students, especially female students who are the minority. The classroom observations also gave me confidence in interacting with teachers and students about diverse educational concerns and allowed me to be a semi-participant observer. I could not fully participate in any of the classes I observed because of my background in sociology in education. So, however well I thought I understood what was discussed, I could not fully share the teachers’ or students’ perspectives about the content of the class presentations or the teaching styles used.

The CO were not an evaluation of teaching nor did they focus on the teachers except in relation to their interactions with students, particularly female students. Data collection during classroom observation was guided by a list of questions (see Appendix F). These questions centered on the following areas: the teaching learning context (the physical setting); participants and their characteristics, including the gender and racial backgrounds; the activities; and my comments about what was happening in the classroom during observations.

I made a total of 21 classroom observations in 20 second-year classes in which Tanzanian female undergraduates were enroled. These classes were attended by a total of 497 students\(^\text{29}\) (Tanzanian and non-Tanzania), 93 female and 409 were male. Eight classroom observations were carried out at the Faculty of Engineering, 6 at the Muhimbili University College of Health Sciences and 7 at the Sokoine University of Agriculture.

All teachers were observed once except the one who taught the Demonstration Practical class. Students however, were observed more than once in classes taught by different teachers because some of their classes combined students from more than one department. Some of the combined classes at the Muhimbili University College of Health Sciences included the Introduction to Human Physiology, Histopathology and Microbiology and Immunology. At the Faculty of Engineering, one of the observed classes which

\(^{29}\) This number includes 2 foreign female students- one at the Muhimbili University College of Health Sciences and one at the Sokoine University of Agriculture.
combined students from more than one department was the Mechanics of Machines class. There were several combined classes which I observed at the Sokoine University of Agriculture, but the one which was attended by most students was the Introduction to Animal Physiology which was attended by almost all second-year students in the Faculty of Agriculture.

Nineteen of the 21 classroom observations were carried out in theoretical classes -- and two were carried out in practical classes-- one was carried out in Microbiology and Immunology at the Muhimbili University College of Health Sciences and one in Home Economics and Human Nutrition at the Sokoine University of Agriculture. No classroom observations were carried out in the second year Veterinary Medicine classes or Agricultural Engineering classes because there were no female student enrolled in these programs.

**Administration of the Questionnaire**

I distributed a questionnaire to the 92 second-year Tanzanian female undergraduates (see Appendix J) who were enrolled at the Faculty of Engineering of the University of Dar es Salaam (10 students), the Muhimbili University College of Health Sciences (19 students) and the Sokoine University of Agriculture (63 students). In addition, I asked one third-year Agricultural Engineering and one fifth-year Doctor of Veterinary Medicine student from the Sokoine University of Agriculture to respond to the questionnaire because there were no second-year Tanzania female undergraduates in these two programs. Therefore altogether, I distributed the questionnaire to 94 Tanzanian female undergraduates. From these 94 questionnaires, 73 were completed and returned.³⁰

**Interviews**

Students' Interviews. Many of those who responded to the questionnaire volunteered for interviews by signing a consent form (Appendix H) that was enclosed in the

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³⁰ One participant from the Faculty of Medicine was sick most of the time and I obtained her biographical data during the interview I had with her.
questionnaire. But due to time and other constraints, only 34 were interviewed. These were distributed as follows: 7 were from the Faculty of Engineering, 13 from the Muhimbili University College of Health Sciences and 14 from the Sokoine University of Agriculture. Some students preferred to be interviewed individually while a few wanted to be interviewed with a close friend or in a group, as was the case at the Faculty of Engineering where two groups of three students each were interviewed together. Group interviews were very useful in discussing issues of general concern such as female-male student relationships and the teacher-student relationships. However, I noted that some students tended to dominate the group interviews while others assumed a less active role.

Only 8 of the 34 interviews were conducted in English which is the language of instruction in higher education in Tanzania. The remaining 26 interviews were conducted in Kiswahili (the national and official language in Tanzania), because participants did not feel comfortable expressing themselves in English.

All the 34 interviews were transcribed in their original languages (26 in Kiswahili and 8 in English). Some of the interviews that were originally in Kiswahili were later translated into English.

**Recent Graduate Interviews.** I also interviewed 4 “recent” graduates. The word “recent” is used here more for identification than for actual reference to specific date of graduation. These participants referred to as recent graduates included three 1996 Tanzanian female Medical Doctors (MD) graduates and one Electrical Engineering (E.E.) graduate. The selection of these participants was done mainly on the basis of limited financial resources than on any other criterion.

These interviews were aimed at supplementing data collected from the second-year students who are the main target group of the study, especially in relation to career expectations and opportunities available to female professionals in Engineering and Medicine.

**Teachers’ Interviews.** I interviewed 18 of the 20 university teachers whose classes I observed. I was not able to interview the other two due to time and other constraints. Both

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31 One of the participants who had volunteered to be interviewed, was not interviewed because her child was sick (most of the time).
teachers were from the Faculty of Engineering at the University of Dar es Salaam Main campus. All teachers’ interviews were arranged with the approval and convenience of the teachers in terms of time and duration and most interviews were carried out in the teacher’s offices or classrooms. The interviews were done in offices during office hours when the teachers were also attending to other official matters including telephone calls and students’ consultations and took between 1 hour and 3 hours.

**Interviews with Educational Officials.** I also had semi-structured interviews with fourteen educational officials and university administrators who were distributed as follows: six ministerial officials, one examination officer; one curriculum developer; and six university administrators. The themes of these discussions ranged from the number of advanced science subject combinations available to girls to cost-sharing and students’ financing in general.

**The Researcher Role and Ethical Considerations**

I realized at the beginning of the study that it was not going to be easy to separate my role as a researcher from my role as faculty member at the University of Dar es Salaam. Some of my colleagues asked me several times when I was going to do “field work.” It was then that I realized that most people were probably not able to distinguish between my role as a researcher and as a faculty member at the university. I also felt that there were unstated questions even when some university teachers who know me allowed me to sit at the back of their classes. I recall one Electrical Engineering instructor challenged me to answer a question that students were unable to respond to. So I politely replied that I had no comments.

I had assumed that familiarity would enable me to move faster during data collection. However, there were times when I felt that some students saw me as just another faculty member to be avoided as they do with many of their teachers. Occasionally I also felt that some university instructors saw me just as one of them and wondered why I was asking questions about everyday and common-sense issues whose answers I knew as well as they did.

Then there were times when I was not so sure whether some of my colleagues felt comfortable to having me sitting at the back of their classes while they taught. Even though
I assured them that this study is not about teaching nor is it concerned about teaching competence, some did not seem to be quite convinced, as I noted in some of their questions and comments. A number of those who allowed me into their classes expressed their concern over their lack of training on how to teach university students. One young female medical teacher wanted me to tell her why I had decided to go to her class instead of the classes of other more experienced professors. She told me that this was her first year of teaching and nobody had ever taught her how to teach university students. After some explanation to answer her question “Why me?” we had a very informative interview at the end of which she felt quite comfortable and free to share a lot of information with me. Other university instructors who took part in this study said that they have taught themselves how to teach university students, although when they started nobody had ever taught them how to teach not just university students but any body at all, and yet they were expected to be excellent teachers.

Other ethical issues came up when I was asked to help students and the administration solve specific problems when I was doing my field work there. In one situation, some participants wanted me to find out from their department whether it was true that they were given extra marks simply because they were women, as alleged by some male students. In another situation, a male class representative asked me to find out from another university whether it is true that if a student is not able to sit for a supplementary examination she/he has to wait until the following academic year to write the examination. On a third occasion, a university administrator wanted to know when I would have my research report ready because they wanted to know why so many students fail the annual university examinations.

I managed to obtain the requested information, but I was also careful not to play the informer role. For instance it is true that when I interviewed the department head in question, I asked him about female students performance in comparison with male students. And after he had assured me that female and male students have comparable performance, then I told him that I had heard that some male students think that female students are favored. His response was negative, and that is what I conveyed to the concerned female students in that department.
Nevertheless, I found the research process rewarding and I saw these challenges as a learning experience.

**Duration of the Study**

Originally, data collection for this study was designed to be completed within 12 months. However, due to financial constraints, I carried out data collection in Tanzania between January and August 1997. I was therefore unable to carry out some of the activities I had planned. For instance, when I was doing field work, I was unable to transcribe any of the interviews (Appendix 1 provides the time table for the entire study). In spite of my lack of proficiency in transcribing and typing skills, I could not hire a professional transcriber due to financial and linguistic constraints.

**Limitations and Delimitation of the Study**

This study has been influenced by financial and language constraints that forced me to revise my original plans and to modify my research activities and strategies. This include my decision to abandon the idea of using a qualitative computer software for data coding and analysis.

Moreover, most of the Tanzanian students who took part in the study, chose to speak Kiswahili during interviews and during focus group discussions. This implied that even if I had the money to pay a transcriber, she/he would have to be fluent in Kiswahili. It also implies that some of the meanings implied by students’ Swahili expressions may have been lost in my English translations. The language issue is discussed in more detail in Chapters Five, Six, Seven and Eight.

Also, since this is a qualitative study, its relevance lies in the specifically and locally situated experiences of the study participants and no efforts are made to generalize the research findings to other student populations or other settings.

**Data Analysis**

Data coding and analysis were done on an ongoing basis simultaneously with data collection, as suggested by Glesne and Peshkin (1992), and were guided by an anti-colonial African centered-feminist perspective. This means that I take the study participants as the
main informers. Their views are central in this study. It also means that although I am not making any efforts to generalize the research findings, the study participants are a section of a larger society and their experiences provide insights to the understanding of the larger society. At first, I organized the data according to the responses to the questions posed in the questionnaire and interviews at each university campus. This approach allowed me to shape the study as it proceeded and to identify major issues and present them to the research participants during focus group discussions.

As I sorted the data, similarities, differences and patterns began to emerge and I organized them into analytical files as advised by Glesne and Peshkin (1992). These analytical files helped me store and organize my thoughts as well as the information I obtained from others. I examined my data periodically, selected and sorted the information I had collected and was able to develop simple coding schemes, which later evolved into more complex themes.

I had originally anticipated using a computer software for qualitative research such as the ETHNOGRAPH or NUD*IST for data coding and analysis. But, due to financial constraints, this idea was dropped. Instead, I used a manual system that was based on the main data categories, which later evolved into emerging themes such as interest and selection which most participants listed or mentioned as some of the main reasons why they joined their various programs at the three universities.

**Analysis of Classroom Observation Data**

Twenty one classroom observations were carried out in 20 second-year classes which had at least one Tanzanian female undergraduate. As noted earlier, the majority of the participants of the study were from the Sokoine University of Agriculture where the 7 observed second-year classes were attended by a total of 228 students (63 female and 165). The program that had the largest class was the Agricultural General program, which had a total of 67 students, and the program with smallest class size was the BSc Agronomy which had 19 students 4 female and 15 male students. The average size of an observed second-year class at SUA was 33 students, 9 female and 24 male students. But most classes were attended by students from more than three programs, therefore, class size was often almost 100 students. However female student were under represented in all the observed classes except
the Home Economics and Human Nutrition program which had 24 female and only 2 male students.

The average class size of the second-year Faculty of Engineering observed class was 42 male and less than 3 female students. But classes for some basic courses such as Mechanics of Machines (ME207) were attended by students from the Mechanical- Electrical- and Chemical and Process Engineering departments. Thus, in reality, the class size was 104 students. The Civil Engineering program had the largest number of students (73 male and 2 female) while the Chemical and Process Engineering program had the least number of students at the Faculty of Engineering (15 male and 1 female). The Electrical Engineering program, which had only 5 female and 40 male students, had the largest number of female students at the Faculty of Engineering -- some even referred to it as a “female dominated” program.

In general, there were fewer students at the Muhimbili University College of Health Sciences than at the University of Dar es Salaam or at the Sokoine University of Agriculture. The Doctor of Medicine second-year program with 37 male and 10 female students had the largest class at the Muhimbili University College of Health Sciences. It is also the program with the majority of female students at this college (10 female students). The BSc Nursing program, which had only one female and one male second-year students in the 1996/97 academic year, had the least number of students in comparison with all the programs involved in this study based on students’ enrolment data from the Muhimbili University of Health Sciences for the 1996/97 academic year. But most of the classes for the basic sciences courses such as Introduction to Human Physiology, were attended by students from more than one program (combined classes).

Some Comments About Classroom Observations

I observed many useful things in the classes I attended, but I will point out only two: students’ silence in class and the teaching and learning environment. I went to these classes expecting to see male students dominating class interactions with the teacher and the teacher paying more attention to male students, as the literature review of western studies and some African studies suggest. But I found these classrooms completely dominated by the teacher, male or female. A few male students attempted to make some contributions now and then,
but in general, the classes I attended were more likely to be without any student input even when the teacher encouraged students to speak. Dr. Msafiri’s (pseudonym) class is an example. The following section is a description of the physical setting of the classroom, the students, the teacher and the activities.

**Date:** 1997  
**Department:** XY  
**Class participants:** Doctor of Medicine (MD), Doctor of Dental Surgery (DDS) and BSc Nursing students.  
**Instructor:** Dr Msafiri (pseudonym)  
**Topic:** Immunology

**The Physical Setting.** A lecture theater with seats arranged in a hierarchical order such that the lower part is the at the front of the room and the back is elevated. The seats are wooden benches and can accommodate about 18 students without discomfort. There is one black board at the front of the class, which is divided by a line in the middle.

There are three entrances -- one at the front, another at the back on the same side of the building and one at the back of the room on the other side of the room. The third entrance was blocked by a large piece of wood.

The room was air conditioned when it was built in 1960s, but the air conditioners no longer work. Another lecturer told me a few days after this lecture that during the hot season, this lecture theater is “like an oven” and during the rain season, water comes in from the back door and lecturers have to wear water proof boots so that they can stand in the water and teach. Dr. Msafiri was lucky -- it had not rained nor was it too hot during his lecture.

All second-year lectures at MUCHS take place in this lecture theater, therefore all the classes I observed at MUCHS, except the Practical Demonstration class, took place in this same location. The composition of the students varied. Some classes were attended by all students while others were not, as was the case with the Immunology class which was not attended by the Pharmacy students.
The Class Participants. There were 98 students (15 female) and (83 male). All the 15 female\textsuperscript{32} students attended. But I was not able to record the exact number of the male students in attendance.

The Teacher’s Activities. After he had introduced me, Dr Msafiri began his one hour lecture on immunology with an introduction. He warned the students that this topic has many new concepts because immunology itself is a new topic, but, he added, not a difficult one. The main lecture followed in which Dr Msafiri traced the medical inventions and discoveries that have contributed to the development of immunology as a discipline from 430 BC to the outbreak of plague in Europe. He discussed the various experiments and discoveries that have been done in efforts to find cures for plague and other chronic diseases and the many ethnical issues which have emerged. He gave an example of an experiment done by Jenner on a small boy with small pox and discussed the more recent experiments on cloning mice. Dr Msafiri used historical materials such as pictures of scientists and slides to show what experiments were done and he used the black board for other illustrations. But all his examples were “he” examples.

He then gave the students the list of all the topics he would cover in his lectures, which he had also written on a flip chart.

Dr Msafiri then explained the relevance of the topics and he summarized some of his points and concluded his lecture.

The Students. While the teacher taught the students listened, and I noticed that only a few of them were writing.

What I noted. The teacher did not stop even once to ask students whether they understood or whether any of them needed to ask a question. Not a single student said anything in this class, asked no questions, and made no comments. In other words, there was no interaction. Even when the teacher made a joke that some of the medical discoveries are not that old because they were made in 1950s when he was born, only a few students managed to suppress laughter. The rest were completely passive. At first I thought this

\textsuperscript{32} One of the 5 female students in Doctor of Dental Surgery program was a foreign student who did not take part in this study.
silence was limited to Dr Msafiri’s class, but it turned out that in almost all the classes I observed students were silent.

Lack of Resources. The audio visual material that Dr Msafiri used when presenting his lecture: slides, transparencies and the over head projector (OP) and a flip chart, indicated that he comes from one of the departments that are externally funded. Other instructors I observed who came from less funded departments, like Physiology and Pathology at MUCHS and Agriculture at SUA, entirely depended on the black board as the only teaching aid available at their disposal. One medical instructor told me after a classroom observation that the college has no inputs to improve the teaching and learning environment and that individual teachers are expected to buy their own chalk. He also said that the only departments which can afford to give their students hand outs are those which have projects funded by external donor agencies. He cited the Swedish Agency for Research Co-operation with Developing Countries (SAREC) as an example, but he said there were many others. He lamented that it is only such departments which can afford to buy stationery and use audio visual materials such as the over head projector (OP).

I too had a “face-to-face encounter” with the problem of lack of resources when I had to stand for three hours while doing classroom observation in one of the SUA classes because there were not enough chairs. Fortunately, I was not alone, many students were also standing, as they always did for that combined lecture, which was attended by students from the following programs: Agriculture General, Animal Science, Food Science and Technology and Home Economics and Human Nutrition.
Questionnaire Data Analysis

Two types of data were collected through the questionnaires. The first was demographic characteristics of the second-year Tanzanian female undergraduates. Demographic data are analyzed in terms of frequency tables and percentages and supported by descriptions. The second type of data was qualitative in nature and was obtained through open-ended questions. This data focuses on the factors that influenced the participants to join their respective undergraduate programs and are presented as descriptions under the main sections of the questionnaire: personal factors, family influences, policy and schooling influences, and societal influences (see Appendix J).

The research participants were identified by their fields of study. Each participant was assigned a code number, which she was instructed to use when filling out the questionnaire. A total of 73 participants, (71 second-year, one third year Agricultural Engineering and one fifth year Doctor of Veterinary Medicine) Tanzanian female undergraduate responded to the questionnaire.

The majority of the SUA participants were enrolled in three programs: Home Economics and Human Nutrition, (25), Agricultural General (11) and Horticulture (11). A total of 63 questionnaires were distributed to the SUA participants and 44 of these were completed and returned (70% return rate).

As a whole, the participants from the Faculty of Engineering (10) were a minority. But the Second-year Electrical Engineering program with only 5 female student had more participants than any other second year program in the Faculty of Engineering and there was only one female student in the Chemical and Process Engineering program.

A breakdown of the MUCHS participants indicates that the BSc Nursing program that had only one female student had the lowest female enrolment at the MUCHS. It is interesting to note that the Home Economics and Human Nutrition program which is also stereotyped as “female” programs has the highest rate of participation while Nursing, also stereotyped as “female” has only one student. A total of 19 participants from the MUCHS took part in this study, the majority of whom are enrolled in the Doctor of Medicine (MD) program.
**Demographic Characteristics of the Study Participants**

Table 17 shows that 46 of the participants of this study are aged between 20 and 24 years, which is the university students' cohort in Tanzania according to census and educational statistics (United Republic of Tanzania. 1992). However the other 27 participants were 25 years and older. Most of the older participants were from the Sokoine University of Agriculture, where there were 22 study participants who were over 25 years old (half the number of participants from SUA). It is possible that many of the older participants spent many years trying to get into their current programs as did Shukuru, a Home Economics and Human Nutrition student who completed Form Six in 1972 but could not get admission into any undergraduate degree program until 1995/96, twenty-two years, later.

**Table 17**

**Frequency Distribution of Participants by Age**

<table>
<thead>
<tr>
<th>Age Groups in Years</th>
<th>FoE</th>
<th>MUCHS</th>
<th>SUA</th>
<th>Total</th>
<th>As %</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-24</td>
<td>7</td>
<td>17</td>
<td>22</td>
<td>46</td>
<td>63</td>
</tr>
<tr>
<td>25-29</td>
<td>3</td>
<td>2</td>
<td>16</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>30 and over</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>19</td>
<td>44</td>
<td>73</td>
<td>100</td>
</tr>
</tbody>
</table>

It was also noted that most of the older participants are enrolled in the Home Economics and Human Nutrition and in the Horticulture programs.

Participants of this study attended different types of secondary schools at the Form Four level (O-Level), ranging from co-education private and public, day and Boarding Secondary schools. But 59 of 73 (80.8%) of the study participants attended Girls Only Public Boarding Secondary Schools at the Form Six level as indicated in Table 18. But boarding secondary schools are expensive and the Tanzanian government is planning to reduce them and increase co-education day schools. This will mean that most children from the rural areas will no longer be able to attend secondary schools. Those who live in urban areas face transport problems because there is no transport service for students in Tanzania.
Table 18

Distribution of Participants by Type of Secondary School Attendance at Form Six Level

<table>
<thead>
<tr>
<th>Types of Secondary Schools</th>
<th>FoE</th>
<th>MUCHS</th>
<th>SUA</th>
<th>Total</th>
<th>As %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-education Private Day</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>4</td>
<td>5.5</td>
</tr>
<tr>
<td>Girls’ Public Boarding</td>
<td>10</td>
<td>13</td>
<td>37</td>
<td>59</td>
<td>80.8</td>
</tr>
<tr>
<td>Co-education Public Boarding</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>Co-ed Private Boarding</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>Co-education Public Day</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>19</td>
<td>44</td>
<td>73</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 18 also indicates that among the 5 participants who attended private schools, 4 are from the MUCHS. Because private secondary schools are expensive, it is generally understood that those who can afford to attend such schools are much wealthier than the average people.

Table 19 presents the participants of this study by their religious affiliations. It indicates that the participants are affiliated to one of the two religions: Christianity (over 85%) or Islam (less than 15%). People who retain the indigenous religious beliefs are said to constitute 20% of the Tanzanian population (at least according to the internet information available at the CIA website, odci.gov/cia/publications/factbook/tz.html, 1999. But none of the participants of this study indicated that they belong to indigenous religious affiliations which are referred to here as “Animists.” This could imply that Tanzanians who maintain their religious beliefs either do not send their children to school, or once such children are in school, they are converted to either Christianity or Islam.
Table 19

Frequency Distribution of Participants by Religion

<table>
<thead>
<tr>
<th>Name of Religion</th>
<th>Number of Participants</th>
<th>% in the Study</th>
<th>% in the Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous Beliefs</td>
<td>73</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Christianity</td>
<td>62</td>
<td>85</td>
<td>45</td>
</tr>
<tr>
<td>Islam</td>
<td>11</td>
<td>15</td>
<td>35</td>
</tr>
</tbody>
</table>

It is generally stated that there are about 120 major ethnic groups in Tanzania. However, according to Castle (1966), there are 130 major and minor "tribes" in Tanzania. Because I cannot prove either one, I will cite the officially recognized number of 120 ethnic groups. I refer to them as "ethnic groups" rather than as tribes. Thirty-five (35) of the 120 officially recognised ethnic groups are represented in this study. The majority of participants in this study were Chagga, the Haya, Sambaa and Sukuma, as indicated in Table 20.

Some colonial sources stress that Tanzania has never attracted much interest as a place to settle among Europeans and Asians in comparison to other East African countries such as Kenya and Uganda. It is pointed out that the population of Europeans and Asians (Indians and Arabs) has never been higher than 1% (Caldwell and Okonjo, 1968). However, in this study Asians comprised 7% of the sample of 73 participants. This implies that taking into account their relatively small population in Tanzania as a whole, Asians as a racial group are over represented in this study relative to their number in the general population. They are more represented than the Sukuma, for instance who were 12.6% of the Tanzanian population in 1957, but only 5% of the total number of participants in this study, as Table 20 indicates.

Another observation related to the ethnic distribution of the participants of this study is that approximately 32% of the participants come from interethnic families and one from

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33 One of these is an inter-racial family where the mother is an Arab and the father is a Bondei.
an inter-racial family background (1%), one participant did not provide information about her father (1%) and the remaining 66% participants come from “same ethnic group” family backgrounds. Although I was aware that interethnic families exist in Tanzania, based on my personal knowledge of the Tanzanian society, I did not know what percentage of Tanzanian society have interethnic backgrounds. I am not aware of any study on the extent to which interethnic families are prevalent in Tanzania. It is possible that these are more common now than they were a few years ago. A high prevalence (over 30%) of interethnic marriages may contribute to the high percentage of the participants who speak Kiswahili instead of their own ethnic languages, as observed in this study. It may also have the unintended outcomes of changing the ethnic make-up of the Tanzanian society if the percentage (over 30%) of intermarriages observed in this study applies to the general population.

Table 20
The Distribution of Participants of the 7 Most Represented Ethnic Groups

<table>
<thead>
<tr>
<th>Name of ethnic group</th>
<th>Mother</th>
<th>As %</th>
<th>Father</th>
<th>As %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chagga</td>
<td>18</td>
<td>24.7</td>
<td>19</td>
<td>26.0</td>
</tr>
<tr>
<td>Haya</td>
<td>11</td>
<td>15.1</td>
<td>10</td>
<td>13.7</td>
</tr>
<tr>
<td>Sambaa</td>
<td>6</td>
<td>8.2</td>
<td>5</td>
<td>6.8</td>
</tr>
<tr>
<td>Sukuma</td>
<td>3</td>
<td>4.1</td>
<td>4</td>
<td>5.5</td>
</tr>
<tr>
<td>Nyakyusa</td>
<td>4</td>
<td>5.5</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Indian</td>
<td>3</td>
<td>4.1</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>Swahili</td>
<td>2</td>
<td>2.7</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>Other</td>
<td>26</td>
<td>35.6</td>
<td>29</td>
<td>40.0</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>100.0</td>
<td>73</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Because current information about the ethnic breakdown of the present-day Tanzanian population is not easy to find, I must refer to the 1957 Population Census report quoted by Caldwell and Okonjo (1968), which indicates that the 9 major ethnic groups in terms of demographics are those listed in Table 21. An examination of Table 20 and Table 21 reveals that most of the demographically major ethnic groups in Tanzania, based on the
1957 Population Census report, such as the Nyamwezi and the Gogo are either under represented or absent from this study.

Table 21

<table>
<thead>
<tr>
<th>Name of Ethnic Group</th>
<th>Population in 1957 Census</th>
<th>% in 1957 Population</th>
<th>% in this Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sukuma</td>
<td>1,093,767</td>
<td>12.6</td>
<td>5.5</td>
</tr>
<tr>
<td>Nyamwezi</td>
<td>363,258</td>
<td>4.2</td>
<td>-</td>
</tr>
<tr>
<td>Makonde</td>
<td>339,989</td>
<td>3.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Haya</td>
<td>325,539</td>
<td>3.8</td>
<td>14.0</td>
</tr>
<tr>
<td>Chagga</td>
<td>318,167</td>
<td>3.7</td>
<td>26.0</td>
</tr>
<tr>
<td>Gogo</td>
<td>299,417</td>
<td>3.5</td>
<td>-</td>
</tr>
<tr>
<td>Ha</td>
<td>289,712</td>
<td>3.3</td>
<td>-</td>
</tr>
<tr>
<td>Nyakyusa</td>
<td>219,678</td>
<td>2.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Luguru</td>
<td>202,297</td>
<td>2.3</td>
<td>-</td>
</tr>
</tbody>
</table>

**Home Languages.** Table 22 reveals that most participants (63%) speak Kiswahili most of the time in their homes. Therefore, although English is the medium of instruction in higher education in Tanzania, only two of the participants of this study indicated that English is spoken most in their homes. The use of Kiswahili as everyday language by most Tanzanians is growing even though the number of people who identify themselves as “Swahili” is very small. In this study, for instance, only two of the participants responded that the ethnic group of their parents is Swahili, but over 63% of the participants speak Kiswahili most of the time in their homes.

The popularity of Kiswahili as an every-day language among the participants was confirmed by their preference to be interviewed in Kiswahili rather than in English. Only eight of the 34 study participants who were interviewed opted to be interviewed in English. One of those who were interviewed in Kiswahili explains her reasons:

I do not like to speak English because I can not speak fluent English... when

I am speaking English, which is not my everyday language, I speak very
slowly, and, therefore, first, I feel uncomfortable, I do not enjoy speaking and second, I may not succeed in communicating what I want to say... (an extract from Barb's interview translated from Kiswahili).

Other participants pointed out that one of the reasons Tanzanian university students do not feel comfortable speaking English is lack of opportunities to speak English outside the classroom. These participants said that it is artificial for them to speak English in class only while the rest of the time everybody speaks either Kiswahili or their ethnic languages.

Some teachers who took part in this study believe that poor oral English skills and a limited English vocabulary limit students' effective learning. Other teachers pointed out that students do not speak in class because they are more comfortable writing English but are very weak in oral English. One teacher added that to ask a Tanzanian university student to speak English in class is like punishing her/him.

A few participants support this argument, however, others do not. Instead they argue that students' silence in classrooms is influenced by many factors and lack of competence in oral English plays a very minor role. These participants pointed out that some of their teachers encourage them to ask questions in Kiswahili but still students keep quiet.

Based on the research participants' responses, the majority of the study participants (63.0) said that Kiswahili is spoken most in their home regardless of parental education, occupation, racial, ethnic and religious backgrounds. The only other most spoken language, according to Table 22 is Kichagga, which is spoken in 12% of the participants homes.
Table 22

**Distribution of Participants by Language Most Spoken at home**

<table>
<thead>
<tr>
<th>Name of Language</th>
<th>Number of Participants</th>
<th>As %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiswahili</td>
<td>46</td>
<td>63.0</td>
</tr>
<tr>
<td>Kichagga</td>
<td>9</td>
<td>12.0</td>
</tr>
<tr>
<td>Kiswahili/English</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>English</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
<td>19.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>73</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Some participants also responded that Kiswahili is most spoken in their homes in combination with other languages such as English (2%). The rest of the languages are spoken by less than 2% of the participants of this study.

**Parental Education.** Table 23 shows that the highest level of education of the mothers of most participants is primary education (33 out of 73).

Table 23

**Distribution of the Participants by Mother’s Education**

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>FoE</th>
<th>MUCHS</th>
<th>SUA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Attended school</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Primary</td>
<td>7</td>
<td>4</td>
<td>22</td>
<td>33</td>
</tr>
<tr>
<td>Secondary</td>
<td>1</td>
<td>10</td>
<td>16</td>
<td>27</td>
</tr>
<tr>
<td>University</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>19</strong></td>
<td><strong>44</strong></td>
<td><strong>73</strong></td>
</tr>
</tbody>
</table>

Also, while mothers of most of the study participants at the Faculty of Engineering and at the Sokoine University of Agriculture have primary education, mothers of most of the Muhimbili University College of Health Sciences participants have secondary education.
Table 24 indicates that 11 of the 19 participants have fathers whose highest level of education is university. Similarly, half of the FoE participants (5 out of 10) said that their fathers have university education.

Table 24

The Distribution of the Participants by Father's Education

<table>
<thead>
<tr>
<th>Education levels</th>
<th>FoE</th>
<th>MUCHS</th>
<th>SUA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No/school</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Primary</td>
<td>2</td>
<td>1</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Secondary</td>
<td>1</td>
<td>7</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>University</td>
<td>5</td>
<td>10</td>
<td>12</td>
<td>27</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>19</td>
<td>44</td>
<td>73</td>
</tr>
</tbody>
</table>

Table 24 also indicates that in contrast, only 12 out of the 44 SUA participants (27%) indicated that their fathers have university education.

An examination of fathers’ in comparison to mothers’ education indicates that the highest level of education of fathers is university education (37%) as shown in Table 25. But the highest level of education of the mothers of most participants is primary education (45%).

---

34 The number of SUA participants includes the one third year student in agricultural engineering and one fifth year student in the Doctor of Veterinary Medicine-program.
Table 25

Education of Mothers and Fathers of Participants

<table>
<thead>
<tr>
<th>Education Levels</th>
<th>Mother As %</th>
<th>Father As %</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Schooling</td>
<td>2 3.0</td>
<td>2 3.0</td>
</tr>
<tr>
<td>Primary</td>
<td>33 45.0</td>
<td>19 26.0</td>
</tr>
<tr>
<td>Secondary</td>
<td>27 37.0</td>
<td>17 23.0</td>
</tr>
<tr>
<td>University</td>
<td>6 8.0</td>
<td>27 37.0</td>
</tr>
<tr>
<td>Other</td>
<td>5 7.0</td>
<td>8 11.0</td>
</tr>
<tr>
<td>Total</td>
<td>73 100.0</td>
<td>73 100.0</td>
</tr>
</tbody>
</table>

Table 25 also shows that only 8% of the participants have mothers who have university education.

The occupational categories of the parents of the research participants indicated in Table 26 and 27 are based on the 1988 Tanzanian National Census report, (URT) 1992).

As Table 26 indicates, mothers of most participants are peasants or housewives (45%). But being a housewife is not considered an occupation. This implies that 45% of the mothers are not employed, although housewives in the rural areas are also subsistence farmers. Reference to the “housewife” category is often stated with “just a housewife” to stress its low status.

The second major occupational category of the participants’ mothers is in the “associated professions,” which in this study only refers to teaching and nursing (approximately, 31.5%). In contrast, the majority of the fathers are employed in the Professional/Technical occupational category (27.4%) followed by agricultural occupations (26%), although agriculture is the backbone of the Tanzanian economy.
Table 26

Distribution of the Respondents by Mothers' Occupation Categories

<table>
<thead>
<tr>
<th>Occupational Category</th>
<th>FoE</th>
<th>MUCHS</th>
<th>SUA</th>
<th>Total</th>
<th>As %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal/Admin/Managerial</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Professional/Technical</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4.1</td>
</tr>
<tr>
<td>Associated Professions</td>
<td>3</td>
<td>4</td>
<td>16</td>
<td>23</td>
<td>31.5</td>
</tr>
<tr>
<td>clerks</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>5.5</td>
</tr>
<tr>
<td>Service/Shop/sales</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>4</td>
<td>5.5</td>
</tr>
<tr>
<td>Agriculture/Housewife</td>
<td>4</td>
<td>7</td>
<td>22</td>
<td>33</td>
<td>45.0</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>7.0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>19</td>
<td>44</td>
<td>73</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Based on Table 27, most of the participants whose fathers are engaged in agricultural occupations are from the Sokoine University of Agriculture participants (12 of the 44 or approximately, 30%). The situation is different at the Muhimbili University College of Health Sciences where only 1 of the 19 participants (5%) indicated that her father is a peasant. On the other hand, 9 of the 19 participants (over 47%) from the Muhimbili University College of Health Sciences have fathers who are employed in the legal/administrative/managerial or professional/technical occupational categories. This suggests that the MUCHS participants come from higher socio-economic backgrounds than the SUA participants.
Table 27  
Distribution of Participants by Fathers’ Occupation

<table>
<thead>
<tr>
<th>Occupations</th>
<th>FoE</th>
<th>MUCHS</th>
<th>SUA</th>
<th>Total</th>
<th>As %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal/admin/managerial</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>9.6</td>
</tr>
<tr>
<td>Professional/technical</td>
<td>3</td>
<td>8</td>
<td>8</td>
<td>20</td>
<td>27.4</td>
</tr>
<tr>
<td>Associated/professions</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>8.2</td>
</tr>
<tr>
<td>Service/shop/sales</td>
<td>-</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>11.0</td>
</tr>
<tr>
<td>Peasant/farmer</td>
<td>4</td>
<td>1</td>
<td>15</td>
<td>19</td>
<td>26.0</td>
</tr>
<tr>
<td>Crafts/mach/operators</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>12</td>
<td>16.4</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>19</td>
<td>44</td>
<td>73</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 28 presents mothers’ and fathers’ occupational categories together. It indicates that only one (1%) of the mothers but seven (approximately 10%) of the fathers of the participants were employed in the legal/administrative/managerial occupational category. In contrast 33 of the mothers (45%), but only 19 (26%) of the fathers of the participants were employed in the peasant/farmer occupational category.
Table 28

Summary of Respondents by Parental Occupations

<table>
<thead>
<tr>
<th>Occupations</th>
<th>Mother</th>
<th>As %</th>
<th>Father</th>
<th>As %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal/Adm/Managerial</td>
<td>1</td>
<td>1.0</td>
<td>7</td>
<td>9.6</td>
</tr>
<tr>
<td>Professional/</td>
<td>3</td>
<td>4.0</td>
<td>20</td>
<td>27.4</td>
</tr>
<tr>
<td>Technical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assoc\Professions</td>
<td>23</td>
<td>31.5</td>
<td>6</td>
<td>8.2</td>
</tr>
<tr>
<td>Clerks</td>
<td>4</td>
<td>5.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Service/Shop/Sales</td>
<td>4</td>
<td>5.6</td>
<td>8</td>
<td>11.0</td>
</tr>
<tr>
<td>Agric/Housewife</td>
<td>33</td>
<td>45.0</td>
<td>19</td>
<td>26.0</td>
</tr>
<tr>
<td>Crafts/Mach. operators</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>7.0</td>
<td>12</td>
<td>16.4</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>100.0</td>
<td>73</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 29 shows that 86% of the participants come from families with four or more children. But when talking about their own anticipated families, most of the participants who were interviewed said that they plan to have no more than two children. They argued that due to harsh economic conditions in Tanzania, they would not afford to have more than two children because they might not have the necessary resources for taking a good care of more than two children and ensure that they are educated.

Table 29

The Distribution of Participants by Family Size

<table>
<thead>
<tr>
<th>Number of Children in Family</th>
<th>Frequency</th>
<th>As %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>9.3</td>
</tr>
<tr>
<td>4 and above</td>
<td>63</td>
<td>86.3</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>100.0</td>
</tr>
</tbody>
</table>
**Interview Data Analysis**

Qualitative data obtained from interviews with second-year Tanzanian female undergraduates, their teachers, recent graduates, as well as university and educational administrators (see Appendices K, L, M and N) are presented in the form of descriptions in Chapter Five and Six and are often accompanied by extracts from the interviews from some of the research participants and are discussed in Chapters Seven.

**Analysis of Documentary Reviews**

Data obtained from a review of the policy, institutional and research data are integrated in this chapter and in Chapters Five and Six which present the research findings.

**Summary**

Chapter Four describes the research design and the procedures followed in data collection and how research data have been analyzed. This is a qualitative study that employs multiple methods of data collection (triangulation of research methodology (Glesne and Peshkin, 1992 and Denzin, 1988). The triangulation of data collection is a strategy that ensures the trustworthiness of the data collected. Although this study employed a number of data collection methods, the questionnaire and the interviews were the major data collection strategies, both of which were tested during the pilot study and were revised on the basis of the findings of the pilot study.

The supplementary data collection methods included classroom observation, a form of semi-participant observation, daily journals, field notes and documentary reviews. I held three focus group discussions with the research participants at the three study sites to discuss the preliminary research findings.

Two types of data were collected: the demographic characteristics of the participants and their responses about factors that they think influenced their decisions to pursue higher education. Data analysis was done simultaneously with data collection using two main approaches: demographic data is presented as frequency distributions and as percentages for each of the three campuses and together.

The qualitative data is presented and analyzed in Chapter Five and Six and are discussed in Chapter Seven. The characteristics of the participants are summarized as follows:
I carried out classroom observation in 21 classrooms which were attended by a total of 497 second-year students (93 female and 404 male). Although I carried out the classroom observation in classes which were attended by male and foreign students, the questionnaire was distributed only to 92 Tanzanian female students. The Tanzanian female undergraduates were distributed among the three university campuses as follows: 10 were from the Faculty of Engineering of the University of Dar es Salaam; 19 were from the Muhimbili University College of Health Sciences; and 65 were from the Sokoine University of Agriculture. In addition to these, 2 Tanzanian female undergraduates, one third-year Agricultural Engineering and one fifth-year Doctor of Veterinary Medicine student responded to the questionnaire because there were no second-year female students in these programs. Among the 73 participants who responded to the questionnaire, 10 were enrolled at the Faculty of Engineering (13.7%), 19 were enrolled at the Muhimbili University College of Health Sciences (26%) and 44 were participants from the Sokoine University of Agriculture (60.3%).

Among those who responded to the questionnaire, 34 were interviewed. These were also distributed as follows: 7 interviewees were from the Faculty of Engineering of the University of Dar es Salaam, 13 were from the Muhimbili University College of Health Sciences and 14 were from the Sokoine University of Agriculture.

Most participants of this study were aged between 20 and 24 years (63%). The study also indicates that most of the participants who were more than 25 years old were from the Sokoine University of Agriculture. Among these, over 80% completed Form Six in Girls’ Only, Government Boarding secondary schools. Although in the general population there almost as many Christians as there are Moslems, in this study, over 85% were Christians and only 15% of the study participants said that they were Moslems.

Also, most of the participants were Africans but there were three Indians and those who come from interracial (Arab/Africans) backgrounds some whom identified themselves as Swahili. Although 35 of the 120 Tanzanian ethnic groups are represented in this study, 26% of the participants have Chagga mothers and 24.7% have Chagga fathers. More than 30% of the participants indicated that they come from interethnic family backgrounds. But when asked about the language most spoken in their homes, over 63% of them responded that they speak Kiswahili alone. There are also a few who speak Kiswahili and another language. The
other language spoken by many participants at home, was the Kichagga, which is spoken by 12.0% of the participants.

Moreover, the highest level of education of the mothers was primary education (44). In contrast, the highest level of education of their fathers was university education (38%).

Most participants of the study participants (45%) indicated that their mothers were housewives and are engaged in agricultural activities as peasant/subsistence farmers. The second major occupational category of the mothers was in the associated professions, mainly teaching and nursing (31.5%). The study also shows that the fathers of the research participants were employed in two major occupations: the professional and technical category (27.4) and in the agricultural sector mainly as peasant/subsistence farmers (26%). The study also indicates that while only one participant responded that her mother’s occupation falls into the legal/administrative/managerial occupational category (1.4%), almost 10% of the participants indicated that their fathers’ occupations fall into this category.

It was also observed that more than 86% of study participants came from families with four or more children. This observation implies that not many parents are likely to have the necessary financial ability to finance their daughters’ university education, especially those who are peasants or retired civil servants.
Chapter Five: Factors Influencing Higher Education Decisions

Chapter Five presents an analysis of the qualitative data drawn from this study which was aimed at responding to the following major research question: Why do Tanzanian women pursue higher education? Based on this question, four specific research questions were generated: (1) Why did the participants of this study join their current undergraduate programs? (2) What are the experiences of the research participants in these programs? (3) What are career expectations of these participants? (4) Based on the experiences of these participants, how do we come to an understanding of the role of women in higher education in Tanzania?

These questions were the basis upon which a questionnaire schedule was designed and interview questions were generated. The questionnaire and the interview questions were divided into four main themes: (1) personal factors; (2) family influences; (3) school and policy related factors and (4) societal and external factors. The responses to these questions are presented in this chapter under the following subheadings: personal factors, influences by significant others, policy and school related factors, societal and external influences.

A brief biographical sketch of 23 participants is presented when the participant is mentioned for the first time. The research participants' responses to the above questions are given in the form of detailed descriptions some of which are supported by quotes from 23 research participants. Some of the comments made by the recent graduates are integrated into those of the 23 cases. Responses of other participants are reported but are not quoted. The quotes are drawn from the participants' interviews, questionnaire responses and focus group discussions. These quotes are meant to enrich the analysis and serve as examples of participants' responses.

Pseudonyms/fictitious names are used in all the biographical cases and for other participants mentioned by name in the study. The questionnaire respondents were assigned code numbers.

Based on their responses to the open-ended questions and interviews, most participants stated that they were selected to join their current programs. But on further questioning, especially during interviews, it was noted that such selection often corresponded with a participant's interest and other times it did not. Thus those "selected" were those who qualified for programs of their choices which they chose on the basis of their career interests.
But when selection did not correspond to the participants’ career interests, those so selected felt that they were “pushed” into programs they did not like. For this reason participants’ responses to the question, “What factors do you think influenced you to join your current program” are presented under “interest” and “other or alternative programs” (just to get a degree). Participants’ career decisions were influenced by multiple factors, including but not limited to career interests, family, policy and school-related-societal and external which interact in various ways with other factors such as race, ethnicity, religion, parental education and occupations in shaping girls’ and women’s career decision-making experiences.

**A Participant’s Profile**

To begin with, I present a profile of a typical research participant and her typical activities and experiences in order to highlight some of the major research observations.

They used to sing her praises: “*Huyo x3, Hodari, huyo x 3, kashinda huyo, Darasani, huyo, ni Simba wa Darasani...*(She is capable, she is capable, she won, in class, she is the Lion of the class) [her classmates used to sing this praise song for her whenever she scored 100% in Mathematics...But that was a long time ago...

**Family Background.** Because at least one of her parents is a Chagga and since they are Christians, let’s call our typical research participant, Zawadi\(^{35}\). Zawadi’s father has post-secondary education and could work for the government as technical/professional or be a peasant/subsistence farmer. Her mother has primary education and she is a housewife/peasant farmer. There are over four children in Zawadi’s family and their home language is Kiswahili. Zawadi is between 20 and 24 years old. Although some of her older male relatives have university education, Zawadi is the first female member of her family to attend university.

**Schooling Experiences.** Zawadi recalls that she always liked school right from the time when she began to attend kindergarten. She completed primary school in her area with the best performance which enabled her to be selected to join the co-educational secondary school in her area where she went for her Ordinary Level (Forms One to Four) studies. She still

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\(^{35}\)Zawadi is a Swahili word for gift and is a common name for girls in Tanzania.
recalls that her performance was often better than that of most boys in her school. At the end of Form Four she was the only girl who was selected to study Physics, Chemistry and Biology (PCB) at a girls' boarding secondary school at the Forms Five and Six. When she was in Form Five, Zawadi was also among the 10 girls in her class who were advised by one of their teachers to study either Pure or Additional Mathematics as an optional subject because they were the best students in Mathematics.

Zawadi recalls that it was her father who encouraged her to choose science subjects, study hard and perform well so that she could go to university. At the lower levels her father used to assist her with school work, especially Physics before she went to a boarding school. Her Mum was also supportive but Zawadi could not recall anything that her mother did about her education but could remember that she always made sure that she went to bed early, was not late for school the following day, had clean clothes and had eaten her breakfast.

Zawadi’s friend, Rebecca had a sister who was studying medicine in Dar es Salaam when Zawadi was in Form Six and she told her much about studying medicine and she was really fascinated about being a doctor. Therefore, Zawadi and her friend agreed that they would put down Medicine as their first choice at the end of Form Six.

But Zawadi did not know that the “Alternative to Practical” type of science she learned at the O-level did not give her the necessary laboratory skills she needed to understand science at the higher levels. She became aware of this problem a few weeks before the examination when they went to a nearby boys boarding secondary school to do their Chemistry experiments as a preparation for the Advanced Certificate of Secondary Education Examination (ACSEE). The teacher told them that they could go back the following week to do the Physics experiments. But on that same day that they were to do the Physics experiments, there was no electricity at that school and that was why Zawadi had not done any Physics experiment when she sat for her ACSEE the following week. She could bitterly recall that this was the reason why her performance was really poor and all her hopes to study medicine were lost. She did not know what to do but her father convinced her to travel from Moshi to the Sokoine University of Agriculture to apply for any of the courses there. It was then that she met some of senior girls who told her about the Home Economics and Human Nutrition program. She did not know anything about Home Economics but her friends said that it was a very good program based on what they had heard. So that was how Zawadi
“ended up” at SUA. Now she knows more about her current program than she did when she was applying for admission and she said that she now likes her program but was also aware that many students look down upon this program. Some say that the only thing that Zawadi is learning is how to fry onions. Zawadi knows that is not true, but she has also heard that this program has very limited career opportunities when compared with other programs such as Food Science which she could not apply because she had a very poor grade in Physics.

**Current Experiences at the University.** Zawadi wakes up at 6 am and sleeps at 1 am during normal school year but during examination, she sleeps for 2 to 3 hours. She has lost self-confidence due to intimidation by her male classmates [but she has to be in good terms with them for fear that they will talk about her, or punch her if she is out-spoken]. She no longer speaks in class. She avoids teachers at all costs. Her learning style is characterized by *(kudesa/madesa or symbiosis)* copying notes and assignments which she later crams (memorizes) and reproduces them in tests and examinations. Because she has so many assignments, she often borrows completed assignments from friends to copy. Zawadi belongs to a group discussion with male students but her views are only valued if supported by a male colleague.

**Cost-sharing Experiences.** Zawadi brings some rice and beans from home and she stores them in her room. She buys the rest of the food stuffs once a week and she takes turns with her roommate to prepare meals in order to save money. Her diet is made up of what some SUA students call “cheap” commodities such as dried maize with beans, *Makande*, rice with beans, dried sardines (*Dagaa* in Kiswahili) or rice and spinach. She may eat beef, fruits, and vegetable once a week before the allowance is finished but she considers these a luxury because she can not afford to buy them. She could not recall when she last had eggs for a breakfast.

**Career Expectations.** Zawadi expects to complete her studies, establish herself professionally and be economically independent. But she was worried about whether she may find employment, and if she finds employment whether it will be in her area of training. But if employed in her area of training, she expects to be competent in her field of specialization although she does not expect to hold a high ranking position, but she could be “a small boss.” Most likely, she will be lowly regarded by other employees who may doubt her competence. However, if promoted based on hard work, she believes that her promotion will be attributed
to her sexual relationship with the male boss. Or, due to this fear, the male boss may refuse to employ her, or, if he employs her, he may not promote her.

**Career and Family responsibilities.** Zawadi expects that after she is economically independent, she will marry a man who is slightly older than herself, who has at least one degree. She expects her husband to be from any ethnic group but he should be a Christian like her. Zawadi’s husband should also be supportive and one who values women’s education and careers. If married to a man with these qualifications, Zawadi expects to be a successful professional, wife and a mother of no more than two children due to the harsh economic conditions in Tanzania. But if she makes a mistake and marries a man who does not value her education and career and wants her to stay at home and take care of children only, Zawadi will be forced into a divorce.

**Higher Education Decisions**

**Interest**

Based on their responses to the question, “Why did you join your current undergraduate program?” The research participants could be divided into three main groups in terms of their interests in school subjects: those like Sifa who love biology; others like Fortu, who was called *kipanga wa hesabu*, “mathematics brainer” (meaning a real smart girl); and the rest like Jenny, whose academic and career interests have not been realized. This division seems to correspond to the three campuses. Students with the best performance in Mathematics were selected to study Engineering at FoE. Those with the best performance in Biology were selected to study medicine at MUCHS. And those who performed poorly in Biology and Mathematics, along with others who studied other science subjects combinations such as Chemistry, Biology and Geography (CBG) and Chemistry, Biology and Nutrition (CBN), were selected to join “alternative” programs at SUA.

**Interest in Mathematics.** Interest in Mathematics was expressed by all the Engineering participants and by others like Zena, Cecy and Laila who are enrolled in other programs at the other two campuses. Among these, Fortu’s and Barb’s experiences are cited mainly because they could articulate their experiences more clearly than the other participants.
Fortu is a BSc Engineering student. She is aged between 20 and 24 years. Fortu’s parents have primary education and are peasants. Fortu has older brothers who were known for their excellent performance at the primary school she attended and teachers used to tell her that she should perform well like her brothers. Fortu has always liked school and her most favorite school subject has always been Mathematics. And, although she attended a co-education secondary school at the ordinary secondary school level, she always out performed her classmates (boys and girls). It was because of her excellent performance in Mathematics that her classmates nicknamed her *kipanga wa hesabu* in Kiswahili (mathematics brainer). Also, because she is the only female member of her family who has been able to attain higher education, her female relatives call her their “star.” Fortu had a two-month baby at the time of the interview.

Fortu said that when she was in primary and secondary schools she found Mathematics to be the easiest subject and she used to wonder why her classmates could not solve what she saw as simple Mathematics problems. Fortu said that her interest in Engineering was motivated by her interest in Mathematics:

I have always liked Mathematics,...as long as I have been in school. I used to see Mathematics as the easiest of all school subjects...whenever the teacher asked a question which other students could not answer, if he asked me, I would give him the right answer. Therefore the class started calling me, *Kipanga wa Hesabu* “Mathematic brainer,” but that was not true because I used to wonder why they could not answer the questions that were so simple!...All my ordinary level school subjects -- mathematics, physics, chemistry and English -- were very easy...And, although I attended a co-education secondary school at the O-level, no boy did better than me. I used to be the first in both streams (A and B) all the time...At the end of Form Four when I was choosing my Form Five subjects, one of my teachers told me that I had a wide choice -- I could study economics, geography and mathematics (EGM), physics, chemistry, and mathematics (PCM) or physics, chemistry and biology (PCB). Another teacher said, “You can take PCM and later study engineering. And, because I like mathematics a lot, I decided to take PCM.
Why? Because of my interest in Mathematics! PCM was my first choice, the other two were PCB and EGM.

Fortu’s experiences confirm that some girls can outperform boys in Mathematics and therefore, there are female mathematics brainers just as there are male mathematics brainers. Moreover, studying in a co-education school and a rural peasantry family background did not prevent Fortu from having an excellent performance in Mathematics and other subjects. One of the questions we need to answer is: “Why do we have such few female brainers like Fortu?” Fortu’s experiences also indicate that even excellent students need advice when it comes to choosing careers, especially students like Fortu whose parents have primary education and are not very conversant with the higher education system.

Barb is another Engineering student. She is aged between 25 and 29 years. Her father and mother have Grade 4 level of education and are peasants. Barb has lived most of her life with one of her older brothers. She recalls that when she was in primary and a co-education secondary school, none of her male classmates beat her in Mathematics, which is her most favorite subject. Barb completed Form Six in one of the Special Secondary Schools for the academically gifted Girls. But she had to attend tuition classes (tutorials) in Dar es Salaam during holidays because they did not have qualified teachers to teach them.

Unlike Fortu who was praised by her classmates and was nicknamed a Math brainer, Barb did not get such a positive perception from her classmates. She said during the interview that she was the best student in Mathematics and was determined to maintain that position at all levels of education from primary to university. She said that one of her secondary school mathematics teachers, Mr Mwaki (pseudonym name) who was not accustomed to seeing female Mathematics brainers was lost when Barb scored the highest mark in her first Mathematics examination in secondary school:

Ever since I was in primary school, I used to have very good performance. I used to perform better than the boys... When I went to secondary school, I scored 95% in the first Mathematics examination we did. But when our Maths teacher Mr Mwaki came to our class and before he gave us our examination papers he said, “girls have done very poorly in this examination. The girl who scored the highest mark got around 30% [imitating Mr Mwaki’s voice], but
the boy who scored the highest mark got 95%. But when he called "X", [my name] and he saw that it was me who stood up, he said, "Haa!" And, he could not believe his eyes. He then took back my examination paper because he had written "good boy," wherever I had made the correct point, so he took back my examination paper and he wrote "good girl, good girl"...(Barb, an extract from the group interview, 20 April, 1997).

Barb explains how she was determined to maintain her good performance in Mathematics, even when the boy who scored 66% in that examination cried after finding out that a girl had "beaten" him in mathematics. This male classmate later became antagonistic toward Barb because of her outstanding performance in Mathematics and others said that she was favored by the teacher. But Barb continued to score high grades in Mathematics. She said that she used to do well in Mathematics because she likes Mathematics so much.

Fortu and Barb are examples of female students who have consistently been interested in Mathematics. This kind of information is usually not emphasized in studies on women's participation in Mathematics. Instead, there is more focus on girls/women's lack of interest in mathematics and related fields such as the physical sciences and technology. These interview extracts also indicate that it is only the "Mathematics brainers" who manage to pursue Mathematics at the university level. Another of the participants (also an Engineering student) described herself and girls like her as ving'ang'anizi in Kiswahili, which translates as "those who persist, endure or risk takers." Important questions that Tanzanian educators committed to encourage women to pursue higher education especially in mathematics and the natural sciences should address include: How to recognize the abilities of such students, how to support, encourage and enable these and other students to use and develop their abilities.

**Interest in Medicine as a Service to Others.** Most of the participants who studied the Physics, Chemistry and Biology (PCB) subject combination at the Forms Six level aspired to be doctors. Those I interviewed said that medicine was the only program they knew for those who did well in these subjects.

Eight of the thirteen participants from the Muhimbili College of Health Sciences and eight of the fourteen participants from the Sokoine University of Agriculture who were interviewed aspired to study medicine. But only six of them qualified and were selected to
study medicine, the rest enroled in programs which some of them referred to as “alternative” programs or the “only” choice available to them due to poor grades. Moreover, among those who enroled in the Doctor of Medicine program, service to others was mentioned frequently as a factor that influenced their decision to pursue higher education in the medical field.

The following section presents views of the participants who enroled in the Doctor of Medicine program. It is followed by a discussion of those who aspired to study medicine but who failed to qualify and are enroled in “alternative” programs as some of them described their current undergraduate programs.

Let us look at Zena for example, one of the ten female Doctor of Medicine students. She is between 20 and 24 years old. She is one of the few participants from MUCHS who have a rural peasantry background. Her father is a carpenter and her mother is a housewife. Zena attended a co-education secondary school and recalls that she was the best student although most girls in her school performed poorly. She said that most of her male and female classmates who hated Mathematics used to call Mathematics “mother-in-law” or “father-in-law,” respectively, implying that they were not compatible with mathematics. Despite her interest and competence in Mathematics, Zena decided to study Medicine and not Engineering.

Zena is one of those MUCHS participants who described their interest in the medical career in terms of service to others. She said that her interest in medicine dates back to the time when she was still young. At Zena’s village there is a referral hospital where she observed as a little girl that all the medical personnel in that hospital were foreigners:

We have nobody who is a doctor in our family and in the whole community where I come from. And, the whole community, when you look at their health status, you will see that there are many problems. So right from the time when I was still young, I used to look at this situation and think, “I wish there was some one like a nurse or any kind of health personnel who could serve our area.”

Zena’s comments have educational implications. There is more focus on the secondary education level that reflects an assumption that career education is needed only at the
secondary school level and not earlier. But as Zena and other participants said, their interest in various school subjects and careers began when they were in primary school.

The other Doctor of Medicine participants who were not interviewed indicated in their responses to the open-ended questionnaire items that their career decisions were motivated by their interest to serve others. Some said that their teachers told them that it was good and precious for a girl to be a doctor. Others said that they received good service when they were sick and they decided to be doctors so that they too could serve others.

**Interest in Other Programs.** The BSc Nursing program also requires the study of Biology, Physics and Biology, but professions are hierarchically viewed such that Medicine is highly regarded while Nursing as a career is viewed as less important. This was evident not only in relation to extremely low enrolment rate in the Faculty of Nursing because the unstated assumption is that Nursing is a female profession in the same category as Home Economics which has the other extreme of having the highest level of female enrolment. Shukuru is one of the HE and HN students. She knows that she is despised by other students but unlike other participants, she is very grateful to join the HE and HN program.

Shukuru is studying Home Economics and Human Nutrition at SUA. She is over 35 years old. Her father has primary education and is a retired primary school teacher. Her mother is a housewife and dropped out of primary school to marry Shukuru’s father. Shukuru’s interest in a degree program in Home Economics and Human Nutrition lasted for over 20 years:

After many years I was still interested in coming to the university. And when I came to attend seminars here at SUA, and I saw them with their overall coats\(^{36}\) hanging from their shoulders, I said to myself, “My God, so this has passed me by, and I will die before I get this thing they call a degree?!” Fortunately I passed and I came here to SUA.

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\(^{36}\) SUA and other students in the Science and technology programs put on lab coats (overalls) in laboratory practical classes.
A Home Economics degree may not be a very marketable degree when compared with others such as a degree in Food Science, but Shukuru’s only interest is to get a degree. She was so happy that she was finally attending a university and will get her degree one day.

Other participants who were also interested in other programs include Cecy, a Doctor of Dental Surgery student. Cecy is aged between 20 and 24 years. Cecy’s father has university education and is an Engineer. She said that she hates her father because he is abusive. Her mother has primary education and is a housewife. She said that from the time she realized that her father abused her mother because he has a degree and she does not, she wanted to pursue higher education so that she too could have a degree. Because she hates her abusive father, Cecy did not want to study Engineering, which is her father’s profession. She wanted to become a pilot because she likes Mathematics. She never intended to join the Doctor of Dental Surgery program:

I wanted to be a pilot...I wanted to be a pilot because I like Physics, Mathematics and Geography (PGM). But at the end of Form Four, when I chose the PGM combination for the Form Five level, the teacher told me that the PGM combination was not available to girls. Then I was advised by a family friend to study Physics, Chemistry and Biology so that I could become a doctor. But, I did not like this idea of being a doctor because I like to do things which are related to Mathematics...I did not choose Dental Surgery as my first choice, my first choice was medicine but I did not qualify, so they selected me for my second choice, which was the Doctor of Dental Surgery program.

Cecy’s experiences indicate that the study of factors which influence students to join specific undergraduate programs are multiple and need to be carefully examined.

Influences by Significant Others

Family Influences

Apart from interest, participants’ responses to the questionnaire and interviews indicated that at the family level, parents played an important role in influencing their children’s education and career aspirations. This section presents participants’ family
influences under three main subheadings: fathers’ and mothers’ influence and influences by other family members.37

**Father Influence.** Many of the participants said that their families, especially their fathers and male relatives such as brothers and uncles, influenced their decisions about which school subjects to study and which university programs to join.

The research participants indicated that most fathers influenced their daughter’s schooling experiences regardless of their levels of education. The participants who said that their fathers influenced their decisions to join their current undergraduate programs include Sikujua who is studying Animal Science at SUA. She is between 29 and 30 years old. Sikujua’s parents never attended school and they are peasant farmers. When she was in secondary school, she did not know the difference between Arts and Science subjects. But she studied the Chemistry, Biology and Geography subjects based on her teacher’s advice. She regrets that she did not study Physics because other girls convinced her that Physics is very difficult. Although Sikujua’s father has no formal education, he too gave his daughter a lot of encouragement to pursue higher education, as she points out:

> Because my performance at the primary school level was good, my father wanted me to continue with higher education because he values education a lot, although he himself only has adult [literacy] education.

Other participants whose fathers have higher education, like Happy, were given more specific and directional advice, support and assistance. Happy is studying Home Economics and Human Nutrition. She is aged between 20 and 24 years. Her father is a university professor and a medical doctor. Happy’s mother is a nurse. Happy studied the Physics, Chemistry and Biology subject combination and wanted to be a doctor. But she did not qualify and therefore her father advised her to apply for the Home Economics and Human Nutrition program:

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37 I had assumed that the participants came to university directly from secondary school and were not involved in raising families. But during data collection I noted that at least one was married and had four children, two participants had one child each and two others were pregnant.
My father is a doctor and my mother is a nurse. I got more advice and assistance from my father. My father used to help me with school subjects such as English, Biology, Mathematics, Physics, Chemistry ... When I was choosing programs after failing to get admission into the medical school, it was also my father who advised me to choose the Home Economics and Human Nutrition program.

Other participants such as Laila, Vero, Sifa and Lily described the significant role played by their fathers in their education and career decision making experiences. Lily's father, like other fathers, used positive reinforcements such as gifts to motivate his daughter to work hard at school, as Lily recalls:

Right from the time when I was still young, he used to insist that I should study hard, the value of education and things like that. But nobody told me to study science subjects, it was just my own interest...and I got support from home...He used to buy gifts for me whenever I did well...for instance after I was selected to go to Form One, he bought a dress for me. I still have it, it is very pretty. Then after I passed the Form Four examinations, he prepared a party for me...And, when I was selected to go to Form Five as a Special student, he bought a golden chain for me this one here (showing me the golden chain).

Many of these participants indicated that their families had positive influences on their schooling careers and especially in their decision to pursue higher education and to join their current programs. Most of them stressed that it was their fathers who had a major influence on them.

But as noted earlier, Cecy decided not to study Engineering, because it is her father's profession. In the following quote from her interview, Cecy explains why she did not want to study Engineering:

My father is "well educated" he is an engineer. When I was young,...he used to boast that he was an engineer, I just knew from that...At our home we had that picture of his...he had framed it...and this picture was taken when he was
getting his degree...so he used to tell us, “Look there...that is me, I am educated...” He was so proud that he was educated and...after I saw the books...there were so many books...that’s when I knew he was an Engineer...I do not know. My father used to drink a lot then, he would come back home at night...He would boast that he is educated and...sometimes he would quarrel with my mum...Right from that time, I used to wonder, “What is this education which he boasts so much about and may be I can make it too.”...So I decided from that early age that I too would be well educated...But because I have a negative attitude towards engineers (laughs), even though I liked Mathematics and I was doing very well...But...I happen to hate my Dad something like that...I am really sorry to say that, but because he was an engineer, I did not like engineering at all basi engineering nilikuwa siitaki kabisaa...sitaki...I just did not like Engineering at all.

Thus Cecy avoided Engineering because it was her father’s career, even though she liked Mathematics and was good at it. Instead, Cecy “ended up” in the Doctor of Dental Surgery program. Maybe not many girls/children hate their fathers like Cecy does, but the fact that Cecy’s hatred towards her father prevented her from pursuing a career of her choice indicates that a father’s influence on his daughter’s education needs to be critically analyzed, because it may not necessarily be positive.

**Mother Influence.** Among those who responded that their families influenced their career decisions, only six mentioned their mothers as having played any significant role in their education and career decision-making, these include Sifa, Nyina and Maggie. The rest either did not mention their mothers at all or said that their mothers did not influence their education or their career decision experiences in any significant way in comparison with their fathers.

Nyina a is Horticulture student. She is between 20 and 24 years old. Nyina was *punched* when she was in first year for allegations that she had many boyfriends, but she said those were lies. She comes from rural peasant family background. Her parents never attended

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38 The word *punch* will be explained later.
school but they became literate through their participation in adult education literacy classes. Nyina said her mother contributed to her education even though she was not highly educated:

My mother died when I was in Standard Five and she had adult education only. But when she was alive she used to tell me, “My daughter, Nyina, you are the one who will study until class 14” [meaning Form Six]. She repeated this statement many times.

Like the father’s advice, the mother’s advice differed from one situation to another. There were also those like Sifa who received specific forms of advice from their mothers. Sifa is a Doctor of Medicine student. She is aged between 20 and 24 years. Her mother is a school teacher and her father is an auditor. Although Sifa decided to study medicine so that she can “save lives,” she does not intend to work for the government because if she does, she might be sent to work in rural areas, where she and most of her colleagues do not want to go because they do not know anybody there. Sifa’s comment about her dislike to work in the rural areas is very unfortunate to say the least, because it is in rural areas where doctors are needed most. It is in part a reflection of her understanding of what it means to be a doctor in Tanzania. In the following extract from her interview, Sifa explains her mother’s influence on her education:

My mum has always been happy with my results, and when I did well...she would be happy because she knew that maybe one day it would make me somebody, so she encouraged me...When [raises voice] I had problems...I did not understand okay, in Primary and secondary level (Form Four, O-Level)...we actually used to sit down and she would go through the papers with me, she was quite encouraging...and for subjects in which she is not an expert, she used to get other teachers to help me. She has always been helpful in terms of our education.

Sifa stressed that her mother was hopeful that if Sifa was successful at school, she could become some one important one day.

39 The expression “adult education” is used here to refer to basic literacy skills known as the “three Rs, that is arithmetic, reading and writing.
Maggie is an only child to her mother who is a single-parent. Maggie is a BSc Nursing student. She is the only participant who comes from a single-parent family and she is the second student in a class of only two students. Maggie recalls that when she was in O-level secondary school, many girls used to discourage each other saying that girls did not need to study hard subjects such as Agriculture and Mathematics because these are male subjects. But Maggie says that she and her close friends did not listen to these girls. She particularly said that she worked hard in school because she did not want to disappoint her mother:

At my home, I am the only child...My mother is a teacher...she has always encouraged me to study especially when I was still young... but later I too knew the value of education. It was my mother who encouraged me to study science subjects because she likes science herself. She used to tell me that science subjects would give me a brighter future than Arts subjects. She wanted me to study Physics, Chemistry and Mathematics so that I could become an architect. But because I was not very competent in Mathematics, I decided to study Physics, Chemistry and Biology... I used to have a better performance in Biology than in any other subject.

But other participants such as Lily did not think that their mothers made any significant contributions to their education or to their career choices:

My mother [laughs], of course she was also happy about my success...She congratulated me and things like that but she was quiet most of the time about these things...she used to be only concerned about her own things...She was never interested in my education...

Lily is one of those study participants who did not seem to know their mothers very well. She told me that her mother was employed before she got married but quit working because her husband’s salary was enough for the whole family. But Lily did not know the kind of job that her mother did then mainly because she has never asked.

Another participant who said that her mother did not play an important role in her education was Vero, an engineering student aged between 20 and 24 years old. Vero’s father is a businessman and her mother is a teacher. Vero said that she is not very keen on getting
married but if she meets a suitable man who wants to marry her, she will get married. Vero’s future husband has to be older than herself and should have higher education than Vero so that she can respect him. But if she marries a man who does not value her education, she will divorce him. Vero’s career goal is to be a computer specialist. Although Vero’s mother used to assist her when she was in primary school, Vero does not think that was good enough:

My mother also tried to assist me, especially when I was in primary school because she is a primary school teacher. So when I was in primary school she used to teach me until I passed the Primary School Leaving Examination ...But she did not continue to encourage me after that and therefore she did not play any important role like my father did.

Vero also said that when she was making up her mind about whether to study science or not, her mother discouraged her from studying the science subjects and instead she wanted Vero to study commercial [business] subjects. And, when Vero insisted that she wanted to study the science subjects her mother asked her whether she is more intelligent than her brother who was studying commercial subjects.

During focus group discussions, some participants at MUCHS thought that to say that some of their mothers did not make significant contribution to their education was not a fair assessment. These participants stressed that each day before they went to school, their mothers made sure they were fine. But most of the SUA participants made a more analytical assessment of their mothers’ contributions to their education in comparison to their fathers. These views are asserted by Remmy. She is enrolled in the Agricultural General program at SUA. Remmy is between 20 and 24 years old. Her father is a doctor and her mother a nurse. Remmy was so sure that she would qualify to study Medicine that she never bothered to find out about other programs. She particularly did not like the SUA programs. But after failing to get admission into the Doctor of Medicine program she decided to join any of the SUA programs, just to get a degree. In the following extract from the SUA focus group discussion, Remmy explains the reasons for mothers’ apparent marginal role in the education of their daughters:

This point can be explained this way: a father is knowledgeable, for instance he knows how the school system works, how studies are organized,... while
a mother...she could be employed, but she is the person who possibly has Form Four education and maybe she was trained as a teacher or nurse, so her thinking is narrow. She only knows that one can be educated up to Form Four, but as things proceed [beyond this level of education and awareness] she does not understand...[there is background laughter from other participants’ so Remmy pauses and continues]. She only knows that the children are up, they have eaten and they have gone to school...[she does not know what they like at school]...but she will say, “Work hard so that your father can make arrangements for you to go for further studies” [all others laugh]...That’s a mother’s contribution...But a father knows very well how education is organized, and he thinks, “My daughter, I have to prepare her for her future...” And that’s why a father contributes more than a mother...

Remmy’s argument was shared by other participants who said because the Tanzanian society accords a low status to women, whatever they say is usually not valued. But what a man says has a lot of weight. Therefore, a mother’s apparent marginal role in their education is a reflection of their mothers’ lack of power to give any advice to them. In the following extract from the SUA focus group discussion, Remmy indicates that their fathers’ high status in society is reinforced by their economic power:

Your mother might say, “I advise you to join nursing or teaching, but first find out what your father says,” [others laugh]...I mean she might wish that you could study something, but she can not tell you, “Go and study something”. Because it is your father who will give you the money...So if you go against what he wishes, he might decide to cut off the money, *He will do budget cuts* [others laugh].

The participants agreed with Remmy’s argument that in most households mothers can only suggest things but the final decision lies with the father. But a few of them added that if given an opportunity to give her advice, a mother is likely to take many things into account because she knows her children more than a father does. These participants insisted that it is
very important to involve a mother when issues that concern her children (male and female) are being discussed.

Other Family Influences. In cases where the father did not play a major role in influencing the participant’s education and career decision making experiences, brothers, uncles and other male relatives played an important role. Participants who were directly or indirectly influenced by male relatives include Barb, Fortu and Vicky among others. Sisters and other female relatives were rarely mentioned.

Barb recalls that her interest in Electrical Engineering developed from her interest in making small repairs on electrical items like the radio so that she could have the same skills as her brother who is an electrical technician:

When I was young, I used to admire my brother who is an Electrical Technician. In his absence I tried to dismantle and make some simple repairs to the radio, electrical cooker et cetera and from then on I found it very interesting and because I was doing fine at school academically, I decided to develop my skills by joining the university.

Not all participants had positive influences from their male relatives. There were others, like Vero, who were negatively influenced by male relatives and friends. Vero wanted to study Computer Science but she did not qualify. When she was wondering whether to study Electrical Engineering or not, a male relative “advised” her not to because Electrical Engineering is “too difficult” for women. Instead she was told to study Chemical and Process Engineering (CPE), which is “suitable for women because it is easy.” Vero took this advice seriously and joined the CPE program. But at the end of the first year she requested a transfer to the Electrical Engineering program for the following reasons:

I said, “Haa! No, Since I have done so well, better than most male students, why should I not study Electrical Engineering?” So that is when I decided to ask for a transfer into the Electrical Engineering program.

Apart from Vero, there were others who could still recall that some of their male relatives and friends advised them to join programs which they said were “easy,” and were often warned that if they studied the “difficult” subjects they would fail. This kind of low expectation of the
participants was often expressed by one of Shida’s male relatives. Shida is studying Agronomy at SUA. She is between 25 and 29 years old. Her parents are primary school teachers but her father has already retired. Right from the time when she was in primary school, Shida wanted to be a [Rural] Medical Assistant. But her father advised her to pursue higher education. When she was in secondary school, she wanted to study Physics, Chemistry and Biology so that she could later study Medicine, but one of her male relative discouraged her:

My father was always very supportive, he told me that I could change from the Chemistry, Biology and Geography and take Physics, Chemistry and Biology (PCB) at the A-level. But one of my relatives who attended a school near the school I was going to, said that if I took the PCB subjects combination at that school, I would fail because they had no teachers. He asked me, “Why can you not take Kiswahili, Literature and French (KLF)?

There is an implied message in the question posed to Shida because the KLF subject combination falls within the so called female subjects, that is, languages in which girls and women are said to perform better than in the physical sciences. Other participants were told that because they are women, they do not need degrees, but diplomas are enough. But these participants said that they did not follow such advice because they wanted to prove their relatives wrong.

The few who were not able to go against such advice included Laila, a Doctor of Medicine student who is between 20 and 24 years old. Laila’s father has university education and is a retired publisher. Her mother is a housewife and comes from a business-oriented family background. Laila is one of the few participants from Zanzibar. Laila wanted to study the PCM subjects so that she could later study Engineering. But instead she studied the PCB subjects combination mainly because of family pressure. She said that she joined the Doctor of Medicine program against her will and attributed family pressure to her sister who found Engineering difficult.

Other Influences. The recent graduates I interviewed also made some comments about why they joined programs in their respective fields of training. Two of the Intern Doctors said that their decisions to study medicine were influenced by friends and peers, and the third one
said that she was selected to study medicine based on her grades but she personally did not know much about Medicine at that time. Based on their experiences, the doctors pointed out that career information about medicine and other professions should be made available to secondary school girls. In addition they emphasized that those who study PCB, for instance, should be made aware that there are many other professions apart from Medicine. These include but are not limited to Pharmacy, Nursing and Doctor of Dental Surgery where female professionals are very few. Such information should aim at introducing the students to the various specializations within these professions.

The Engineering graduate I interviewed also stressed the need for career information and the availability of career guidance and counseling within the Tanzanian education system. She too stressed that secondary school students who study Physics, Chemistry and Mathematics should know that Engineering is one of the university programs they can join. And within the Engineering profession, there are various programs such as Civil, Chemical and Process, Electrical and Mechanical Engineering that are offered at the University of Dar es Salaam.

The recent graduates stressed that they wish that such information was made available to them when they were applying to join the university. Their sentiments are better expressed by Dr Nelu, one of the Intern Doctors who has decided that she will not practice Medicine:

They should not be like me...I finished my Fifth Year [at the Medical school] without knowing what I wanted to do later, which is bad...you are waiting for your results and you start to look at the grades and say, “I have a B in this so I want to study this...” not because they like it, but that’s the only way they can go into graduate school...I think if they know earlier, they will work harder in subjects of their interests...this would be much better than studying something because they have to...

The other two Intern Doctors agreed with Dr Nelu, and they added that if one studies Medicine without having enough information about the nature of the job, after she finishes her studies she might say, “I do not want to practice medicine...may be I should go and study Community Medicine” (An Intern Doctor, 29, June, 1997). They stressed that to work with patients, one has to like what she is doing. Being a doctor involves dealing with peoples’
lives. It should not be compared with other types of work, because if it is, the student will be disappointed and will not do it.

**Policy and School Related Factors**

**Early Schooling Influences**

Lily’s chosen career was medicine but she did not qualify for admission into the medical school although she was one of the Special Selected students. Lily recalls that her decision to study science subjects was influenced by Mama Wema, her Form One Biology teacher:

> Had I not met Mama Wema who taught me Biology in Form One, I might not have studied science, more particularly, I might not have studied Physics, Chemistry and Biology.

Lily said that she had a good foundation in Biology as a result of Mama Wema’s class and that was enough to take her through the entire schooling process, especially when she had poor teachers like Mrs Mwenda in Form Two. Lily distinguished Mama Wema from Mrs Mwenda:

> Most teachers in Tanzania are frustrated. They often complain that they are underpaid. When you go to ask questions they make you feel that you are bothering them, wasting their time and they will not give you a satisfactory answer. So the only thing which helps us is tuition\(^{40}\) or tutorials.

Lily’s views about frustrated teachers were shared by other participants who said some teachers favor students from their ethnic groups or those they know personally through their ‘O

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\(^{40}\) The term “tuition” as used in this context refers to private instruction of students by teachers after school hours (tutorials) and at a fee determined by the teacher. Such income is usually non-taxable because it is only the teacher who knows how much they earn. Most children from poor families cannot afford to attend tuition. Tuition is also illegal when carried out in school compounds, at least according to the Ministry of Education. Most participants of the study said that without tuition they would not have been able to go to university.
parents. The rest of the students have very little contact with their teachers outside the classroom.

Shida was one of the few participants who sought career advice from some of her teachers. After she was discouraged by one of her relatives to study science subjects, she tried to get advice from one of her teachers:

I asked the teacher whether I could change from CBG to PCB. But in response the teacher asked me, “Are you sure that if you take the PCB subjects combination you will pass in the final examination?” I felt threatened therefore my answer to the teacher was, “I am not sure.” The teacher said, “Fine, continue with the CBG combination.” But my career dream was and still is Medicine. But I replied, “Anyway, I can still join the Medical Assistant program” because at that time I knew that those who studied CBG could join the Medical Assistant program after completing Form Six...

But Shida’s schooling and career decision making experiences were complicated by her sickness and she never joined a Medical Assistant program. Instead, she studied Fisheries at a diploma level and after failing to find employment because she is a woman, one of her brothers advised her to study Agronomy at SUA. During the interview, she painfully narrated her experiences some of which are cited here as evidence that girls who show interest in the sciences and careers which are male dominated face many barriers. Shida’s experiences also show that it is not true to say that girls’ low participation in the sciences is due to girls’ lack of interest in these subjects. If that is so, the tendency for girls to drop mathematics and the physical sciences need to be critically examined because lack of interest and poor performance all need to be critically viewed.

Schooling experiences related to racial discrimination were also connected to teachers. Manka, a Home Economics and Human Nutrition student, is between 25 and 29 years old. She attended a large multi-racial urban secondary school and recalls how uncomfortable she used to feel in her Physics classes that were taught by Mr Muhunzi:

Our school was a large public day secondary school in a big city with a multi-racial student population. Although African students were the majority and all the teachers were Africans, some students were Arabs, Indians and half-
castes,\textsuperscript{41} most of whom came from richer families than most of us. Most teachers were good especially the Biology teacher who used to assist us regardless of our skin colors. But our Physics teacher, Mr Muhunzi [\textit{fictitious name}] used to favor the Indian students whom he privately taught at their homes (tuition). He used to favor them in class. For instance, when he gave us assignments in class, he would go to assist the Indian students most of the time. This experience used to make me feel so inferior in his class because whenever I had a problem and I raised my hand to get his attention, he would ignore me. But once an Indian student raises his/her hand, he would go to assist him/her at once...Most people believe that racial discrimination in Tanzanian schools was abolished in 1962. But that is not true—Racial discrimination is still there, but it is underground. You can not know it is there until you are in that school or in that particular class, then you will know that racism exists in Tanzanian schools.

Manka’s experiences are not very common but the fact that she felt racial discrimination exist in a secondary school in Tanzania, in late 1990s, calls for further research. I was also informed by some students that at the MUCHS campus, especially, where the student population is more multi-racial than at the other two campuses, there were allegations that Asian students buy examinations from professors. Such allegations could fall into a similar category like those described by the Intern Doctors who said that if a female student goes to see a teacher, and she later passes the examination set by that teacher, other male students will believe that the female student was given the examination by the teacher.

If it were true that Asian students buy examination papers from teachers at MUCHS, none of them would fail the examination. Two of the three Asian research participants said that they had failed their first-year University Examination and had to sit for the Supplementary University Examinations. One of the Asian students said during the interviews that male students [most of whom are Africans] were very good to her because they allowed 

\textsuperscript{41}The term half-caste(s) is used in Tanzania to refer to people who have parents who are not of the same racial background.
her to sit in the middle so that she could copy answers from them during the examination. What is frightening about this kind of assistance is that these students will soon be doctors. One wonders what kind of doctors whether Asian or African Tanzania is educating? Doctors who pass examinations by copying from one another. But this is what this particular student found so useful about her male classmates.

It is pointed out in Chapter Two that the Tanzanian economy has historically been dominated by a small Asian community. Therefore, the above allegations about Asian students buying the examinations need to be interpreted not merely as racist comments, but was having class biases as well. Also, as Manka explains, Mr Muhunzi [an African male teacher], favored Asian (Indian, Arab and students from interracial family backgrounds locally known as “half-castes”) because these students could pay him for the tuition [tutorial] classes he carried out in their homes but which Manka and other African students could not afford to pay.

**Alternative Programs (Unrealized Career Aspirations)**

The following section presents the responses of those participants who aspired to study medicine but who enrolled in “alternative” programs. According to Greta, with a few exceptions, most of her colleagues at SUA joined their respective programs because “they were not able to join other colleges, so they decided to come here [SUA] just to get a degree. But it was not their choice” (Greta, a BSc Agronomy student). This observation seems to be supported by other participants like Shida who said:

I wanted to become a medical assistant, the only thing which made me come here was that I could not go anywhere else, so, I came here. But even when I came here, I did not intend to study agronomy. I wanted to study home economics because I already had an Advanced Diploma in Fisheries. But my brother who is a doctor advised me to study agronomy saying that home economics has no market here in Tanzania. So I was convinced and I came here and decided to study agronomy...
The majority of the research participants who studied Physics, Chemistry and Biology (PCB) and those who studied Chemistry, Biology and Geography (CBG) all wanted to study Medicine. But according to entrance requirements for the Doctor of Medicine program at Muhimbili, the direct entrants into this program are those who studied and passed the PCB combination but not the CBG subject combination. Therefore, research participants who studied CBG like Shida also expected to study Medicine even though the entrance requirements stress that candidates should have studied among other subjects, Chemistry and Physics at the advanced secondary school level.

The participants’ responses also indicate that unlike Engineering and Agriculture for instance, the Doctor of Medicine program is more appealing to society as Jenny’s interview extract indicates:

It was not my intention to study Food Science. My career goal was to study medicine. Even my relatives encouraged me so that we could have at least one doctor in the family. But that was not possible.

The extracts also indicate the participants’ ignorance of other university programs or their unrealistic dislike of those programs. It is for this reason that some of them said that they “ended up” in their respective programs, implying that they do not like their current programs. These include Bahati, who is enrolled in the BSc Pharmacy program. She is between 20 and 24 years old. Bahati comes from a middle-class family background. She wanted to join the Doctor of Medicine program. But like most of her colleagues, she did not qualify and was selected for the BSc Pharmacy:

I did not choose Pharmacy as my first choice. My first choice was medicine, which I did not get into. I do not remember what my second choice was, maybe it was Pharmacy, but I do not remember.

Because so many participants stated that they wanted to study medicine, but failed to qualify due to their poor grades, I was curious to find out what the recent Medical graduates had to say about the apparent popularity of the medical profession and one of them Dr Katarina pointed out that:
Selection is done in such a way that, among those who studied PCB, those with the best grades are selected to study medicine. But everybody who studies PCB wishes to qualify to study medicine...so those who do not qualify for medicine are then selected for other programs like those available at SUA, and other post-secondary education, depending on their performance at the Form Six examination,...they think we are superior to them, automatically. Once you get your As and Bs, you are selected for Muhimbili (Dr Katarina’s comment, June 29, 1997).

While Dr Katarina briefly describes how the selection process is done, Dr Nelu strongly suggests that every student who studies PCB needs to be encouraged to consider a career other than medicine:

I think at the secondary school level, somebody should...come and tell students that even when you study PCB, you can specialize in many other professions and not only medicine. Maybe we can build interest from there...because the way things are, anybody who hears the word PCB thinks about being a doctor...nobody wants to become a dentist or a pharmacist (Dr Nelu’s suggestion, June 29, 1997).

The Special Student Experiences

Many participants of this study trace their limited understanding of what they are learning at the university to poor teaching at the primary and secondary school levels. This concern was shared by all students who attended public schools, including at least six of the participants who attended Special Schools for the Gifted. Some of the participants of the study participants who were identified as Special Students recall some of their experiences in the

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42 The concept of “Special Students” is new in Tanzania, a country that emphasized equality under African socialism a few years ago. According to the report from the Ministry of Education and Culture (1992), students who score “highest grades in the final national examinations (the Primary School Leaving Examination (PSLE) and the Certificate of Secondary Education Examination (CSEE) are identified as gifted or Special and are selected to join special schools for the academically gifted.
special school. None of the former Special Students had positive recollections of her experiences of being labeled as “Special.” Three of 6 former Special Students who were interviewed, Cecy, Chiku and Zena are quoted in the following section. Cecy studied the PCB at the Special School and in her point of view, all schools should be treated equally:

Honestly speaking, I did not like the idea of Special School and I would not recommend it to any of my sisters or brothers. I think what they [Ministry of Education and Culture] should do is to allow those who pass the examinations to choose the kind of school they want to attend. The Ministry should also improve all the schools so that all schools have comparable quality of education instead of accumulating all the teaching and learning resources in only four or six schools while others go without...

As Cecy points out, at the time when the Tanzania government was faced with an acute shortage of resources, it would have been more cost-effective if the existing resources were used to improve many schools for the majority of the students instead of accumulating those resources in four schools for the selected few.

Chiku is an Engineering student. She is between 20 and 24 years old. Her father is a retired Engineer and her mother, who has primary education, is a school teacher. Chiku’s most favorite subject at school was always Mathematics. While explaining why she joined her current program, Chiku wrote simply, “My father” because she said that it was her father who encouraged her to study science subjects, although her decision to study Engineering instead of Medicine, was her own. Chiku is one of the former Special Students who studied the Physics, Chemistry and Mathematics. Unlike Cecy, Chiku was not against the idea of a special school concept but only thinks that the Ministry of Education and Culture did not plan well and negative attitudes towards the Special Students need to be changed too:

The idea of Special Schools was not well planned. Some teachers taught us with so much hatred. The non-special students we found there also hated us...We did not have adequate resources and the teachers were not enough. So even if the students are gifted, even if they are intelligent, tell me, how could they pass the examination without being taught...? The Physics teacher was one of those who did not teach us at all. He used to say, “I expect you to know
these things because you are special.” Under such circumstances, it was very difficult to pass [the examination] and join the university...

The hatred that was portrayed by the non-special students might be understood as a form of resistance. But what is not easy to understand is the negative attitudes the teachers had towards the Special Students. Even if they held different ideological views about the place of a “Special” School in the former socialist country, looking at their own privileges, it is not easy to understand why the teachers did not like the Special students. Reflected in the Physics teacher’s behavior, described in particular by Zena, is an example of teachers who were not qualified to teach the Special Students:

We particularly had problems with Physics and for almost a year we studied on our own, and in Biology too...Those teachers who taught us used to complain saying, “Ugh, you are proud because you are special students, well, we are not your special teachers...” And if one of us said that she did not understand something, the teacher would say, “What don’t you understand? You are a Special Student. Why can’t you understand this?” Or, “You are a Special Student and these are very simple things...Why can’t you understand? Go and read.”

Other research participants pointed out that the locations of some of the Special Schools are not very favorable to teachers. These participants said that most teachers prefer to teach in big towns where they can carry out tuition (tutorials) classes to supplement their low incomes, and that good teachers do not like to work in remote places.

I also interviewed Remmy, a participant whose A-level secondary school was converted into a Special Secondary School which was attended by some of the Special Students I interviewed, but Remmy herself was not a Special Student. I asked Remmy to tell me more whether she was aware that the Special Students in her school had problems. In response she replied:

No, they had no problem, they were the ones who were very well taught, better than us...because when they came to our school, new teachers, including expatriate teachers [European teachers] from abroad were brought in to teach
them...So they were very well taught and their performance in the Form Six examination was much better than ours. I do not know about other schools...but at our school, no, they had no problems...

It is quite possible that Remmy’s class disliked the Special Students because they felt that the Special Students were being favored by the Ministry of Education. This seems to be implied in Remmy’s reference to the new teachers and to the Special Students’ better performance.

So the former Special Students agree that the Special School policy was not thoroughly planned and they stress that although they were labeled “special”, the Ministry of Education and Culture did not prepare special teachers for them. But a review of some official records (Ministry of Education and Culture, 1992) indicates that arrangements were made by the Ministry in preparing teachers for the Special Students as the following quote shows:

The committee\footnote{Chiku’s argument could be correct to some extent because the Ministry’s report on Special School is poorly prepared. Part of it is typed, other sections are handwritten, altered and have many additions and cancellations. The overall impression one gets after reading it, is that it was done in great hurry.} feels that teachers who will be selected to teach in the Special Schools, not only should they have university degrees, but they should also be good and innovative in their areas of specialization. They should be competent to teach the relevant syllabi (p. 14) (translated from Kiswahili).

The committee suggested the following motivating strategies for the Special teachers, which are obviously not enjoyed by other teachers, most of whom are poorly paid, lack housing facilities and are overworked and unmotivated:

(i) Teachers should be allocated houses and they should not pay rent, water charges or electricity [utilities]; (ii) there should be special arrangements for the teachers to be provided with free lunch; (iii) special arrangements should be made for the teacher to have study tours within Tanzania and outside and if possible, they should participate in exchange programs with teachers of Special Schools from other countries; (iv) there is a need to ensure that the
teachers and their families are provided with transport and health services. In addition to the motivational strategies, it is recommended that teachers' salaries should be increased, (Ministry of Education and Culture, 1992, p. 14) (Translated from Kiswahili).

Based on these recommendations, it appears that the Special Students had teachers who had been selected to teach them. That is, Special Teachers, at least based on their qualifications and on the kind of benefits they enjoyed. But their training, even though mentioned, is not given as much weight as their privileges and services. One wonders how to justify such luxuries in a poor country like Tanzania, where most primary and secondary school teachers are poorly paid and where university teachers often buy their own chalk to use during their lectures.

**Lack of Career Counseling and Guidance**

Based on the sources of their career information and the type of information available to them when they were making career decisions, it appears that the participants of this study had no access to professional career guidance and counseling. As the responses of many of them indicate, they did not even know much about the careers they aspired to such as Medicine and Engineering. Some admitted that they did not know the connection between being good in certain school subjects and future careers. These included Sikujua who is between 25 and 29 years old. Her parents are peasant farmers who never attended formal schooling but became literate after participating in adult literacy classes. Sikujua studied CBG at the advanced-level secondary school because one of her teachers advised her to do so. She did not know the difference between Arts and Science subjects:

When I was studying at the O-level, I knew that when I go to the A-level I could take either Arts or Science subjects and that’s is how I filled out the [selection] forms because I was good in all subjects. But my teachers wanted me to take the Science subjects because they thought that I was good in Science but I personally did not know the difference between Arts and Science.
subjects. I only knew that whatever subjects you score highly in are the ones you can study at the higher level...

For those who knew something about careers of interest to them, the sources of career information also varied not only in the type of information they had access to, but also the quality of information. Nyina for example, said that after she completed Form Six, she got the idea to pursue Horticulture from a street vendor who used to sell roses in her neighborhood:

On our street, there is this boy who sells roses, ornaments and other things. One day I asked him to tell me about his business. Based on what he told me, I could see that he earned a lot of profit by selling flowers because his production costs were very minimal. So I thought, “If this boy who is not educated earns enough money for a living, how much will I earn if I specialize in this field? I could do much better than this street kid...” But in terms of self-employment, I am not interested in flowers. I plan to grow fruits and vegetables.

Another participant, Sifa, said that she learned much about the importance of being a doctor and the nature of a doctor’s work in a television program:

I think watching television programs here and there [suppresses laughter] has also played a big role in influencing my career decision to join Medicine... cause you see that doctors actually can change somebody’s life...

The information sources used by these students indicate that when the conventional sources of information were not available, the participants sought alternative sources of information. But whether the information obtained through these sources is adequate is an issue of concern. For instance, what Sifa saw in the television series were the medical facilities one might find in an urban hospital, where the television series might have been shot, not a rural hospital ward where such facilities are not available.

There are also those participants who knew nothing about their programs before joining them. Sikujua, for instance, did not even choose her current program (Animal Science)
at SUA. Instead, when she was applying for degree programs at SUA she followed the suggestion of an academic advisor:

When I came here [to SUA] to apply for university entrance, I met Dr Muna and he chose the Animal Science program for me based on my grades. But I personally did not know anything about Animal Science.

Vicky is studying Engineering. She is between 25 and 29 years old. Vicky’s parents never attended school or adult literacy classes and they are peasant farmers. She recalls that when she was in Form Two, some of her colleagues convinced her that science subjects are too difficult for girls and are only good for boys. But one of her teachers advised her to study science subjects and assured her that she was good in the sciences. Vicky said that she joined the Civil Engineering program because she was very impressed by the Department of Civil Engineering during the tenth year celebrations of the Faculty of Engineering which she attended when she was in A-level secondary school, but added that at that time, she had a very limited view of Civil Engineering:

Really, I did not know much about Civil Engineering. All I knew about Civil Engineering was that it is about the construction of big buildings but after joining the program, I found out that it also deals with other things such as the construction of maps.

Vicky, like many other participants, said that she thinks that ignorance about these and other university programs could be one of the factors that contributes to the low participation of women in these programs:

I think that ignorance or limited knowledge about these programs influences the number of those who choose to join them because if someone thinks that Civil Engineering for instance is only about the construction of buildings and she/he is not interested in that field, she/he will not choose Civil Engineering.

Another participant who did not know anything about her program before she joined it is Zena, an MD at MUCHS, who has had an interest in medicine since she was a young girl. After joining the program and finding out what it was all about, she decided not to blame
anybody because it was her choice. But to clarify her point she referred to the following Swahili proverb: *Maji ukiyavulia nguo lazima uyaoge*. The English translation of this Swahili proverb is “Once you have taken off your clothes in order to have a bath, you have to do so even if the water is too cold or too hot.”

**Limited Career Options**

Other participants were very concerned about the limited career options they had. Some of these blamed teachers who advised them to study certain secondary school subjects without giving them enough information about the career opportunities open to them. Moreover, many participants feel that some of the science subject combinations, which some of the participants were selected to study, have very limited career options. They pointed out that by the time they realized this limitation, it was too late to do anything. The research participant responses indicated that among the science combinations, the CBG subjects combination has very limited career options. But most of the participants who studied the CGB subjects combination like Shida, Sikujua and Nyina did not know that this combination had very limited career opportunities.

Similarly, others like Laila believe that the Physics, Chemistry and Biology (PCB) combination is also limited in its career options. According to Laila, the only worthwhile profession for those who pass well in PCB subjects is medicine. She, in fact, feels that in Tanzania students are not given enough freedom to choose what they want to study:

> When I finished O-level... I wanted to study PCM originally but I was told that it is very difficult... so I ended up taking PCB... and it is not the best option, there are not many options... the choice is very limited... so I had to do Medicine...

Laila’s argument is shared by other participants, Cecy for example, wanted to be a pilot but the subject combination for prospective pilots was not available to girls. Limited curriculum and career options were discussed by most of the participants who studied the Chemistry, Biology and Geography combination and who realized too late that they could not join most of the undergraduate programs.
The SUA participants, most of whom joined programs which were not of their choice, extensively discussed selection and interest. As pointed out earlier, Shukuru is an experienced teacher. During the interview she made the following observation about career options available to secondary school students in general:

I think that students should not specialize at Form Two, but should instead study all subjects. There should be a department that advises students about the relationship between the subjects they are studying and the jobs they can pursue in the future, including the qualifications required.

The need to study all subjects and specialize later was expressed by the SUA focus group participants who said that teachers in particular and schools in general should take students’ interest into account and should establish an office or department that would be responsible for providing career advice to students. Some of these participants also pointed out that teachers and other educators should not use only marks to select students. They should actually ask the student what she wants to do later in life and advise them accordingly. These participants also insisted that teachers in particular should listen to students and not limit students’ future career choices by telling them, “You have to stick with this choice because you will not be able to make it in the other combination.” One participant described this process as “a push.” She caused a lot of laughter when she said, “We were just pushed.”

**Societal influences**

**Economic Factors**

Although in principle many participants said that they joined their current program because of interest, the need to serve others or as a result of influence from significant others, at the time of this study, many of them had begun to view their programs in economic terms. The economic reasons mentioned by the participants for choosing specific careers include self-employment, good pay, economic independence and job security. Vero describes her reason for joining her Engineering program in economic terms:

I enroled into this program [Electrical Engineering] so that I can get a degree which will enable me to get a good job. Also, I like working with computers,
so after I get this degree, I can easily get a job in companies which deal with computers...

Participants enrolled in other programs also said they joined their current programs for economic reasons such as a source of income, economic independence and job security, or in terms of career and employment. Nyina for instance, said:

I am looking forward to be able to support myself...I decided to join the university... in order to increase my salary scale, to minimize the chance of being re-trenched from my job due to low level of education, and to become more competent in my profession.

For the majority of the SUA participants, two main things stand out as the contributing factors to join their current programs: first, their failure to join programs of their first choices and second, the anticipated economic gains of the programs, especially the possibility of self-employment.

The economic factors were not often mentioned by the MUCHS participants who seemed to emphasize the need to serve others as the most important motivating factor for them to join their current programs. The exceptions were noted among the Doctor of Dental Surgery and the Pharmacy participants who said that the most important reason they joined these programs was because of anticipated financial benefits.

Thus, even when not clearly outlined the economic reasons underlie the participants’ decisions to pursue higher education. This became very clear when they talked about issues related to future family and career and the need to balance these activities. Many of them stressed that their main goal in life was to be economically independent.

**Structural Adjustment at the Personal Level**

The last question in the questionnaire, and one which consumed much of the interviews, was about the extent to which the participants of this study are affected by cost-sharing. Cost-sharing was introduced in higher education in Tanzania as part of the government’s 1986 decision to introduce user fees for social services such as water, health
and education. The participants of this study were asked to describe how they are affected by cost-sharing at an individual level.

Although most participants said that they are affected by cost-sharing, their experiences differed between those like Maggie, who entirely depends on the meal allowance she gets from her sponsor, and others like Laila, who cannot imagine how anybody can survive on the meal allowance alone. These differing experiences are reflected in the various strategies individual students have devised for themselves. Some examples are cited to clarify this point. Maggie, who depends on the loan money for everything, made the following observations:

The major problem for me is cost-sharing because I have no other source of funding except the meal allowance I get as part of my loan from the Tanzanian government. So I depend on this allowance for everything, and not food alone, uhm..., so I have to be very careful and make sure that this amount of money I get as meal allowance is also enough for me to buy all the basic things I need such as soap, skin lotion or vaseline, pads, toilet paper, and medicine if I fall sick. I also use the meal allowance money to buy pens and pencils, and for local transport.

Although Bahati comes from a relatively more financially supportive background, because her father and mother are professionals, she too describes the problems she has experienced due to the introduction of the cost-sharing policy and the survival strategies she has devised:

Since I came here [to MUCHS] I have bought four books only and I have done a lot of photocopying...We are given money for books but we just have too many problems...even the money for meals is not enough...when the books are available in the book store, we cannot afford to buy them because often we use the book and stationery allowance to buy food...So at the end of the day we do not have enough money and we have to devise some survival strategies...I

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44 I interviewed Maggie during lunch time and I had the opportunity to see that what she called “lunch” was a bottle of Pepsi-Cola. She told me that was “okay, it is enough.”
cook my food in my room because it is cheaper and I can choose what I want to eat...This way I can concentrate on my studies too, because you know, when I have financial problems, you know, when I do not know what I am going to eat, I cannot concentrate on my studies... I am supposed to be worried about studies, but now I have to worry about money as well...

To illustrate the severity of the financial problems facing many students and the survival strategies they often resort to when all other options fail, I quote at length from Vero’s encounter with the special Field Force Police Unit (FFU) nicknamed in Kiswahili as *Fanya Fujo Uone* which translates into “Cause trouble and you will see.” In the following extract, Vero, one of the Engineering participants who took part in the 1996 University of Dar es Salaam protest at the Ministry of Science, Technology and Higher Education, describes her experiences:

We had gone to the Ministry of Science, Technology and Higher Education to demand our meal allowance. When we reached there we stayed there and waited [raises her voice indicating fear], all of a sudden, we saw the FFU police and they lined up there in front of the Ministry...But because we were new students [first year] and we had not been to National Service, we did not know about such things as tear gas...The second year students told us to sit down, adding that if we sat down the FFU police would not harm us...we sat down but we were at a corner and we could not see what was going on in the rest of the street...Then we heard “By the Order of the United Republic of Tanzania, we ask you to leave.” But we did not leave and we did not understand the meaning of the order...and we did not know... All of a sudden, those tear bombs were thrown at us...Before that day some of us did not know how much pain those tear gas bombs can cause....So we experienced what people here call *joto ya jiwe* in Kiswahili [it is like touching a red hot stone]...And, while trying to escape, some of us were rounded up and taken into police custody, and when they were taking us to police custody, we were beaten, we were beaten severely...with big wooden sticks (*marungu*)... *tulipigwa sana, yaani* [the emphasis is Vero’s]. The police really beat us...We
had thought that the female police officers would be more lenient but they were even worse. And as they beat our heads with those big sticks they were telling us, “You university students think that you know so much.” They threatened us saying, “You will be expelled from the university”...and they beat us more than the male police officers...Then we arrived at the police station and we were taken into the rooms...And inside those rooms, the mosquitoes! We were given no food and we did not sleep... Two days later, our case was postponed and later dismissed for lack of evidence. Dismissed for lack of evidence!...I would therefore like to emphasize that what the government did to us was not fair. We were treated like political offenders while all we wanted was our meal allowance... Some of us had not eaten for more than two days when we went to the Ministry. And, instead of giving us our money, the government decided to bring in the FFU. So I personally think that was not fair. Also, the government has succeeded in creating fear in some of us. For example, me, I do not expect to go and demand my money ever again, anywhere. I do not know, even if I have nothing to eat, when I remember those tear gas bombs which stung my eyes that day...! I am no longer free to express myself. I still say what the government did to us on that day was not fair...

Vero insisted that she believes that the meal allowance was their legal right and that they were unfairly treated. What Vero and her colleagues do not seem to understand is that this incident was also an example of a collective form of resistance. It was in fact a political action, a kind of a student uprising organized against the government, no wonder Vero and her college-mates were treated like political offenders as she points out in her interview. Although they were beaten and the results of their collective resistance were not immediate, the students had made their point that the meal allowance they were getting was not enough. A few months after I came back from field work, some students wrote to me saying that their meal allowance had been increased.

Vero and her female colleagues were also disappointed to realize that female police officers who beat them showed no ‘feminist’ solidarity with them, and instead accused them
of knowing “so[too] much”. On reflection, this unexpected treatment of female university students by female police officers indicates that gender inequities need to be examined in relation to other differences such as class differences. This incident confirms the need to avoid treating the category of “woman” as homogenous, even in Tanzania. In this context the female police officers represent state power, and to show it, they beat the [female] university students to demonstrate to them where real power resides, namely in police officers’ uniforms, tear gas and sticks.

Laila, a medical student, has yet other cost-sharing concerns. Like all other participants, Laila thinks that the meal allowance she and her college mates receive is not enough. But unlike Maggie, Vero, Bahati and others who have developed survival strategies, Laila said that her only strategy for survival is to get money from family sources. But in addition, Laila is concerned about her living conditions:

Living allowance is not enough...I am sure most people do live on the allowance alone...but I do not know how that’s possible...And then, there is this loan which we are supposed to pay after graduation...But we do not even know whether we will get jobs...and then we have to pay for accommodation...150.00 shillings\(^{45}\) but the problem here at Muhimbili is that they do not repair the buildings... When we are assigned rooms we have to buy our own light bulbs and fix the rooms ourselves. For example, in our room here, there is this shelf which is coming out...(she laughs as she points to the falling shelf), then, there was a time when worms were falling into our room from the torn ceiling...Worms! Large worms were falling from the ceiling! We were sitting there one night (she points to her roommates’s place) when we saw this large white wriggling worm falling through the ceiling! (she laughs for a few seconds before continuing)...So later, we decided to patch the hole with paper and cello tape. I do not know for how long it will last...(She invited

\(^{45}\) In 1997 when this study was carried out, one American dollar was equal to about 593.00 Tanzanian shillings.
me to see the patched rectangular opening on the ceiling covered by several layers of cello tape).\footnote{Laila also showed me some of the out-of-order toilets on the second floor of the same building.}

Laila is the participant who opened my eyes to the dilapidated physical environment at the site of this study. It was after this interview that I became more curious about the physical environment of these university campuses. Wherever I went I noted the lack of repair of the buildings, the out-of-order notices and locked washroom [toilets] doors; the smell and the flies in some became familiar. I took some photographs but I soon ran out of film and so I decided to give up on the visual presentation of the physical environment. The only place where the physical environment was still relatively intact was the Faculty of Engineering, which was built more than ten years after the University of Dar es Salaam was established in the early 1960s. But even there, I had to use an umbrella during one of the Civil Engineering Classroom observations because it was raining and the roof was leaking were I was sitting.

Moreover, because most of these buildings were not designed to accommodate women, except for a few who work as secretaries, there are no toilets [washrooms] for female faculty, especially at the Sokoine University of Agriculture, or for female students at the Faculty of Engineering.

One senior faculty member at SUA told me that it is very embarrassing for them to go around asking secretaries for keys so they can use the toilets [washrooms], especially when one is having her monthly period. She told me, and I also noted this when I was at the SUA main campus, that all the toilets which were still functional were used by the top university officials such as the Deputy Vice Chancellor (DVC), the Registrar and Deans of Faculties, all of whom are male. Therefore, she said, the only women at SUA who had guaranteed access to the toilets are personal secretaries mainly because they keep the keys to these toilets. These comments indicate that SUA is an example of an institution that is organized to meet the needs of male faculty and staff and women are seen a appendages, be they faculty, staff or students, it is by definition “a co-education” institution, meaning, it is basically “a male
institution with a few women attending it” (Great Britain, 1937), and the stereotypical image of women as secretaries seems to be more accepted.

**Attitudes Towards Female Professionals**

It sounds rather depressing but a number of study participants who experienced ridicule and denial in their professional pursuits despite their good performance in subjects such as Mathematics and Physics were convinced that many people in Tanzania are comfortable to see girls do poorly in Sciences and Mathematics. These participants pointed out that these negative attitudes towards women are portrayed in many ways. In particular, they cited the science text books used in Tanzanian primary and secondary schools, which have illustrations with male figures only while illustrations of female figures are found only in cookery books. In other words, all Science examples are *he* examples.

Societal attitudes are also reflected in the participants’ schooling and career decision-making experiences in many forms. One of them said that when she was in a co-education A-level secondary school, she heard male students tell girls “to go home and make babies” whenever the female students wanted to make a comment or ask a question during a class discussion. This research participant said that even at the university some male students tell female students that they are there to get *degree ya kitandani* (bedroom degree), implying that female students are given good marks by male teachers not because of their good academic performance but because they have sexual relationships with the male teachers.

In the Faculty of Engineering focus group discussion, Barb pointed out that negative views about female professionals, especially in the sciences, are a reflection of the way women are stereotyped as “secretaries” in Tanzania. Many people, she said, are caught up in this kind of hangover and they find it difficult when they come across women who do not fit their stereotypical thinking. Barb stressed that it is for this reason that many people doubt whether women can be competent engineers hence the tendency to pose the question “Can you make it?”

A number of participants, especially those who are in the Engineering and Doctor of Medicine programs, also expressed disappointment that many people in Tanzania doubt their academic and professional competencies in these fields. Some of these participants have started to doubt whether they will be employed, and if employed, whether they will be
respected in their professions in the same way that male professionals in these fields are respected. Based on the research participants’ experiences, it appears that many people in Tanzania are not ready to see women in certain professions, especially Engineering and certain branches of Medicine. When Vicky joined the Civil Engineering program, she did not expect that she would face any problems because of her gender, but now she knows that many people are not comfortable to see a female Civil Engineer:

We are discouraged by so many people everywhere we go. For instance, you meet some one and she/he asks you, “What are you studying at the university.” If you reply Engineering, she/he will tell you that field is for men...You as a woman will not make it...Even when we first came here [to the university], when we were in first year, if you met someone you knew, who was your senior and asks you, “What did you come to study?” and if she/he finds out that you are studying Engineering, she/he will discourage you by saying for instance that Civil Engineering is difficult...it is for men...Even when I went for practical field training, although the Engineer who supervised me was very supportive, other employees were not...When I went to the site, people were so surprised to see me. Once I arrived there they started to point at me...saying ihiii, to show disapproval, surprise and contempt that a woman can actually be a Civil Engineer! Others said to one another, “See that one is studying Engineering, a woman, can she make it!” So, you see, they talk like that in your presence and say that women cannot manage to be engineers..but maybe these negative attitudes can also help us [women] work even harder to prove that we can...

Vicky’s on-site experiences during her field practical training confirm what Fortu, a Chemical and Process Engineer was told by a male Telecommunications Engineer she met on a local bus one day in Dar es Salaam:

One day when I was traveling on a local bus, I shared a seat with a man I did not know. He asked me what I do and I told him that I am studying at the university. He also wanted to know what I am studying and I told him that I was studying Engineering. He told me that he is a Telecommunications
Engineer... he also told me that if there was a female Civil Engineer who is a contractor, he would not allow her to survey his plot or to supervise the construction of his house because women are soft hearted...and that he does not see any reason why women should study Civil Engineering. It really hurt me so much and I thought, “Here I am studying so hard but I may not even be employed.” He really discouraged me and since that day I have been wondering whether I will be employed after graduation. Most people in Tanzanian society do not believe that female Engineering students pass their examinations. They think that we are favored by male teachers because we are women. This really makes us worried that we may not be employed...It also means that as far as most people are concerned, these Engineering programs are meant for men only.

Fortu’s experiences are validated by Atu, a recent graduate in Electrical Engineer who was employed as a computer manager in a large government organization when I interviewed her. She decided to apply for this position after she failed an interview for an Electrical Engineering position. Atu said that originally, she applied for an Electrical Engineering position at a certain airline network. The nature of the job in that organization would have involved among other things, night shifts. But during the job interview, which was conducted by a panel of four men, she was asked the following questions: “Suppose you are the only Engineer on duty on a specific day, and you get information from home that your child is sick, what would you do?” and “Suppose, you are on a night shift and you are told through the phone that your child is dead,...what would you do?”

Atu said that she was also asked to say whether she preferred shift or office work. She told me that although she had achieved First Class in her undergraduate degree, there was an assumption that she was incapable of anything but mothering, as implied in the gender biased questions posed to her during the interview. She told me that she did not think that the questions which were posed to her would have been posed to a male applicant. It was after this interview that she decided to pursue a career in computers rather than Electrical Engineering. She has noted since then that although only a few Tanzanian women have graduated as engineers, many of them are doing administrative rather than engineering jobs.
Negative societal attitudes towards female professionals in the scientific fields, especially Engineering and Medicine are expressed by people of various backgrounds: professionals and non-professionals alike. Dr Katarina relates her experiences:

Recently I said to one doctor “I do not know what area I should specialize in” and he said, “Oh, you are very good at pediatrics”... And I replied, “That’s the last thing for me, I do not like being a pediatrician...” You can do pediatrics because you girls you can handle children.” Then I started to asking myself, “Why pediatrics?” Or someone might say, “You can do psychiatry”...because they do not consider us capable of specializing in some of these fields which they think are reserved for men only such as surgery, gynecology and others.

Dr Katarina’s experience indicates that there is a stereotyping within the profession so that while the Medical profession may have women and men, some branches of it are stereotyped as “male” and others as “female,” typical examples of which are surgery and pediatrics. The Intern Doctors also discussed their experience as medical students and as interns pointing out how they are viewed and treated by patients, security guards, taxi drivers and male students. Examples of each are presented in the following quotes.

Dr Nelu:

Even when you meet some staff members or friends, and some of them are well educated, they may ask us, “Where do you stay at Muhimbili, are you a nurse?” That’s the first question they will ask you, instead of asking “What do you do there?” they ask you whether you are a nurse or not...I do not know how they see this profession...

Dr Katarina narrates what happens at the Muhimbili gate where security guards are in charge:

At the gate entrance...you have to pay shs 200.00 as an entrance fee to the Muhimbili Referral Hospital...if you come by taxi.47 But for us [doctors],...when we pass there [at the gate] if we do not have our identity cards...

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47 The 200.00 shilling entrance fee is paid by all those who travel by cars. People who come to the center on foot do not pay. And, the medical staff at the hospital, including students and Interns are not expected to pay provided they show their ID cards.
cards, we say, “I am a Doctor.” If you are a woman, the response is “Doctor?” Then they look at you twice and then say, “No, give me the money.”...But the guys who are Interns here, they just pass...they simply say, “I am a Doctor” and no more questions are asked, and they do not pay...but for women we have to show our identity cards to prove that we are Doctors...right here at the gate at the Muhimbili Hospital, they do that to us...

Dr Chenza shared her ward experiences, pointing out that female doctors are doubted by some of their patients who see them as nurses:

I was just doing a Major Ward Round, I am the Intern In-Charge, in that ward, so I was presenting all the patients to my senior doctors...We had this one patient I was supposed to discharge with her baby who was in the neonatal ward...Immediately after finishing my Ward Round, this girl [the patient] told somebody, “Call that nurse for me so that she can give me my baby and discharge me.” I was still wearing my white coat and the stethoscope and presenting all the patients in the ward, but she thought that I was just a nurse [laughs]...although I was the one who admitted her into the ward...attended to her, took her history and gave her all the treatment, and so on...but she still thought that I was a nurse just because I am a girl...Most of these people tend to think that women cannot become doctors. They think that men are doctors and women are nurses.

The Intern Doctors stressed that, based on their experiences so far, it appears that despite all the talk about encouraging women to join the professions where they are still under represented such as Medicine, many people are surprised when they realize that the woman they are talking to is a doctor and not a nurse. They cited many examples of conversations with others that often concluded with a question, “So, you are a Doctor?”

Summary

The study was an attempt to explore factors that influence Tanzanian women’s decisions to pursue higher education in what are considered, “non-traditional” fields of study.
The research findings show that the participants' decisions to pursue higher education were motivated by a number of factors, including their own interest in the school subjects of Mathematics and Biology. Those who liked Mathematics and scored highly in the Physics, Chemistry, Mathematics (PCM) subject combination chose to join Engineering programs. Those who liked Biology and scored highly in the Physics, Chemistry, Biology (PCB) subject combination in the Advanced Certificate of Secondary Education Examination chose and were admitted into the Doctor of Medicine program.

Most of the participants who were offered career advice at home said it was their fathers more than their mothers who offered them such advice. Father's and mother's advice varied between support and encouragement to more specific help such as assistance with home work or choosing undergraduate programs. Some of the research participants also described their reasons for joining their current programs in terms of economic factors such as employment, career goals and the need to be economically independent. Most of those who mentioned the economic factors were the SUA, Engineering and a few of the MUCHS participants especially the DDS and Pharmacy participant. But most of the MD participants said that they were interested in medicine because they wanted to save peoples' lives.

This study indicates that apart from their own personal reasons for joining these programs, these participants' decisions to pursue their current programs were also influenced by significant others, especially their fathers. A few participants also acknowledged that although their mothers might not have been very influential, most of them were very supportive. This observation was discussed in detail during one of the focus group discussions. Many participants who attended the SUA focus group discussion argued that although a mother might offer some career advice to her daughter, such advice will not be taken seriously unless supported by the girl's father.

The policy and school-related influences that the participants said influenced their career decisions were many, but those most frequently mentioned included (1) a decreasing budget allocation for education, which some of the research participants said contributed to their poor performance in secondary schools; (2) the introduction of cost-sharing, which is affecting the quality of their university education; (3) the systematic gender biased education policies, which favor boys and men in terms of the number of Advanced Level secondary schools; (4) the existence of limited A-level science options for girls. A review of official
Tanzanian policy documents indicate that by 1997, for instance, there were 16 Advanced Boys’ Secondary Schools that offered the PCM combination while there were only 6 such schools for girls.

The participants of this study also said that because they learned science theoretically at the lower levels they lacked the basic skills expected of university undergraduates in their fields of study.

Moreover, because there are no career guidance and counseling services for students in Tanzanian schools, many participants of this study joined programs they knew nothing about. The few who knew something about their programs, obtained such information from unreliable and unprofessional sources such as a street vendors and or television series.

The female students who took part in this study insisted that they are not adequately funded. Consequently they have developed various survival strategies. These included preparing their own meals in their rooms. Some of those who come from areas where food is cheap bring food in large quantities from their homes. Others said that they buy food stufis in bulk and store them in their rooms. There are also those who have no other way of saving money except by skipping meals so that the little money they get from their sponsor (the Tanzanian government) can last until they get another instalment. One of the participants gave a detailed account of students’ resistance against inadequate funding. She particularly told us what happened when she and her colleagues encountered the special police unit known as the Field Force Unit (FFU) when she and others went to demand their delayed meal allowance.
Chapter Six: Teaching and Learning, Female Students’ Views

Madesa was one of the many words I did not know. In the following extract a second-year student describes what is meant by Madesa/kudesa and the conditions which are favorable to madesa/kudesa:

We are required to do many laboratory practicals, demetermetres, volta meters/speedmetres... But most of the time we write those... without understanding anything...one takes data...connects electrical wires, takes results, but does not know the purpose of what she is doing and she does not realize that until the time when she has to do the data analysis and write the report. She can not write the report on her own, so we have this thing known as madesa, which means copying...Some teachers give the same instructions for laboratory practicals every year, they do not change. We take past papers, and we copy, this means that we do not learn anything. We just change the numbers, for instance, lets say for Current, and we may use another way to calculate the results but we copy the same formula and we write our own numbers instead of the old ones. In this way, we really do not learn anything from these laboratory practicals (an English translation of comments made by Engineering participants in Kiswahili, April, 1997).

Although this study was not aimed at studying the teaching and learning environment in Tanzanian universities, lack of teaching and learning resources and the associated problems were raised by teachers and students alike. The following shortages were mentioned by teachers and their students: (1) inadequacy of teaching and learning materials such as textbooks, stationery and lack of supplementary reading materials in university libraries; (2) students’ dependence on teachers’ notes; (3) compact timetables and student’s lack of time for private study; (4) teacher absenteeism; (5) Students’ fear of their teachers; (6) large classes; as well as (7) undemocratic teaching and evaluation styles.

Apart from these problems, the participants insisted throughout this study that due to a lack of teaching and learning resources, they have devised academic survival strategies, something they call kudesa or symbiosis. They said that in essence both words mean copying materials from their classmates or from other sources. They told me that after copying, they
cram word for word and later reproduce the same information in a test, take home essay or examinations. This is better expressed by Vero, an Engineering participant:

As my colleague has just said, we do not study in order to understand. The only thing one can do is cram everything, look for past papers and solve past problems in order to pass examinations. If you ask a question the teacher may say that you are wasting time. Or she/he may look at you and laugh [at you]. So, all these things really discourage us from asking any questions even when we do not understand what is being taught. This especially affects us girls. Sometimes when a female student asks a question the teacher might say, “Is that a question?” and he will then start to laugh at the female student, so teachers really discourage us.

Another survival strategy is to find ways to keep up with the teacher’s rapid teaching style. Fortu, another Engineering student, cited one of her teachers as an example of teachers who speak so fast in class that students find it difficult to follow what is being taught. Fortu [speaking very fast to imitate her teacher]:

So in he comes, with his overhead projector. He has no time to waste. The way he talks is like he is singing rap music. By the time you want to take notes, even a definition, he has already removed it [the transparency], he has put it away. A two-hour lecture is like a book [of notes], but he also gives hand outs, so we usually have a lot of notes...

In addition to the lengthy notes that they have to copy during lectures, some participants said that their teachers do not seem to be concerned when students cannot understand their lecture because of their speedy presentation or that the teacher’s use of transparencies make the lecture very difficult to follow. These participants said that when they ask their teachers to slow down, the response they often get is, “This is a university, what did you expect?” Or they are told “you are not University material,” which they find very discouraging. This is partly why they often do not speak in class.

Others, like Fortu, appreciate when they get many notes from their teachers because due to shortage of textbooks and other learning materials, they entirely depend on teachers’
notes. It is for this reason that most participants prefer teachers who give them a lot of notes and handouts despite a “rapping” teaching style.

Many participants fear their teachers for a number of reasons. Some said that teachers do not like students who challenge them. Such students are called the *machinoo* by their colleagues. These are students who think that they know more than the teacher. These participants said that if a teacher thinks that the student is a *machinoo*, she/he will intentionally down grade her/him and the student will fail in the final analysis: *kunyakwa/kukamatwa*\(^{48}\) “to be unfairly marked down for failure.” Laila, a Doctor of Medicine student, described the overall teacher-student relationship as a “tug of war.” Sifa, another Doctor of Medicine student, said that the “war” is declared on the first day in the medical school in the form of an announcement:

> The first thing I heard from the first teacher who came to our class was, “Some of you will make it, some of you will not make it.” [It is as if] it is preset for them. There are certain people who are not supposed to make it...And I did not like it from the very beginning and...that thing really bugged me because it seems that they were all out to get a few people who will not make it or something...And the way we would do the exams...some exams are set okay. If you read you can reproduce whatever it is that you have read. But some exams come in such a way that whether you have read or not, it makes no difference...It is a struggle all [the way] through...

Some students at one of the campuses said that they have developed some kind of “a hypothesis” about their teachers. According to these students, “instructors who are poor teachers are very strict on marks” and that these are the lecturers who set very difficult examinations, which contribute to a high failing rate among students. Shukuru, who is herself a teacher (attending SUA) is very critical of the way lectures are presented, as she points out:

> Since the first semester of last year after attending lectures, I said, “My God, they should at least send these [lecturers] for a teaching methodology course

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\(^{48}\) These Swahili words mean to be caught, or to be hooked.
for two months.” Even if it is a lecture, one should give it bearing in mind that
the one who is listening needs to understand [what is being taught].

The research participants explained that their silence in class is due more to their fear
of failing than their inability to express themselves in English, as claimed by some of their
teachers. The fear that teachers are unfair is also reflected in students’ tendency to cheat when
writing papers and examinations. Also, based on what Sifa is saying, success in these
examinations is more a demonstration of a person’s ability to “reproduce” whatever is to be
reproduced than understanding what one is taught.

Cheating on examinations, or “doing group” examinations as one Medical teacher
ironically put it, is rampant in some campuses. I was told that the five fingers of the hand have
been coded into A B C D E such that the thumb is A, and the index finger is E. This system
is used during examination in programs which depend on the multiple choice questions,
popularly known as “MCQs”. I was told that on the day of the examinations, the seating
arrangement is based on the operation of this system. The students who know the answers sit
in the locations where they can be easily seen and followed by others when responding to
various questions.

At least two participants confirmed that cheating on examinations is a common thing
and some of them were caught cheating in university examinations (UE). One was Bahati who
was caught cheating in the Annual University Examinations. Bahati further explained that
everybody at MUCHS cheats. She said that she and her friends were just unfortunate because
they were caught, but the way some of those examinations are set, it is impossible to pass
without cheating. Bahati also said that even on that day when she and her colleagues were
found cheating, they were not the only ones. When I asked Bahati how she felt about cheating,
she told me that she would probably not cheat again but that other students at MUCHS who
were not caught would continue.49

The other was Hawa who said that during the 1995/96 academic year male students
allowed her to sit in the middle so that she could copy from them. Hawa is a Doctor of

49 I was very surprised to note that while describing the cheating incident to me, Bahati
was not even sorry for what she and her classmates did, while I was too scared even to
ask her about it.
Medicine student. She is between 20 and 24 years. Her father is a businessman and her mother, who is no longer alive was a housewife. Hawa explained how good male students were to her when she was in the first year because they allowed her to sit in the middle so that she could copy answers during one of the examinations. She said that male students were very considerate to her because she had not prepared herself for the examination due to family problems. Hawa’s experience confirmed what I was told about “group examinations.”

But in addition to these problems faced by most students, the research participants said that as female students, they face additional problems that are not experienced by male students. The female students who took part in this study believe that if they ask questions in class, or go to see a male teacher in his office, the male teacher will think that the female student is interested in having a sexual relationship with him.\textsuperscript{50} Or, the male students may think the teacher has shown the female student the examination, especially if she passes it. Hence, to avoid all these possibilities, most female students who took part in this study, including the recent graduates, said that they never asked any question in class and some never went to a male teacher’s office to ask for academic help.

**Male Teachers’ Views About Their Students**

Some said that it is only through experience that they have become successful as teachers, but they insisted that beginning teachers should be taught how to teach university students. Most teachers I interviewed pointed out that they teach in a very stressful environment and without most of the basic teaching and learning materials, such as chalk.

All teachers who took part in this study said that their students join the university with an inadequate understanding of the basic scientific concepts and laboratory skills, which are expected for academic success in undergraduate education. These teachers also pointed out that most of their students can barely express themselves in English. Moreover, many of the teachers were concerned that most of their students do not spend much time on their studies. These teachers stressed that these problems contribute to students’ poor comprehension of what is taught. Most teachers, however, did not know the terms *kudesa or symbiosis*, although

\textsuperscript{50} The derogative term used to label women seeking help from male teachers is *Kujigonga* -- a Swahili word which means to knock, rub or hit oneself against a hard surface/object.
one Civil Engineering teacher said that there is no way a student can cram or copy materials in his assignments. He said that the existence of *kudesa* or *symbiosis* are indicators of poor teaching. He particularly pointed out that in Engineering, for instance, students can only copy answers to problems if the teacher gives students the same assignment year after year.

But only a few of the teachers were aware that female students are afraid to ask them questions in class or to seek help from them in their offices for fear that the male teachers might think that the female students are interested in having sexual relations with them. These included one of the Engineering teachers who told me during the interview that if I were a student, people might think that I went to his office (where I was interviewing him) because we have a sexual relationship.

Some teachers also wondered why students go to see them in groups and only around examination time. One medical teacher pointed out that the gap between faculty members and their students was widening. He said that some teachers are so strict that students are too scared to ask questions even when they do not understand what is being taught.

Also, a few teachers, especially those who graduated from Tanzanian universities, acknowledged the intimidation female students are exposed to by male students. One instructor pointed out that female students are harassed verbally by male students in and out of the classroom and do not feel free to air their views. This instructor added that many female students live in the fear of being "punched."
The Female Teacher-Female Student Relationship

Most participants pointed out that there are so few female faculty that they can not easily identify the difference between their male and female teachers. Participants in Engineering, for example, are mostly taught by male teachers and a few female faculty members who are cross-appointed to the Faculty of Engineering. But those who have been taught by female teachers also express views. Nyina for instance said that she feels much freer to approach a female than a male teacher for help. But others, like Shukuru, have different views:

I do not see any difference. Those [male or female] teachers who are good, are good. You know, some teachers are so good that when they give a lecture students enjoy, they enjoy it so much that they do not even write, not because they do not understand, but because they are enjoying the lecture.

Shukuru and other HE and HN participants said that one of the two female students who was expelled from the university at the end of first year had failed four courses including one that was taught by a female teacher. Therefore, they said, it does not make a difference whether the teacher is male or female. Participants from the other campuses did not have much to say about female teachers at the university because they have very few female teachers. In addition, others like Shukuru said that good teachers are good teachers, it does not matter whether they are male or female. But they insisted that they will do anything to avoid teachers altogether.

The Female-Male Student Relationship

One of the major issues stressed by the Tanzanian female undergraduates who took part in this study is the need for male students to accept female students as equals in the learning process. Most of the participants stated that male students have negative attitudes towards them. In the Faculty of Engineering, for example, male students not only doubt that some female students are more intelligent than they are, but they also make fun of them when they want to express themselves, as Vero explains:

Our male colleagues also laugh at us when we ask questions in class. They may even call you names if you ask questions in class. For example, one of us
used to ask many questions in class and male students nicknamed her "Beijing" or something like that implying that she is interested in gender issues. Male students may make such noises as "um," especially those sitting at the back of the class. Or, sometimes when a female student comes in class male students whistle... I no longer feel free to say anything in class. I have to think about what they [male students] will say or do if I just open my mouth. I also no longer study in order to understand, rather I just study to pass examinations...I do not think that I am really learning anything...

Vero's feelings of insecurity in her class are shared by participants in other departments. Chiku for instance, said that there was a time when male students in her class avoided to have group discussions with Chiku and her female classmate because they [male students] believed that as women they are not intelligent. But after Chiku and her friend scored higher grades than some male students in their class, the male students accused them of cheating. However, Chiku and her friend refuted those allegations instead of withdrawing and keeping silent. And since then, they are actively shaping the way their male classmates should treat them as Chiku explains:

In my view, we girls need to have self-confidence, and, when boys accuse us of something we should respond and not be silent. Male students in our class now respect us...And, when they accuse us of anything, we answer back immediately. We do not fear them.

The participants from the other two campuses have very similar experiences with male students but their responses are not as militant as Chiku's. In the following section Greta and Happy relate their silence in class to their fear of male students.

Greta:

It may happen that a male student likes you and he wants you to be his girlfriend but you have already told him "No." Or, in class, sometimes they say that you are proud, you know that we girls have no freedom to answer questions in class because once you speak, they will say that you want to show off kiherehere/machinoo and they will publicize that everywhere and the
whole university will be talking about you...That’s why most girls do not speak in class. If you have a question, maybe you can go to see the teacher individually. But in class if you just raise your hand, everybody will comment on that.

Happy further pointed out that teachers support male students and assume that male students do not cheat. She said that because they are given so many assignments, which are impossible for anybody to complete, they copy from each other. But if a teacher suspects that two students have copied from each other, he/she will usually assume that it is the female student who has copied from the male student, because teachers assume that male students are more intelligent than female students. But Happy insisted that quite often male students copy from female students. She stressed that female students study under very unfriendly atmosphere because male students despise them, they have no freedom to speak in class or in the students’ associations meetings, a point that Greta further clarified:

Male students despise us. That is why most of us do not want to attend the Sokoine University of Agriculture Students’ Organization (SUASO) meetings. They have to force us with the use of sticks, to attend these meetings...There is a place known as Freedom Square or the Solomon Mahlangu Square, that is where we hold our SUASO meetings...but we do not want to attend these meetings because if we attend, when it comes to speaking...we are not allowed to make any comment but to listen to what male students say...So what is the use of making us come from our rooms to come to the meeting and sit silently without saying anything? Once you say anything, you will be punched or they will jeer at you right there...So this SUASO is a men’s only organization.

The above comment shows that not only do female students at SUA [and other] university campuses face serious problems such as lack of freedom of expression, they also have no forum to make their problems known to those who might assist in solving them such as the university administration. The above comment shows the kind of difficulties female students are likely to face if they were to attempt to use students’ organizations such as SUASO to address problems facing them. Nor are there special associations for female students’ in which
they could address issues that are specific to them such as sexual harassment or dirty toilets. In the name of equality, the only students’ association allowed on campus are those like SUASO which Happy describes a “men’s only organization.”

Similar observations were made by other SUA participants, like Shukuru who was interviewed on a different day. She describes one SUA classroom control mechanism she does not like:

There is this kind of tradition here to say “Kale kasichana kanakaa pale mbele kanauliza maswali sana”...(that “small” girl who sits there in front asks too many questions).

The use of the prefix “ka” in Kiswahili before a pronoun instead of the ordinary “m” indicates that the speaker despises the person being referred to, it also implies she/he is small, in a real sense or metaphorically. In this case the speaker holds a very low opinion of the female (the small female student, regardless of her physical size) who sits in front and who asks many questions. I asked Shukuru to tell me who would make a comment like this and her response was:

It is the boys who really bother others, a girl sits in front, if the teacher asks a question, and she replies, there will be trouble. So you find that most people keep quiet...Then at the end of the lecture, she/he might ask, “Do you understand?” Nobody answers. Then she/he may say, “I hope your silence means that you have understood...” This is partly why some teachers say that nowadays students are not interested in their studies...But that too is not true. There is a hidden curriculum that prevents female students from being active learners in and out of the classroom but that is not known by most of their teachers..So these are some of the things that make people unable to participate in class...

Silence in class was also discussed by the MUCHS participants, because there too, students do not speak in classes, as Laila explains:

For most students asking questions is...is not a normal thing, even answering questions...I think it is all the way from secondary education to A-level... here
[MUCHS] it seems more pronounced. Nobody answers questions and we know the answers but if the teacher picks out one particular student, she/he will answer the question...Everybody thinks it is strange to ask questions...you are wasting time...I do not know what they think...
You look as though you are showing off...So if you *really* do not understand something, *then* you can ask...otherwise...

Laila said that silence does not mean that students have no questions nor is it a sign that they understand. But rather it is a group strategy which serves a number of functions: it prevents any single student to have direct communication with the teacher, it prevents the teacher from assessing the extent to which the class has understood the lecture. And, in so doing, it maintains group solidarity. One might say that it is a way of reversing the location of the power from the teacher to students, or, more specifically, to male students.

As I listened to these comments I could feel that students live and study in an environment underlined by fear and mistrust. But some see it as a form of group solidarity and even as a source of power, especially as a form of resistance against the teacher and the institution he/she represents.

**"Do Not Shake Your Buttocks:" Sexual Harassment or Sexual Control?**

The public awareness of the devastating effects of the *Mzee Punch*\(^{51}\) increased in 1990 because of two important incidents. The first involved a first-year female Education student who committed suicide for being punched and sexually harassed by male students at the University of Dar es Salaam (Mosha, 1991). The seriousness of this incident notwithstanding, nothing substantive was done by the University of Dar es Salaam administration. As if to emphasize the significance of *Mzee Punch*, in the same year and also at the University of Dar

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\(^{51}\) The Swahili word *mzee* means old, but when used alone, it means old man rather than old woman because "old woman" is called "*bibi kizee*". I do not know why it is used in connection with *punch*, which is a form of scandalization of a person’s private life. But the use of the word *mzee* also signifies that "punch" is a man/men. In general, *mzee punch" punches" women, but occasionally national and university leaders have also been punched (see details about the purpose of punch and examples of the ten commandments issued by Mzee Punch which were cited by some of the study participants).
es Salaam, the Chancellor of the University His Excellence Alhaj Ali Hassan Mwinyi, who was also the President of the United Republic of Tanzania was punched.\textsuperscript{52} And, a result, the University of Dar es Salaam was closed for eight months for the first time since it was established in 1961.

When I asked the participants of this study about the existence of \textit{Mzee Punch}, many of them did not want to talk about it. Some claimed that punch does not exist, others said that there used to be punch in the past but not now. Two of the study participants, Laila and Maggie gave examples of punch as it is experienced by the UCLAS students. Laila said that her sister was punched at UCLAS. I asked Laila to tell me what is really involved when a person is \textit{punched}. She could not recall all that her sister told her but she gave me a few examples. Laila said that according to what her sister told her, a female student at UCLAS could be punched for doing the following: wearing jeans or slippers in the dining hall, sitting at the table that is reserved for male students and in the past, there was a tree at UCLAS where male students used to sit and where no female students was allowed to pass by or go near. She said that the tree was cut down some years ago. Laila also said that it was mandatory for all female students to attend all students’ organizations meetings. When they fail to do so or refuse, male students go to female students’ rooms to bang doors and force them out beating them with sticks and or they may be punched. Some teachers and students who did not take part in this study told me that there was a similar incident at the University of Dar es Salaam in 1996 but they refused to give me further details.

Laila’s sister was punched because she wore jeans and went to the dining hall with slippers and sat at the table that is reserved for male students. Laila’s sister punch involved a cartoon that showed her as being naked and she was given a nickname which Laila could not remember. In addition to this nobody talked to her for the whole year. Whenever she went to class and sat near some of her classmates, everybody would move away.

These observations were confirmed by Maggie who attended UCLAS for a few weeks before joining her current program. Maggie said that when first year students arrive at

\textsuperscript{52} I was then working at the University of Dar es Salaam, so I witnessed this incident when it happened. Some of the punch information that was displayed in the wall literature included a statement that was presented as though it were a radio announcement (see Appendix G. Examples of the 1990 Punch Against the President).
UCLAS, they are given nicknames that reflect their characters. She said that this process takes about two weeks but the “hyperactive” ones are usually nicknamed immediately. Then there are the “Mzee Punch’s Ten Commandments” which are usually accompanied by the symbol of poison or death. Maggie could not recall the ten commandments but only cited the following: (1) Do not vibrate your buttocks when you are walking; (2) Do not wear miniskirt, shorts or dresses with openings; (3) Do not eat in the cafeteria, if you do you will be punched; (4) You are not allowed to be visited by men except your father or brother(s); (5) You are required to attend all students’ organizations’ meetings. Maggie also cited an example of a female student who refused to attend meetings when UCLAS students were organizing a strike. The female student was beaten by two male students and her arm was fractured. Maggie said that the two male students were later expelled from the university. She also stressed that most female students do not like to strike but are always forced by male students to attend meetings in order to convey a message to the university that all students support whatever is being demanded. She further explained that female students do not like to attend these meetings because male students prevent them from speaking, they just want the female students to go there, sit down and listen to male students talking and make decisions.

I tried to find out whether female students at MUCHS have similar punch experiences as those narrated by Laila and Maggie about UCLAS. But Sifa, a medical student at Muhimbili University College of Health Sciences said that the male students at MUCHS are too busy to waste time on such things like punch:

Oh, okay, here [at MUCHS] we do not have the punching problem...we are too busy...it has never occurred here to have people who punch each other...because they do not have the time to sit down and draw people...we do not have that culture, it is mainly in these Arts schools where they have time...

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53 The *Mzee Punch* “copyright” symbol is a human skull, as one finds on warnings given on containers of poisonous drugs.

54 The word ‘vibrate’ was what Maggie could remember. But she said that the commandment read as follows in Kiswahili *Usitingishe matako wakati wa kutembea* which can be translated as “do not shake your buttocks when walking.”
She also mentions that students who deal with punch are those who study the Arts and Social\textsuperscript{55} Science students at the Mlimani campus. But her colleague, Laila, expressed a different point of view about the male students at the Muhimbili campus:

Here at Muhimbili, they talk a lot about girls... You will hear all sorts of things, very mean things behind your back... By the time you hear about it, everybody else (suppresses laughter) knows about it... I knew it because they were talking about me (suppresses laughter). Yet, at first I was very surprised... you want to do something, you start thinking... "If I do this then people will start some story behind my back..." You keep thinking twice before doing anything... I am not that friendly... as I used to be... So I used to hang around with them [male students] a lot and I used to visit them in their rooms, and then I found out that going to visit a boy in his room... there were all sorts of funny rumors coming out about me. So I literally stopped going... Everybody believed that I was having affairs with the boys... By the time I heard about it, I was supposed to have had affairs with so many boys... Even when you become friendly with a boy, as soon as you get familiar with him,... just talking on a friendly basis, he takes it as an indication that "this girl is interested in me."... It is not easy to be friends with the boys... I have handled this problem by trying to withdraw or by being less free with the boys and even talking to teachers... So I am also very careful about that... so I think I will have to act in the same way, just withdraw... not being very friendly with the boys I do not know...

Laila's experiences indicate that although the MUCHS students may not have time to "draw people," as claimed by Sifa, they do have enough time to "talk a lot about girls." This kind

\textsuperscript{55} There is hierarchy of subjects in Tanzania that ranks the natural sciences as being the most difficult and those studying them, the most intelligent students. The social sciences are viewed as the easiest and those who study them less intelligent, the so called nguin. I heard one student at SUA telling an Economics major from the University of Dar es Salaam that he "is one of those who get their degrees while sleeping," implying that Economics students and others in the social sciences do not have to study as hard as those who study the science-related subjects such as Agriculture General or Home Economics and Human Nutrition, or the Medical students, as implied by Sifa in her comment.
of talk seems to have a similar kind of effect on Laila as punch did on Nyina who was punched at SUA. They both felt uncomfortable and decided to withdraw and limit their interaction with male students only to trusted close friends.

The intern doctors told me that although Mzee Punch is not very well known at the Muhimbili campus, female students experience other forms of sexual harassment. They supported Laila’s observation that male students at Muhimbili talk a lot about female students. The intern doctors gave a number of examples of verbal abuse that some of them have experienced. Dr Kathy:

Ah, talking...that is very common here [at Muhimbili]. They may start to say that you are being taken by some one and that may not be true, and in that they really harass you...the whole school is talking about you...that is very common especially here at Muhimbili....[others laugh]...Because if you discuss schoolwork with a boy, then the next day the whole school will be saying that he is your boyfriend...and by the end of the fifth year, you have been taken by five boys...which is not true, and that really harasses...people here verbally.

[All the three doctors]:

Rape, gossip, abusive words, for example, those that make fun of women’s morphology or physical features, and comments like “women do not have brains, they use their bodies...”

Dr Nelu:

Somebody told me, “You do not have to worry about the examination, just go there and smile and you will pass.”

Dr Chenza:

I was also once told by someone, “You are too beautiful to fail.”

These comments indicate that although Sifa might not be aware of it, the Muhimbili male students use a more hidden way of harassing female students. And, the verbal harassment to which Laila was exposed seems to achieve the same goal as the Mzee Punch approach which combines verbal harassment with visual displays of the victim at selected public locations.
Some of the participants told me that there is nothing one can do about punch because nobody knows what or who carries it out. I also realized that with an exception of only a few, like Vero, whose friend was punched and who received a warning from punch, most participants were not really prepared to discuss Mzee Punch. In the following extract, Vero talks about what happened to herself and her friend last academic year (1995/96):

When I was in first year, I used to talk to boys. When I talk [ed] with one boy today and another one the next day, they said I was having a sexual relationship with all the boys [I] talk to...I have a friend, here [at the University of Dar es Salaam], where there is something known as “punch,” and my friend likes talking to boys and things like that...so they punched her. That is, they actually posted her picture and all her personal information there on the wall for everybody to read. They wrote down things like “this girl is cheap, she has many boyfriends”...And all that was not true....Also, in class, if you talk, male students whistle and things like that...I also hear that before we came here a girl committed suicide because they punched her and wrote a lot of lies about her, they drew her picture and wrote very degrading things about her and they say that it was because she felt so dehumanized that she committed suicide...

I asked Vero, “Can you tell me more about punch, for instance, what is punch? If I need to describe it to people who do not know what punch is all about, what should I tell them?” And Vero responded:

Punch was originally created as a tool for moderating behavior in the society. For instance, when society deviates from its obligations. I heard that in the past, before we came here, [punch] was used to criticize the government. But these days, punch involves women only and it is only women who are punched. And often what they write are lies, which are so degrading and so terrible that they cause a person to be so discouraged that she may decide to quit her studies and go home. For instance, they may write things like: “Vero Mwinyimkuu, is a Mechanical Engineering student. Vero was born in Mbweni village in Kinondoni District. She attended primary school at Tandika Azimio, O-level secondary school at Ruvu and A-level at Tabora Girls’
Secondary School. Then she went to Mafinga National Service and now lives in Room number 24 in Hall Three"...and they would then write all nasty lies about me... So from this background, everybody will know that it is me and they will also believe all the lies which follow.

At the University of Dar es Salaam, many people believe that *Mzee Punch* is a group of fourth year Engineering students. This belief is based on another observation that a table in one of the cafeteria’s at the University of Dar es Salaam, is known as “*Mzee Punch’s table*” which is exclusively used by fourth year male Engineering students. Nobody who is not a fourth year male engineering student may sit at this table, and, if they do, they will be punched. This suggests that *Mzee Punch*, as one male engineering student described, is “a big organization.” I asked the Engineering participants to tell me more about punch. I wanted to know if *Mzee punch* “resides” in the Faculty of Engineering. But their responses were very general, as if they had been rehearsed. Unlike discussions about other issues, they seemed to be avoiding something. Their responses seemed defensive and very brief, as if to tell me not to touch such a topic. And they all said in common:

“Nobody knows, even the Engineers do not know...It is possible...But it is possible.”

After hearing this comment I remembered they are the Engineering students and I am not, so I asked no further questions about *Mzee Punch*. But, based on their responses and the way they spoke so spontaneously and gave an identical response, I had a feeling that they were trying to hide something. I had heard that it is the policy of the Engineering students to stick together at whatever cost. I therefore think that this spontaneous denial about the existence of punch at the Faculty of Engineering is an example of their solidarity with their male colleagues (sticking together at whatever cost).

I have been told that such rituals have a long tradition in western countries like Canada and Britain where engineering students in many universities are known for their sexist rituals. According to this tradition that is based on male values of what it means to be an engineer, new students [mostly male] are ridiculed by being feminized -- made to dress up like women, soaked in water and the like. This is often done like a *joke* without due regard to those who
are the target and without any concern that one day the “new students” might be women. A number of examples were cited, including the one popularly known as “Lady Godiva” at one prestigious Canadian university which had been tolerated by university officials for many years because it was seen as a joke.

Nyina who was punched at SUA narrates her experiences about examples of intimidation at SUA as follows:

Ha! A good example is myself because when I came here last year, many people approached me for friendship...But fortunately or unfortunately, I refused all of them except the one who is my fiancee...Then one day, last term, they punched me...they wrote that they awarded me a “Prostitute Award” with my name on it... They implied that I had many boyfriends or that I was cheap or something like that, but all these were lies, as I have just told you that I had no boyfriend except my fiancee...There is a group of male students who call themselves “punch.” For the first few days I felt so bad because everybody was talking about me, and others who did not know me were asking, “Who is this girl, Nyina, who has been awarded the Prostitute Award?” But later I was able to gain strength when every second-year male student came to see me and express his sympathy for me about what had happened... Although I came to class, I was really only taking notes, but I was not able to understand anything. I tried my best not to miss any of that day’s classes, and the next and the next days after that...What pained me most was that all those people that had approached me for friendship, and I turned them down, I was not rude to them or anything. So I failed to figure out who could do that to me because I did not use impolite language to anybody...so it just ended like that. But unlike in the past when I was friendly to all people, I used to greet anybody and chat with everyone, nowadays when I meet people I just say “hallo” and that’s it.

Nyina also told me that the safest way for a female student to avoid being punched is to agree to have a sexual relationship with a male student. She told me that what most male students hate to see is female students who have boyfriends who are not students. A similar observation was made by one of the female administrative officers at SUA who cited an
incident that took place a few years ago when a female Veterinary Medicine student decided to abandon her studies because she was being harassed by her male classmates. She was the only female student in her class and for some time she was on good terms with the male students because at that time one of them was her boyfriend. Things changed when she had a new boyfriend who was a master’s student in the same department. The classmates interpreted this situation as an indication that the female student despised them because of their lower status as undergraduates in favor of a master’s student. Therefore, they decided to isolate her. For instance, in class she sat alone, they would not answer her questions and nobody associated with her in any way, unlike in the past when she was a member of the group. The administrative officer told me that because the girl could not explain all these things to the relevant committee, the only reason she gave for her decision to quit her studies was that she was sick.

The Intern Doctors’ comments support what was stated by the participants during the interviews and focus group discussions: that the male students do not accept that some female students can do better in some subjects than male students. It was pointed out that whenever a female student does well, male students have ‘explanations’ about her success. Either she has a sexual relationship with the male teacher, or she has cheated in the examination or both.

Dr Nelu:

Some of the boys will not take it that girls can be better than them...so they will just find an explanation, “she can not be better than me, so somebody must be favoring her...or she lied in the examination.” But they would not accept that the girl may actually be better than the boys.

Dr Nelu’s observation that male students tend to attribute female students’ academic success to favoritism by male teachers is supported by many participants in this study. During the group interview, Barb cited an example that took place when they did one of their first tests. Because all the girls in her class had done well in the first test, the male class representative (CR), who distributed the test papers, made a record of all the girls and at the end remarked, “Usually, in the Faculty of Engineering, girls do not fail.” Barb and her colleagues said that they were still investigating that allegation whether it is true that the Faculty of Engineering favors the female students.
Barb also told me during the interview that these comments made by male students have forced her and others to be passive in class, something which is affecting her because she does not feel free to interact with her teachers:

When I was in secondary school, I used to ask teachers a lot of questions. No teacher would leave the class without me asking him/her a question. But, when I came here [at the Faculty of Engineering] I had to change. This has affected me a lot because I no longer ask any question in class because if I do, and the teacher clarifies the point for me, to imagine what the male students will be thinking about me, makes me so furious that I may even forget what my question was...So, I have decided to keep quiet in class...because if [a female student] asks a question in class, male students will think that she is after the teacher, unajigonga-gonga, that is, she is interested in having a sexual relationship with male teachers.56

The closest literal translation of the Swahili word kujigonga I can think of is “to hit oneself against something,” meaning to win the attention of the teacher so that he can take notice that the girl in question is interested in him as a sexual partner. Many participants find this very annoying.

In another example Barb cited her secondary school experience in which a male secondary school classmate who cried when Barb scored 95% in a math examination and he scored 66%. They were also in the same Engineering program. At the end of their first year as Engineering students, Barb completed her local charcoal stove assignment before he did. After he had completed his assignment, he asked Barb: “Could it really be possible that we are equal?! You made the charcoal stove, I made the charcoal stove. You passed the Form Four examination, I passed too, we are both competent in doing the same things.” What he avoided to add, was that unlike him, Barb was also a Special Student and completed the charcoal stove assignment before him. His remarks made Barb reach the following

56 The Swahili word used by Barb was Kujigonga-gonga, which she defined as “being interested in having a sexual relationship with the male teacher.” (See Footnote number 50 also).
conclusion: “as far as a man is concerned, however friendly he might be with you [woman], he does not believe that you are as intelligent as he is.” These comments indicate that whichever approach or strategy female students take they are likely to face barriers: they are punched if they are “too smart,” if they have or have no boyfriends [from town] they are also punched if they dare say “yes” or “no” on their own terms or behave as free people. It was basically for these reasons that the study participants appealed to me that I should make their experiences known to those who have the power to make decisions about how to promote women’s participation in higher education in Tanzania.

The Male Teacher-Female Student Relationship

The participants of this study pointed out that the teacher-student relationship in their universities is not very positive. They suggested that students (female and male) do not seem to trust their teachers and many teachers are too busy to know their students. Additionally, they stressed that within this rather antagonistic relationship surrounded by mistrust on both sides, the female students have to deal with extra problems that do not affect their male classmates. Some participants, especially those at the MUCHS campus, pointed out that while male students have the freedom to be friends with male teachers, for purposes of being given the examination papers ahead of time, most female students are too scared even to ask questions in class for fear that male students will accuse the female students of being interested in the male teachers, *kujigonga*. This implies that female students feel that male students have more access to teachers as friends. Others said that some teachers assist students from their ethnic groups only. All these comments indicate that both male and female students suspect each other of being favored by teachers. But the reasons differ and the study participants argued that in the final analysis male students are the ones who benefit.

Also, some participants pointed out that there are a few teachers who mark down the female students. I was told that such teachers use this strategy to get in touch with the female students in whom they are interested. The participants said that such teachers would give a grade which is below the pass mark, 40% at the University of Dar es Salaam and Muhimbili and 50% at the Sokoine University of Agriculture. They explained that, after scoring a failing grade, the female student would go to see the male teacher and ask him for a make up test.
The scenario that might follow was described by two SUA participants, Happy and Greta in their group:

Happy:

Yes, that’s the problem with male lecturers...If you score 35% in a test instead of 50%, which is the pass mark here at SUA, and let’s say you go to see him and you ask him to give you a make up test. He may tell you, “Make up [test], maybe we can talk about it at Sofia Hotel.” 57 Which means that he wants you to go to that hotel to have sex with him, then after that he may give you a make-up test and he may increase your marks.

Then Greta added:

I wanted to say that teachers, I mean lecturers, can be even more destructive than male students because when a male lecturer intends to get you, he will, and his effect can be more powerful...and will have a lasting effect on you... You know, a male student, yes, he may harass you but he is not as powerful as a male teacher who has the power over your degree. So, if he decides that you will fail, you will fail...

And Happy continues:

That’s why one often finds herself doing things she did not intend to do but she has to do them because it is the lecturer who wants her to do those things...and he is the one who teaches that course. And, if you refuse, you will fail or you will be marked down and you will fail that course...

I asked Happy what kind of things a female student might be asked to do by a male teacher and her response was:

It would have been better if male teachers were interested in having friendships with the female students...but all they want is to have sex with them [female students] on a particular day when they feel like having sex...I mean it all depends on what he feels like doing and you have no say....

57 “Sofia Hotel” is in Tanzania.
Both Happy and Greta said that female students have no one to talk to about these things. For instance, they cannot talk about this to their academic advisors because the academic advisors have no power over other teachers. Nor can they tell the Dean of Students about these things because most lecturers despise the Dean of Students. Happy and Greta therefore suggested that:

It would be good if we could have a separate office and a well-trained counselor who is not associated with the university administration. But if this person works in collaboration with the university administration, if she/he is part of the university, nobody will go to seek help from such an office...

The views they expressed here are shared by other participants, although some participants were rather hesitant to say much about this problem. Zena for instance, did not want to talk very directly about the male teacher-female student interaction:

Honestly speaking, I have never gone to see any teacher since I came here [to MUCHS]. I hear from the few who have gone to see teachers that there is just that fear if you go to see the teacher alone, (because as you know, we are [all] adults and teachers are adults too. The teacher might misinterpret your visit to his office...anything can happen...So to avoid this kind of thing from happening, female students here go to see teachers in groups of two or three...but going alone is really very risky, so people try to avoid that...

Zena’s observation about teachers was supported by the Intern Doctors as Dr Katarina explains why she never went to seek assistance from any of her teachers alone even when she had problems:

I never went to see a teacher alone...but I can give an example of those who did...just before the examinations started, and when the results came, they had done well [laughs]...and it was said that they had been given the examination...I do not think that was the case. But, when you go to see a teacher and then you pass, you will be told that you were given the examination...if the rest of the class thinks that you were given the examination, you will feel very, very bad...
To clarify this point further, Dr Chenza who went to see a teacher with other students explains:

One subject is very troublesome [difficult], Physiology...[the others laugh]...and I was supplementing Physiology then...if you wanted to pass, you had to go and see the teachers now and then....We just wanted to pass...we were going in groups...we were going in a group of girls alone..., girls alone because in most cases, if you tell the boys “let’s go,” they will tell you unajigonga, meaning, you are stepping down too much...you are making yourself look silly to the teacher...

The Intern Doctors stressed that although Dr Chenza and others once went to see a teacher to get clarification about their examination grades, none of them had gone to see a teacher alone in the five years they studied medicine at MUCHS. These interview extracts indicate that for most female students at the FoE, MUCHS and SUA, the male teacher is some one to be avoided at all costs. This strategy can be quite dangerous because for some participants, like Lily, it really does not matter whether they pass or fail. She decided even before joining their programs that she would have no direct contact with teachers:

Before I came here (to MUCHS) I had heard that when female students go to teachers offices teachers might want to have a sexual affair with the female student. So when I came here, the first thing I did was to avoid any direct contact with teachers. I meet them in class, I am taught, I do tests and examinations, they return the papers, I pass -- I fail--, I have never entered any teacher's office to demand marks or anything like that, so it has never happened that a teacher suggests anything to me...so I do not know.

Fortu and Nina said that they have made up their minds that the issue of seeking help from teachers, male and female is a personal one and they have taken the personal stand that whenever they need help, they will get it from their teachers and not from students. I asked each one of them during the interview the same question I asked other participants, that is whether they had ever gone alone to see any of their teachers, and Fortu replied:
Oh yes, many times, whenever I felt that there was something I did not understand. They can say I have a [sexual] relationship with the teacher, but I am fighting for my own degree, not theirs. First of all, I have a motto, that “everybody came here [to the University of Dar es Salaam] based on their own brains...[their own right].” Therefore, nobody can interfere and say not to go and see the teacher...Why should I not go to ask the teacher for assistance? Haa! So I should not ask him? What if I fail the examination?

Nina, a medical student, is between 20 and 24 years old. Last year she overslept because she was not feeling well and did not do one of the papers in the UE. Later she did that paper but she failed and was required to sit for the Supplementary Examination. She was the only one who had to do this and she could not ask anybody to go with her to seek help from the teacher. So she went alone. At first she was very scared because of the things she has heard. In the following quote from her interview, Nina describes her experiences:

So, when I had this problem [to sit for the supplementary examination], there was no nobody who could go with me to see the teachers. I had to go alone. Then I found out that the teachers were [raises her voice indicating emphasis], were really, really, very good to me, the way they helped me. So I thought that the students were telling me those things to let me down...Especially the ones who had passed the examination... So it is like that...when you come here [to MUCHS] they tell you, “Do not ask questions in class. If you ask questions, the teachers will mark you and in the oral examination they will make you fail...” Maybe they will make you fail, because they might think “Aha, she knows very much so let me ask her a tough question in the oral examination.” I do not know what is true and what is not...but I no longer fear teachers.

Other participants raised other issues in relation to their classroom interactions with their teachers. Cecy, for instance, said that she often feels like crying when one of her male teachers tells jokes about women in class:
There is this one particular teacher...When he is teaching about gynecological or sexually transmitted diseases, he might say, “I do not know what is wrong with them, they have so much filth,”...He would say these words as if we [women] have something very dirty inside our bodies...Instead of saying something like, “Due to their anatomical structure, women are more susceptible or vulnerable to certain gynecological and sexually transmitted diseases than men....” I cannot explain the way they say it...but really, sometimes, he can say something and I feel like crying...and then you know, what is even more painful, is that when he says something like that, others [male students] go crazy with laughter...I mean to them, it is something which is so good to hear...And sometimes I think that if I had the power, I would go and ask this teacher, “Why do you do that?” But he is the teacher and we are just students, so even if he despises you, you just have to keep quiet and listen to him...This is not a general thing, but some teachers do that.

Many participants also stressed that the wide gap between them and their teachers is partly because teachers do not have time for their students. These participants said that many teachers do consultant research to earn extra money because their salaries are not enough. But even when they are physically around, Dr Nelu noted that teachers are busy with other things and they have very little time for students. Her observation is based on the way teaching is done in medical wards:

They do not have time to discuss anything with their students because they have limited time. Three hours only to make the rounds of a major ward and to discuss any problems with her/him [the Intern Doctor]...Maybe an hour and then they say...“I have to get my kids...I have to do this...” I mean they do not have time, they are so busy that they do not know their students...

58 Although the sexually transmitted diseases affect men and women, they are commonly known in Kiswahili as magonjwa ya wanawake, that is “women’s diseases”. A more equitable translation would define the sexually transmitted diseases in Kiswahili as magonjwa ya zinaa.
Participants' Career Expectations

I asked the participants what their career expectations might be in five years from the time of this study and how they expected to balance career and family responsibilities. I present their responses under the following subheadings: employment expectations, societal attitudes towards female professionals and career and family responsibilities. Based on their career expectations the participants fall into four main categories: (1) participants who were aware that due to the existing economic crisis and the on-going implementation of the Structural Adjustment Program, (SAP) in Tanzania, they may not find employment after graduation; (2) those like the medical doctors and the engineers who expect to be employed in their fields; (3) those who fear that they might not be employed in their areas of specialization because they are women; (4) those who feel that because they are receiving a poor quality of education will not be competent and skilled in their fields and therefore they may not find employment. Even if employed, these participants thought they might not be able to compete with professionals in their fields from other countries.

Employment Expectations

Because of the economic crisis existing in Tanzania at the time of this study, many participants said that they were not expecting to find employment. Some of the SUA participants were planning to employ themselves, while others said that they would pursue post-graduate studies immediately after graduation to make themselves more employable. Remmy was one of those who said that she would pursue post-graduate studies because she was so sure that she would not find employment.

Participants like Shukuru from programs such as Home Economics and Human Nutrition (HE and HN) were also aware that due to the economic crisis facing Tanzania in late 1990s, finding employment is very difficult, as she points out:

The majority are busy with studies because, after all, they know that there is no employment. So at least they should study and get their degrees so that they can look for employment....

Laila, is also worried that she might not be employed because of the economic crisis which is affecting Tanzania as she explains:
When we talk to Interns they tell us that the employment conditions are bad. The government is closing a lot of hospitals...And, if we go [to work] in private hospitals, there are no opportunities for further studies. So one has to stay where she is unless she gets a scholarship...

Some people had told me that unlike graduates from other Tanzanian universities, the SUA graduates are expected to employ themselves after graduation. That was partly why I asked Remmy whether she had considered the possibility of self-employment after graduation and she said, “To employ oneself is probably possible by working through Farming NGOs. So until one gets such an NGO, there is no possibility of self-employment” (an extract from Remmy’s interview, May 1997).

Another SUA student, Nyina joined the Horticulture program with the intention of establishing a fruits and vegetable business for herself. But she pointed out that she had begun to wonder whether she would be able to achieve this goal because of the poor education she was receiving. She emphasized that inadequate practical training experience would not make it easy for her to employ herself. She gave an example of one of the basic aspects of her program in which she was receiving inadequate attention:

Often, when we need to go to the Main campus from here at Mazimbu, there is no transport. For instance, last time we were required to go for this topic known as propagation, which is about budding, a fundamental aspect of Horticulture. But we could not go...Last term in a period of six weeks, we did propagation only once...They usually post the transport timetable for each class to go to the Main campus for practical training, but only half of the class might go -- but the rest might be forgotten, or, the bus might have mechanical problems on the way and it would not come back...and it goes on like that...

In addition to having inadequate practical training experience, most of the study participants said that they also had inadequate teaching and learning resources. The exception was the participant from the Department of Chemical and Process Engineering who said that she and other students in her department have all the teaching and learning resources they need. This comment was confirmed by one of her teachers whom I interviewed. But as
pointed earlier with reference to some departments at MUCHS, departments which are not faced by the textbook problem are those which receive external assistance. But the majority of those students who depend on allowances from their sponsor, the Tanzanian government spend their money on needed resources, a situation described by Nyina: “Frankly speaking, I do not think that anybody buys textbooks. Instead, once students get the book allowance money, they buy reams of paper for lecture notes and they use the rest for photocopying.”

Nyina also describes the shortage of reading materials in the SUA main library, pointing out how difficult it is to have access to the few available journals that are required reading for common courses such as “plant physiology.” She said that students from three other courses, Agriculture General, Horticulture and Agronomy, are also required to read *the American Journal of Botany*. But she pointed out that apart from being an old [a 1981 volume] there was only one copy of the journal in the special reserve at the SUA main campus library. She pointed out that it was almost impossible to get access to this journal because of the number of students who are required to read it and because they live in Mazimbu and only have three hours of library time on weekends.

In comparison with students in other SUA programs, Nyina and other Horticulture participants said that they joined their program because they wanted to employ themselves. But Nyina and others whom I interviewed, said that based on the poor quality of education at SUA, they doubt whether they can employ themselves.

Although they were aware of the problems mentioned by other participants about the economic crisis, poor quality of education and stereotypical thinking about female professionals, participants from FoE and MUCHS seemed more optimistic about obtaining employment than the SUA participants. Almost all the FoE participants said that five years from the time of this study, they would be employed in their fields of specializations. Vero, for instance, said five years from the time of the study she expected to be employed as an Engineer working with computers and maybe pursuing post-graduate studies. Similarly, Fortu expected to be employed as a quality controller in Chemical and Process Engineering.

Vicky, also an Engineering participant, was a little hesitant about her employment prospects five years from the time of the study. She was particularly doubtful whether as a female Civil Engineer, she would be accepted as a Supervisor of Civil Engineer technicians, most of whom are men:
Five years from now, I will be working somewhere [as Civil Engineer]...I will be an Engineer, if possible, [I will be going to sites]... maybe, I will be an Engineer but maybe I will be going to site or not,...but I will be an [a Civil] Engineer...

Vicky’s doubts could be because of the negative comments she heard from the male Civil Engineering technicians during her field practical. But she said during the interview that she was determined to be a successful Civil Engineer.

Some of the MUCHS participants, like Sifa were also optimistic about getting employment. But unlike Zena who said that she wanted to be a doctor so that she could go back to her village and work there, Sifa does not want to work in rural areas, and for that reason she expects to find employment in the private sector.

Based on these responses, most of the FoE participants seemed almost confident that they would find employment, unlike the SUA participants who were almost certain that they would not. When I asked them about self-employment some of them said that they would need money and experience to employ themselves and this would take not less than ten years to achieve.

The Intern Doctors Nelu, Chenza and Katarina caution that when they were students, their career expectations were very different from what they were at the time of the study (1997). Therefore, they emphasized that because the medical profession is service-orientated, they are more concerned about providing that service to those who need it, namely, the patients, regardless of its monetary benefits. They said that they were aware that a doctor’s work does not correspond to the monetary benefits, especially when compared to other careers that are better paid. Dr Chenza explains:

If I knew about Medicine as I do now, I would have joined this profession yes and no...(laughs) because this profession does not pay well. If you compare it with those who finish Form Four, especially bankers, they earn a lot more money. But for us, we are doing a lot of work and are poorly paid. I like the work, I like saving peoples’ lives, that’s it...
Difficult Decisions: Balancing Career and Family Responsibilities

Many participants of the study were conscious about the possibility of conflict between pursuing a career, getting married and bearing children. But their responses indicate that they are determined to combine career and family responsibilities. Many of them said that they do not see any problem in combining these responsibilities. When I asked them whether combining marriage, child bearing and rearing and a career might lead them to sacrifice one of these for the others, the majority said that they do not see any problem in combining these responsibilities. Barb put it this way:

Five years from now, I would like to have a husband, one kid of my own and be employed in my field of Electrical Engineering. I believe that I can establish myself as a competent professional and at the same time be somebody’s wife, have children and take good care of them.

Barb said that she was convinced that she could balance her career and family responsibilities. But like many other participants this also implied that she would marry a man who understands the value of her career and who takes an active role in household chores. Barb, like most of the participants, also said that she would not have more than two children.

All the participants defined marriage in terms of a sexual relationship between a woman and a man. They said that is the only kind of marriage they know. The majority of them said that they expect to have no more than two children because they cannot afford to take care of more children. A few of them, like Chiku, a Mechanical Engineering student said that if she has children in the future, and it so happens that her child is not well, she will stop working as a Mechanical Engineer temporarily so that she can take good care of her child.

But if we analyze Barb’s and Chiku’s family expectations based on Atu’s experiences, it will appear that Barb, Chiku and their colleagues might have to revisit some of their plans because of other factors which are not within their power. For instance, some employers may not employ a female Engineer like Chiku who is ready to stop working so that she can attend her sick child. Atu, an Electrical Engineer was not employed as an Electrical Engineer because she could not answer an interview question about what she would do if when working on a shift job her child is sick. Consequently, she did not get the job. These expectations also indicate that Barb, Chiku and others are not quite aware about the experiences of female
professionals in their fields. Nor about the extent of employers’ negative attitudes towards female Engineers.

The three female doctors also expressed their views about marriage and careers, especially how to balance career and family responsibilities. They have realized that this is one of the major problems facing female doctors, as Dr Katarina points out:

Yes, I think that the most serious problem facing female doctors is...how to advance in the medical career and have a family because the most difficult thing to do is to choose between the career and the family...If you choose to pursue post-graduate studies, you will have to delay starting a family and if you choose to start a family, you will not be able to advance in your career...For example, if you are doing obstetric surgery or things like that, you will have problems...such as not being able to finish on time or failure to do the examination because you are nine months pregnant or something like that...that's the problem with us [female doctors]...

Some participants stressed that one of their strategies to balance career and family roles was to be careful about the education level of the man they will marry. These include Vero who said that she is not very keen on being married but, if she meets someone who wants to marry her, she would marry under the following conditions:

For instance, if I have one degree he should have at least a master’s degree or a PhD. I will also expect him to know the importance of a woman’s education and he should support me when I want to pursue higher education...But, if I suspect that after getting married there might be misunderstandings between us because he does not support my intentions to pursue further studies, I do not think that I will get married...So I will marry a man who can at least understand why I need to have a master’s and if possible a PhD degree. But if he will not understand this but will instead expect me to stay at home and care for the children only, I think there will not be any need for me to get married.

Vero’s views about the possibility that she might decide not marry were expressed by other participants with some variations. There were those like Greta who said that she plans to have
two children but she does not really want to get married. But if she could meet a man who would have two children with her and then leave the children with her, she would be very happy and she would not marry: “I am really not very keen on getting married...Marriage is not very important to me.” Greta said that she does not want to marry because many men like to control their wives. She stressed that after working so hard on her education, she is not ready to be ordered around by a man. Moreover, she is also aware that some men abuse their wives and later divorce them. She also told me that it is too expensive to have more than two children in Tanzania because of the economic hardships.

Happy said that she expects to marry, but if there is any misunderstanding between herself and her husband, she will not tolerate that and she will have to go. It is for this reason that she would like to have one child only so that if she is divorced, she should be able to take care of her child on her own.

Sifa is one of those participants who also said that having a family was not her priority and that she would only consider marriage and having children after she has established herself professionally:

Well, in terms of having a family, it is not really like one of my major concerns...First of all, I want to obtain my degree, once I achieve that, and if I do, what I want to do is to make sure that I can take care of my children. ‘Cause I do not think that it is fair to have children I cannot care for ...if we are set and we can give our children the best education and the best care, then, that’s when I will think about having children.

Cecy, who said that she hates her abusive father, said she does not want to marry or to have children for fear that she might not treat them well. She also said that she does not have any experience of living in a family where children are loved and cared for. She painfully explained that she does not think that her family background has prepared her to have a family of her own:

Okay, for me, I do not think of having children...First of all, I would not like to have a child who will suffer...that is one of the things I do not want to happen. Secondly, I do not trust these men...they cause a lot of problems and they leave you with children who are suffering...I also do not like the idea of
having children outside the family...I do not like to see children being separated from one another or from their parents, because children lack proper guidance...So maybe, if I find somebody who loves me, but I cannot get married just to have children...So, my only future plan is to get a job...that’s my only ambition...at the moment I have not started to think about marriage...I do not know whether I should say it, but for me, I do not think that marriage will work...the background I have had, because I was brought up in a family...[takens a long breath before continuing] the kind of family which you cannot rely on...I mean it does not make me look forward to marrying someone...No. No. It might happen but it is not something which I am really looking forward... to do...no.

Cecy stressed that her family background has been so negative that it has not prepared her to have a family. Her only priority is to get a job.

In contrast to Cecy, Laila was concerned that as a doctor, nobody in Zanzibar will want to marry her:

Because Zanzibaris usually intermarry...and in my case, there are not as many educated Zanzibaris...Even the men...most of them are business men...There are very few of them that are educated at the university level...And they are Moslems...in a culture where the men are not prepared to marry somebody [a woman] who is a doctor...nobody would like to marry a doctor.

Laila said that because of this concern she will probably get married first before pursuing a master’s degree, thus indicating that to her, marriage carries more weight than career, especially based on the observations made by Intern doctors that, unlike male doctors, females doctors have to choose between career and family success. This point was expressed by Dr Chenza as follows:

It is really very difficult because both need your time so once you mix the two, you may have problems. Once you have children for instance, they may be sick on the day when you are expected to submit a paper...Then if you choose graduate studies, by the time you finish, you may be 36 years old because it
may take you up to five years to finish...and by then age becomes a risk factor in getting pregnant and bearing children, that is, above 35 years...So we are putting ourselves at risk...and that's the major limitation for women's participation in this profession...

After a lengthy discussion on career and family roles, Dr Nelu suggested the following approach:

I think women should be encouraged to do both....We can do it, we can be tired but...Most of the male post-graduate doctors are married and nobody says that “this man is married that’s why he is not performing well.” But when it comes to female students, it is a problem. I think that our teachers should have the same academic expectations for women as they do for men, because, despite these problems which face them, academically women perform as well as men.

The other Intern Doctors said that they agree with Dr Nelu’s suggestion that female doctors should be encouraged to play their career and family roles just like male doctors, but they were also aware that family responsibilities do not interfere with male doctors’ career success in the same way that they do with female doctors.

The participants said that their second strategy in balancing career and family responsibilities is to limit the number of children they are going to have. Most of them said that they would like to have only two children and that would do so because of economic reasons, stressing that if they had more than two children, they would not be able to take a good care of them. Most of them also said that having one child is risky because if anything happened to her or him then one would have no child. They also pointed out that four children seemed too many for them because they would not be able to take good care of them.

But what seems to be missing in the Intern Doctors’ and the research participants’ comments is the role that men or their future spouses need to play especially in taking part in

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59 The doctors explained to me that women who start to bear children after the age of 35 years are likely to face many problems such as hypertension [high blood pressure], obstructed labor and other childbearing-related problems than those who are younger.
household chores. They seem to take many things as they are and to suggest that it is only women’s roles that need to change but men’s do not. They did not at any time challenge the current practice in which most female doctors and other female professionals work full-time at their careers and as housewives and as mothers, while male doctors and other male professionals only concentrate on their professions. Without a fair distribution of the household chores and availability of child care services, female doctors and other professionals are not likely to succeed.

Understanding the Role of Women in Higher Education in Tanzania

The findings of this study indicate that there were multiple factors that influenced the participants to pursue higher education in their respective fields of study. It was noted that the research participants had career aspirations which they could trace to the time when they were young. It was also noted that individual career interests were influenced by factors that included knowledge about careers, advice from significant others and schooling experiences. It was noted that although interest and influences from others at the family level played an important role in motivating the participants towards the study of the school subjects they studied, policy and school related factors seem to have influenced the participants’ decisions to pursue specific undergraduate programs. It was for this reason that many of the participants who had aspired to be doctors for many years were supported by their families, were not able to achieve their career goals due to poor performance. Most of these argued that their poor performance was due to poor teaching in their lower levels of schooling. This observation implies that interest in a career is not enough but that there is also a need to be supported by significant others and that the final decision depends on the availability of the necessary resources. It also means that having an interest in a school subject or aspiring to join a certain university program will not necessarily get one into that program without first knowing and meeting the admission requirements. Hence women’s low participation in science and technological programs, for example, cannot be explained in terms of lack of interest alone.

Although this study focused on women enrolled in the physical sciences and technology and although its findings can not be generalized, its findings can be used as baseline data for designing other studies that explore why Tanzanian women join other programs such as the social sciences, commerce/business or law. These observations imply
that in order to understand the role of women in higher education in Tanzania there is a need to carry out more studies like the present one that involved students enrolled in other programs and to find out what career goals they had before joining their current undergraduate programs.

My study indicates that women’s participation in higher education calls for policy and structural changes in the higher education sector. Such changes should reflect not only the physical presence of women but also their active participation in the formulation of higher education policies. These changes would also have pedagogical and instructional implications especially the need to link classroom science to the learners’ everyday living experiences and to shift the emphasis on theory to the practical aspects of science and its direct relevance in solving communal problems. Many participants said that they found certain science subjects such as Physics not necessarily difficult but abstract and far removed from everyday living.

**Summary**

The study indicated that on the whole, teaching and learning in the area of the study is teacher-dominated and is done without the basic teaching and learning resources. Moreover, students’ behavior during most classroom observations was characterized by silence.

Although this study did not examine teaching and learning per se, during classroom observations and interviews, teachers and students pointed out that they did not have enough textbooks and other teaching and learning resources. It was also noted that students entirely depend on teachers lecture notes and most of those who were interviewed said that most of the time they do not understand what is being taught.

The participants’ responses also indicated that their learning styles are characterized by rote learning and reproduction of materials without adequate analysis and comprehension. Some cited a number of situations where copying, cramming and cheating are used as academic survival strategies.

Many of the teachers I interviewed said that most of their students have a poor background in scientific concepts and principles and are lacking in laboratory skills, which are basic for academic success in undergraduate education. Moreover, these were concerned that their students fail to take an active role in the teaching and learning process. The teachers attributed this to students’ lack of competence in English.
Although there are variations between one campus and another and among departments and programs, many participants indicated that they live under fear that they will be sexually harassed by male students or by male teachers or both. Some participants stressed that harassment by a male teacher is more damaging than harassment by a male student. These participants stressed that if a teacher decides that the student should fail, the student will fail. The study participants pointed that their silence in class is mainly due to this fear.

The majority of the Faculty of Engineering and the Doctor of Medicine participants expected to be employed after graduation. However, some of the SUA participants said that they knew that they would not be employed after graduation but they decided to join their current programs “just to get degrees.” The few who had planned to employ themselves after graduation were also doubtful whether the kind of education they were getting would enable them to acquire the type of skills they need for self-employment.

Other participants feared that they might not be employed, or if employed, they might be marginalized in their professions because of the negative societal attitudes towards female professionals in their fields of study.

Despite all these possible barriers to their career success, most of the participants are determined to balance career and family responsibilities.

Such determination may still encounter problems which have already been noted by the recent graduates (one Electrical Engineering graduate and three Doctors of Medicine interns). These female professionals have noted that the need for females to choose between career and family responsibilities is very real. These female professionals pointed out that without the provision of such services as child care and a balanced distribution of household duties, most female professionals would continue to be forced to choose between family and career success.
Chapter Seven: Discussion of the Research Findings

This study was aimed at responding to the following major research question: Why do Tanzanian women pursue higher education? Based on this question four specific research questions were generated: (i) Why did the participants of this study join their current undergraduate programs? (ii) What are the experiences of the participants of this study in these programs? (iii) What are the career expectations of these participants? (iv) Based on the experiences of these participants, how do we come to an understanding of the role of women in higher education in Tanzania?

The research participants’ decisions to pursue higher education were influenced by an interaction of a number of different factors: interest in school subjects such as Mathematics or Biology, a special interest in science subjects and influences from significant others, especially fathers. These factors interacted with others which were policy and school-related -- societal and external in producing individual participants’ school performance, the criterion upon which career decisions were made. These influences are discussed in detail in the following section.

Choice

This study was based on an assumption that the research participants’ enrolment in their current undergraduate programs was based on their career choices. This assumption proved to be true in only a few cases. The few participants who chose their current university programs based on their career interests were mostly those enrolled into the Doctor of Medicine and Engineering programs. But the majority who were enrolled in other programs, felt that they “ended up” or were “pushed into” other programs due to their poor performance in the Advanced Certificate of Secondary Education Examination (ACSEE). These are what one might call the failures, who said they were assigned to their current program, often regardless of their interest. One of the SUA participants, who was “pushed” into the Agriculture General program, said that she and her colleagues were “fixed where they belong” according to their performance. The circumstances of the two groups are discussed separately in the following section.

Based on their testimonies, most participants of this study were highly motivated students who have been interested in their studies throughout their schooling careers. Many
of them, like Zena, Fortu and Shukuru said that they liked school since they were in junior kindergarten. Others, like Sifa and Maggie, at first worked hard to please their parents, but as they grew older, they realized that education is for their own good. Barb on the other hand, realized very early in her schooling careers that when one performs well, people think you are unique. So, after becoming "famous" as a result of her excellent school performance, especially in Mathematics, she said that she wanted to maintain that reputation and so she worked hard and achieved high grades. Barb also said because she used to be the first in local school competitions, people used to come to see for themselves that it was true that a girl could actually outperform all the boys in the zonal competitions, which involved all primary schools in the area!

Similarly, Fortu was nicknamed "Mathematics Brainer" (Kipanga wa Hesabu) in her school because of her exemplary performance in Mathematics. But, as she looks back, she thinks that such a label was misleading. She said that in reality, she was just an ordinary girl who liked Mathematics a lot and who believed that Mathematics was one of the easiest and most straightforward school subjects. She said that often, she found it difficult to understand why some of her classmates were having problems in solving some of the Mathematics questions.

The view that Mathematics is an easy subject was also expressed by Zena, another "Mathematics Brainer" who decided to study Medicine instead of Engineering. Zena was also well known in her school for her excellent performance in Mathematics. She said that she believes that most people who believe that Mathematics is a difficult subject are those who do not want to spend time in trying to understand Mathematics. She has examples of such people from her Ordinary Level co-education secondary school. Zena told me that many of her classmates (boys and girls) used to copy from her. She said that these students did not like to try to do their Mathematics assignments because they believed that they were too difficult. She said that some of these students who did not like Mathematics, most of whom were girls, had nicknamed Mathematics "Mother In-Law," implying that they are incompatible with Mathematics.

The second group of participants said that they had a special interest in Biology. But whether they liked Mathematics or Biology, the majority of these participants did not have a good overview of the careers that require competency in the subjects of their interest. The
participants’ responses to the question “Why did you join this program?” has indicated that most of those who liked Mathematics wanted to study Engineering and those who liked Biology wanted to join the Doctor of Medicine program.

**Careers**

**Career Information**

Many of those who aspired to be doctors, including the Intern Doctors, said that they did not quite know what Medicine is all about when they applied to study Medicine. Dr Nelu, for instance, said that she and her classmates only knew Medicine as a prestigious profession. The idea of wearing the white clinical coat and the stethoscope, was all that she knew about being a doctor. But after studying Medicine for five years and getting the feel of what the nature of the work is like, Dr Nelu said that she does not intend to work as a clinician. Another Intern, Dr Katarina, pointed out that to work long hours with patients in the wards especially in Tanzania where the basic health facilities are not available, requires interest and commitment. The Intern Doctors emphasized that secondary school girls and boys in Tanzania need to know the nature of a doctor’s work so that when they go to the Medical school they are prepared. Students who want to study Medicine need to move away from the “white clinical coat and the stethoscopes” syndrome to the inside of an emergency ward in a rural hospital in Tanzania and be ready to save lives where their services are most needed. This advice was offered by two of the Intern Doctors who said that they found out after graduation that they were not prepared to practice medicine but would rather join the basic sciences departments. Another MD participant said that she joined the medicine due to family pressure, although her career goal was to study Engineering. So although the Doctor of Medicine degree program was the most preferred choice, even by those who did not academically qualify for it, there are those who were in the program who wished they had not joined the Medicine program.

**Career Advice**

Due to the lack of career guidance and counseling, many research participants obtained career information from a variety of sources, some of which were often misleading or incomplete. A good number of the participants said that they studied school subjects without
knowing the connection between those subjects and future career opportunities. They explained that it was for this reason when they were applying for university admission, other people chose programs for them because they did not know which ones to choose. This observation implies that even when they studied Physics, Chemistry and Biology and wanted to be doctors, it does not necessarily mean that they liked Medicine better than any other professions. Rather, that medicine was the profession which most of them knew about. This observation was supported by Zena and the Intern Doctors who admitted that they had a very rosy view of the medical profession, characterized by the white coat and a stethoscope, the idea of saving people's lives and the prestige attached to it. But as Drs Nelu, Chenza and Katarina point out, being a doctor is far more than a white coat, the stethoscope and prestige. Their advice is that students in the Physics, Chemistry and Biology subject combination need to know more about the nature of the Doctor's work so that when they join the medical school, they know what is expected of them.

Similarly, the participants who were studying Engineering stated that ignorance about the Engineering programs contributes to the low enrollment in Engineering programs. These participants also admitted that they too had a very limited view of the program they joined. Moreover, unlike those who want to study Medicine and who receive support from society as a whole, those who want to study Engineering are not only discouraged but are also doubted. These participants said that wherever they admit that they are studying Engineering people make all sorts of remarks. Some tell them that Engineering is a profession for men and others ask if they can make it. But they think that all these questions and the doubting are a reflection of people's ignorance about what Engineering is, and the fact that women can also study Engineering just as they do other subjects.

The lack of career guidance and counseling is also reflected in the fact that participants have little knowledge about the university programs that are compatible with their subjects of specializations. This study shows that the most unpopular and the less known programs are the SUA programs. This could be either because students are not told about them or because of the way they are constructed. Many of the SUA programs, such as Food Science and Technology, which Jenny who scored all D joined, require lower grades than most of the MUCHS programs. It is possible that most participants did not intend to join the SUA programs because they had higher career expectations. This also implies that joining the SUA
programs means that the participants have lowered their career aspirations. However, after joining these so called “alternative” programs, these participants have realized the value of these programs. One of the participants who had started to like her SUA program said that to start her own business in fruits and vegetables would require less money than a Civil Engineer or a Doctor starting her own business would require.

Some participants who are studying Engineering were discouraged from engineering and instead were advised to study Medicine. They were told that Engineering was too difficult for them because they are women. One Engineering student was asked by her mother, “Do you mean to tell me that you are more intelligent than your brother who is studying [commerce] business?”

Most of those who were encouraged to pursue science by their parents said that it was their fathers who advised them to study science and to pursue higher education. “My father” was frequently given as the response to the question, “Why did you join this program?” These participants also said that their mothers played a minor role in their decisions. Some participants explained that the low profile assumed by their mothers in their education could be because of their mothers’ low level of education, lack of familiarity with the education system, lack of economic and decision-making power in the family and in society and the overall low status accorded to women’s ideas and views in Tanzanian society. They stressed that even when a mother does offer advice to her daughter, such advice may not be implemented until sanctioned by the father. This maybe why some participants did not seem to care about what their mothers thought about their education. In the absence of the father, male relatives such as brothers and uncles, even distant uncles and neighbors were more influential in the participants’ career decisions than their mothers. Sisters were infrequently mentioned as having had any significant influences on the participants’ educational and career decision making experiences.

These observations indicate, therefore, that personal interest alone, without the emotional and economic support from the family, particularly from the father, is not enough to ensure that a girl/woman pursues higher education, especially in fields such as Engineering which is still considered by many as a male profession.

According to Osaki (1997), secondary school teachers in Tanzania often channel students into subject combinations “which they can manage.” This implies that teachers
assume that when a student scores a 98% in History or Biology the teacher sees this as an indication that the student is interested in pursuing a career in either law (98% in History) or Medicine (98% in Biology). But based on the interviews a bright student may easily score in a subject in which she is not interested, or she may have an overall good performance and she will therefore need to have the freedom to choose which subjects to study at the higher levels. Moreover, as some study participants indicated, when they were in secondary schools, they did not know the difference between Arts and Science subjects or the link between school subjects and future professions. What is needed is career education instead of teachers deciding what is good for the students.

Despite the tendency for some teachers to disregard students' views about what they would like to do in the future, a few of the participants said that their teachers advised them to choose subjects which they would manage, and also depending on what they plan to do in the future. But there were also participants who were advised by their teachers to study subjects which were not of their choices and which did not apply to their career goals.

It also appears that most of the participants who relied on their teachers' advice were those who either did not get such advice from their fathers or those whose fathers had less than secondary level education. Although most of these have rural backgrounds, Cecy belongs to this category because she did not get much career advice from her father, and although her mother was supportive, she has primary education, hence not highly educated. “Go and ask your parents” may have no meaning for students whose parents know nothing about modern careers, be they in the sciences or the Arts. It is this group of students who need career guidance and counseling the most.

I also observed that some of the teachers who were supportive to students’ career interests did so without adequate professional training in career counseling and without sufficient knowledge about scientific and technological programs available at the university level.

**Career Guidance and Counseling**

Students’ ignorance about university programs was stressed by the study participants and many of their teachers who said that some undergraduate students join programs they do not know anything about and when they are in the middle of the program, they want to drop
it and take another one. It was for this reason that the research participants and their teachers emphasized the need for career guidance and counseling in Tanzanian schools so that students can get career guidance and counseling before they join the university. It was stressed that a department of career guidance counseling should be established so that professional career guidance counselors, teachers and parents could work together to promote and guide a student’s career aspirations throughout the student’s schooling career. Research on girls’ career aspirations in other countries such as Kenya (Eshiwani, 1988) indicate that high school girls’ limited view of careers influences their career options. But in Tanzania, career guidance and counseling as a profession does not exist and instead, students depend on significant others such as parents, family members, peers and secondary school teachers. But most of them are not well informed about university programs and they often give their advice without paying much attention to students’ career aspirations. Many of the study participants stressed that teachers in particular, and the Ministry of Education and Culture in general, should learn to listen to students when they indicate interests in specific subjects based on their career goals. The study participants pointed out that some teachers prevent students from taking certain school subjects and tell the students that they will not pass if they study such subjects. Many participants, especially those who did not intend to join their current programs, emphasized that some teachers ignored their choices because they think that students do not know what is good for them. It was noted that there is a need for a department of career guidance and counseling staffed with professional personnel. If career guidance and counseling services were available in schools, these participants would have chosen school subjects which would have enabled them to plan their careers well ahead of time. There would be no need for some of them to say that they joined their current programs as “the only alternative” or “just to get a degree,” which indicates that they regret their career decisions they made.

**Policy, Funding and the Curriculum**

The findings of this study indicate that some of the factors that influence Tanzanian women to join specific undergraduate programs are policy- and school related. These include but are not limited to funding, educational policy and its commitment to gender equity in
education, curriculum options available to girls and the administration of education. These aspects of educational policy and school-related factors are discussed in the following section.

**Schools and the Curriculum**

Historically there have been more schools for boys than for girls in Tanzania (Hongoke, 1991). That historical fact has not changed and has, over the years, been reinforced by the Ministry of Education’s decision to create more science options for boys than for girls. According to the records from the Ministry of Education and Culture, by 1997, there were only 14 girls’ secondary schools offering science curriculum options for girls in comparison to 31 such schools for boys (Ministry of Education, 1997). In addition, girls have less curriculum options than boys and more dead-end curriculum options. For instance, the Physics, Geography and Mathematics (PGM) combination is not available to girls, instead the Chemistry, Biology and Nutrition (CBN) is only offered to girls. There are also more Advanced Secondary Schools that offer the Chemistry, Biology and Geography (CBG) (a dead-end) subject combination to girls than boys. It was noted that most of those who studied the CBN and CBG combination subject combinations found out too late that they could not join most of the university programs because they did not study either A-Level Mathematics or Physics, which are prerequisite for most science- and technologically based undergraduate programs.

Thus, the seeming popularity of the Doctor of Medicine program that was observed in this study and in Brock-Utne and Possi’s study (1991) is partly a reflection of educational policies and systematic gender inequity in education. On the surface, it appears that many girls in Tanzania want to be doctors, but there seems to be a hidden message from both the Ministry of Education and Culture and the Ministry of Science, and Technology and Higher Education that the main science profession open to women in Tanzania is Medicine. This message is implied in the number of Advanced Secondary Schools that offer science subjects to girls. For instance, there were 6 Advanced Secondary Schools offering the Physics, Chemistry and Biology (PCB) combination compared to 3 offering the Physics, Chemistry and Mathematics (PCM). And, most students who study the PCB subject combination, there is only one way to go -- to Medicine. This situation is reinforced by advice from significant others, such as parents, teachers, peers, who tell the students studying the PCB subjects that
they will become doctors. But the participants and those who advised them to study Medicine, had no idea how many students are actually admitted into the Doctor of Medicine program in relation to the number of candidates, the entry qualifications or the nature of the work involved. With this limited view of career information, the research participants who studied the PCB subjects at the Advanced Secondary School level aspired to go to university for only one reason, namely, to study Medicine.

On the other hand, girls/women who wish to study Engineering are not widely encouraged nor supported. Most of female Engineering students are seen as “unique” or “strange,” and those who persist, like the FoE participants, are doubted and asked whether they can make it. But, when they excel, they are told that male teachers must have favored them. These negative views seem to reinforce the societal attitudes of educational policy makers. These attitudes are reflected in educational planning which allocates fewer schools and science options for girls at the advanced secondary school level, especially the PCM combination that is a requirement for many of the science-based careers such as computer science, electronics and engineering.

**Poor Teaching and Inadequate Resources in Secondary Schools**

Many participants said that their performance in the national examinations (the Certificate of Secondary Education Examination and the Advanced Secondary Education), was influenced by poor teaching and inadequate resources in secondary schools.

Jenny, more than other study participants, insisted that poor science teaching at the primary and secondary school levels which ignored the importance of practical experiences contributed to her poor performance and prevented her from being accepted into the medical program. She was not taught laboratory work because of the lack of science equipment and the chemicals needed for laboratory experiments, due to a reduced budget for education as a result of the Tanzanian government’s decision to implement the Structural Adjustment Program. Like many others, Jenny never intended to join the Food Science and Technology program. She had to do so because it was one of the few options available to her instead of Medicine, which was her real goal. She particularly blames her poor grades in PCB on poor teaching in her school.
The Form Six Examination was so terrible. First, when I went to do the Form Six examination I had not done any practical [laboratory work] in Biology, and then Physics... As last minute kind of thing... we did [laboratory] experiments two weeks before the examinations... and we had not done any practical whatsoever in Chemistry... So one might say, "In future I want to study Medicine," and she may prepare herself, but then things like these come along and prevent her from achieving what she has aspired to... After all, if I had passed the practical examination, if it had not interfered and reduced my marks, by now you would find me studying Medicine...

Jenny pointed out that, like most of the students who study in boarding schools in Tanzania, she had no access to after-school tutorials (tuition). She did not even know what it is called unlike students in urban areas who have attended tuition classes since they were in primary school. These participants included the former Special Students who also had poor teachers. They also said that they almost entirely depended on tuition when they were preparing themselves for the Form Six examinations. These participants stressed that their performance would have been much better if they had good teachers and adequate facilities.

The study participants and their teachers agreed at least on one thing -- that science teaching from the primary school to the secondary school level has contributed to the participants' limited understanding of science at the university level. And more specifically, that the "Alternative to Practical" approach to teaching Science in secondary schools has contributed to poor understanding of scientific concepts, principles and skills as reflected by students' poor performance. The participants explained that the Alternative to Practical approach involved learning Science without doing laboratory experiments. They told me that this policy was introduced by the Ministry of Education and Culture because of the reduction in the government budget for education. One participant ironically referred to this approach as "learning science through scientific imagination."

It was noted that teachers of one secondary school subject, Physics were cited by a number of the study participants as the most problematic. These participants had not attended the same school and they included the former Special Students such as Lily, Barb, Chiku, Cecy and Zena, who said that their Physics teacher did not teach them. Instead, he used to tell...
them that because they are special, they do not need to be taught but are expected to know. In order to keep their grades, they attended tuition in Dar es Salaam during the holidays.

Many other participants said that they too had more problems with Physics teachers than with teachers of other subjects.

Sifa and Bahati, who attended another school, said that their class never understood what their Physics teacher taught and that was why the whole class used to attend tuition immediately after class. Bahati, in particular, said that if she had not attended tuition, she would have failed Physics completely. Sifa on the other hand, said that she used to like all school subjects but she started to hate Physics when she joined Njiapanda Secondary School. She was so bitter about the way the Physics teacher taught that she said, such a teacher should not have joined the teaching profession.

Students who attended different schools, also said that in general, they found it very difficult to understand the way Physics was taught. Others said that in addition to having problems understanding Physics, they particularly found it difficult to apply Physics in their everyday living situations.

Manka, a Home Economics and Human Nutrition participant from SUA who is between 20 and 24 years old and whose parents are peasants added another important observation about her physics teacher. In addition to what was said by others Manka said that her Physics teacher used to favor the students he taught privately in their homes [tuition or private tutorials], most of whom were Indians and Arabs. It appears that the teaching of science subjects such as Physics could have been more affected by budget cuts than other subjects which do not require as much equipment. A review of examination results published by the National Examination Council of Tanzania, 1996), indicates that Physics was one of the subjects in which girls’ performance was very poor; the other subject was Basic Mathematics. But often it is assumed that girls’ poor performance in these subjects is due to their own lack of interest, low motivation to work hard or lack of cognitive ability in these subjects.

University teachers who took part in this study also said that their students were lacking in basic scientific and mathematical concepts as well as precision and laboratory skills that they should have acquired before joining the university. A similar concern is raised by Leshabari and Masesa (1997) who stress that poor science teaching in primary and secondary
school levels in recent years has resulted in poor medical education at the Muhimbili University College of Health Sciences (MUCHS). Leshabari and Masesa attribute this poor quality of education to a reduced government budget for education.

**Grades and Selection**

It had been said that the Tanzanian education system is one of the most selective systems in the world (University of Dar es Salaam, 1995). Selection of students into various secondary school subject combinations is based on academic performance and begins at the end of the seven years of primary education. At this level, students are selected to join one of the following secondary schools: Agricultural, Technical, Special and regular secondary schools. The names of these subject biases indicate their biases, hence a technical secondary school focuses on technical training while an Agricultural Secondary school also focuses on agricultural education. Although most of these schools teach the common subjects as well (Osaki, 1997), a subject like History is not taught in Agricultural or Technical secondary schools. The main weakness of such a decision is that students are denied access to subjects that Ministry of Education policy makers think are not important to the students. The Special Secondary Schools differ from the regular secondary schools in that they have better resources and facilities such as teachers, classrooms and laboratories. But they follow the same curriculum as the other secondary schools.

The second selection occurs at the end of Form Two when students are placed into the subject blocks based on their Form Two examination marks. Those who score the highest marks are selected to study Science subjects, the rest are selected to study Arts, Commerce and Home Economics. The girls who have the poorest performance are usually selected to study Home Economics, a subject not available to boys.

The third selection takes place at the end of four years of secondary education when those who perform well are selected on the basis of the results of the Certificate of Secondary Education Examination. This selection chooses those who have the highest marks to study Science subjects at the Advanced Secondary School level. These are also among the future university candidates.

Some Tanzanian educators may see the selection process as the best way to ensure objectivity and they might even convince others that the selection process follows
international standards. But what is usually not questioned in Tanzania, is whether this process does reflect students’ career interests? Writing about the “Curriculum and Quality of Education in Tanzania,” Osaki (1997) points out the following:

Most students are advised by their teachers to join streams in which they have the capability to perform well. Some teachers give students the right to choose their own preference irrespective of performance. In some schools, the selection is strictly done by the teachers according to the performance of the student, in order to ensure that students are channeled into options they can manage (p.12).

The last sentence in Osaki’s quote is where selection becomes problematic. Most of the study participants had an overall good performance in most of their subjects. For example, Fortu and Zena performed so well that they did not know which subject combination to choose. Their teachers allowed them to choose what they wanted to study based on what they wanted to do in the future. According to the practice of some teachers as described by Osaki, however, students should be “channeled into options they can manage.” But I differ from the view expressed in Osaki’s quote basically this so “channeling” done by some secondary school teachers in Tanzania is based on an assumption that students [especially female students] do not know what they want to do in the future. And, because it is generally believed that girls in particular, are not interested in mathematics and the natural sciences, such “channeling” is done to prevent some girls from studying these subjects which they can not “manage.” There were at least four study participants who were “channeled” to study the Chemistry Biology Geography subjects combination which their teachers believed they could “manage” even though these students had better performance in the Physics, Chemistry and Biology and they wanted to become doctors. When these students made efforts to change from the CBG to the PCB combinations, two of them were asked by their teachers [including a Headmistress of a Girls’ school] whether if they studied the PCB subjects they were “sure that they would pass?” The unstated question would probably “will you manage?” Even if the students were sure that they would pass, it is not easy for a student, especially a female student whose academic abilities are doubted by most people to tell a teacher or a head of the school: “Yes, I will pass.” Many of the study participants said that they were often asked: “Will you
make it?” These are good examples of the very narrow and sexist expectations of what girls/women can do. It is for these reasons that I support the point made by some of the participants who said that the selection process needs to take students’ career goals into account.

**Societal Influences: Difference**

**Race and Ethnicity**

Issues related to difference in this study were observed in students’ family backgrounds particularly in terms of racial, ethnic, religious, socio-economic backgrounds as well as rural and urban differences. Most of the participants of this study are Africans and a few are Asians (Arabs and Indians). Some who come from interracial backgrounds described themselves as “Swahili.” Historical literature on Tanzania indicates that Tanzania has never attracted many Europeans and therefore their population has been very small. It is interesting to note that all the Indian participants attended private schools, and all of them enrolled in the Muhimbili University College of Health Sciences. It was also noted that there was no Indian participant in either the Faculty of Engineering at University of Dar es Salaam, or at the Sokoine University of Agriculture. Two of the three Indian participants who are Shea Moslems said their community does not support women’s participation in higher education. They were able to enter their university programs mainly because of the support they received from their families, especially their fathers.

These participants said that according to their religious beliefs, they are not allowed to eat food cooked by people who do not belong to their community. It was evident that they had much support from their families. One of them said that she gets food from her sister and the other did not live on campus. They also said that although they consider themselves Tanzanians, their utmost allegiance was with their Bohora and Indian community. These participants also stressed that upon graduation they expect to serve not the Tanzanian nation as was the case with “African” Tanzanians, but their Bohora and Indian communities.

As pointed out in Chapter Two, the Tanzanian economy has historically been dominated by a small Indian community. But in everyday living, the interaction between the

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60 Present-day Tanzania Mainland, formerly known as Tanganyika, was never a popular place for Europeans, Germans and British alike.
Indian community and the African community is limited to specific areas such as the following: Africans are the main customers of Indian shopkeepers and some few Africans are employed by Indians as low cadre employees such as house servants, drivers and watchmen. In the education sector the Indian community has maintained private schools for their children [which a few rich Tanzanian Africans often attend] or sent them to India or Britain. All the Indian participants in this study attended private secondary schools. Some of the participants [Africans] raised concern that in some urban schools with multiracial school populations, Indian and Arab students in particular pay teachers to teach them privately in their homes after school (tuition or tutorials) and that these teachers in turn tend to favor the Indian and Arab students. Although it is believed by many that the only thing for which Tanzania is internationally given credit is its racial and ethnic harmony, the present research findings suggest that there is a need to examine issues related to difference especially in terms of privilege and equity in education as experienced by students from diverse social groups in the country.

This study did not intend to make any generalizations, but there is a need to point out that although 35 of the 120 Tanzanian ethnic groups and three racial groups were represented in this study, the majority of the study participants are from two ethnic groups, the Chagga (from Kilimanjaro region) and the Haya (from Kagera region). As observed earlier, the TADREG report (1990) pointed out that although no study had been done, educational statistics indicated that the Chagga and the Haya were over represented in Form Five enrolments. Likewise, two of the Faculty of Engineering studies, (University of Dar es Salaam, 1995, 1993; Winkler, Hartman and Schomburg, 1992) studies indicated that since the Faculty of Engineering was established in 1970s, most of its graduates have come from Kilimanjaro (26%) and Kagera regions (14%). Writing in a different context, Almasi (1993) (citing Mbilinyi, Mbughuni ,Meena and Olekambaine, 1991; Mosha, 1989; Malekela, 1983; and Omari, 1983) reported that his study indicated that university students came from what he refers to as, “Developed Regions,” which also include Kilimanjaro and Kagera. The other “Developed Region” is Mbeya, which had only four participants in this study. Almasi argues his findings were consistent with the findings of other studies that indicate that equal access policies tend to benefit mostly developed regions.
But, it is also noted that in the case of the Kilimanjaro region, there is a need to go a bit deeper and ask why is it that the Chagga, who are such a small ethnic group are so over represented in education in comparison to the Sukuma for instance who are demographically the major ethnic group in Tanzania as pointed out in Chapter Two. Rodney (1972) argues that the education map of Tanzania corresponds to the map indicating the cash crops. But if we take Rodney’s argument, the Sukuma should be over represented because they too have been growing cotton since the colonial era. It is also in regions mainly populated by the Sukuma (Shinyanga and Mwanza) where minerals such as diamonds and gold are found. But the Chagga, threatened by land shortage (Raum, 1940) and supported by missionary preference for the Kilimanjaro region, the coffee economy and the popularity of the Kilimanjaro Mountain as a tourist attraction, Kilimanjaro region in general and the Chagga in particular were more able to afford Western education than most ethnic groups in Tanzania. It can also be argued that unlike most ethnic groups, the Chagga seem to view education as an investment whether it is for sons or daughters. I am not aware of any Tanzanian study that explored the relationship between ethnicity and education but based on educational statistics, most of the educated people in Tanzania are Chagga and Haya, in that order. Thus their over representation in this study is not an isolated situation. This observation is supported by research and historical data. For instance, in 1965 girls were 31% of the Standard Seven students in Kilimanjaro region but at the national level, girls were 24% of the total enrolment of those who completed Standard Eight in 1965 (Dubbledam, 1970). Similarly, in 1996, Kilimanjaro (region) with over 28,000 Primary School Leaving Examination candidates, had more students than any other region in Tanzania. (National Examination Council of Tanzania, 1996).

It is for this reason that the Tanzania Research Development Group observed in 1990 that it appears in Tanzania that ethnic [along with gender] backgrounds might be more influential in one’s chances of educational success than any other factor. But they did not examine how religion might interact with race, ethnicity, gender and social class [among others] in influencing a person’s access to and success in education. It was also noted that none of the study participants who have Chagga backgrounds, either through their mothers or fathers, were Moslems.
Religious Influences.

Both the German and British colonial rulers allowed missionaries to focus on girls’ education while the few government schools which existed, were boys’ schools. These few government schools became the model for later schools, which were aimed at educating boys to be messengers, junior government clerks and tax collectors. Rodney (1972) describes the purpose of colonial education:

The main purpose of colonial education was to train Africans to help man [staff] the local administration at the lowest ranks and to staff the private capitalist firms owned by Europeans...Colonial schooling was education for subordination, exploitation, the creation of mental confusion and the development of under-development...(p. 264).

Although Christian missionaries made important contributions in girls and women’s education in Tanzania, they were also responsible for the introduction of a gendered curriculum for girls, which focused on domestic skills such as sewing, cooking and cleaning. I speak from experience because I too attended a Mission school and I still recall that we had to borrow mens’ trousers and shirts from the neighboring village and then we would be taught how to mend, wash and iron them as a preparation for being future housewives. Although many curriculum changes have been introduced in Tanzanian girls’ education, many remnants of the old system are still reflected either in the education policies or societal attitudes towards what is considered an ideal type of education for Tanzanian girls and women.

Islam on the other hand paid more attention on religious teachings (madras) and very little mundane education [Elimu Dunia] was promoted by the Arabs who introduced Islam in Tanzania. Moreover, early and arranged marriages were encouraged hence limiting girls’ access and participation in western education to the lower levels. In addition, while male Moslems could study religion and occupy decision making positions within the Islamic power structure, such opportunities were not accessible to women, in the past and at present. Although there were many Mission schools which Moslem children could also attend, many Moslem parents were suspicious that their children would be converted into Christianity. This fear was based on observations because Christian missionaries used the provision of social services such as education, and health to attract new converts. This implied that for the
majority of Moslem girls in Tanzania, in rural and urban areas, the only option left for them was to get married and [if they were lucky], get children and raise them. The findings of this study suggest that this situation has not changed significantly although these findings are not representative of any specific group of Tanzanians except those who took part in this study who were mostly Christians (85%) and a few Moslems (15%).

Socio-Economic Backgrounds.

Some of the participants pointed out that because most of their mothers have lower levels of education than their fathers, they have a limited view of the education system and the professions available in Tanzania. Although the “rich” class is growing in Tanzania as a result of the government’s decision to embrace capitalism, the class structure is not yet clearly defined. But based on the observation made in this study, there is a close association between levels of education and careers. For instance, most of the mothers of the participants have primary education and most of them are also either peasant farmers or housewives. In contrast, the majority of the fathers of the participants are distributed into two occupational categories: professional and technical and agricultural occupations, (26%). This observation confirms official labor statistics that assert that more women than men are employed in the agricultural sector (United Republic of Tanzania, 1995). But such records also point out that, because of their low level of education, most women who are employed in the agricultural sector are employed either as laborers or work in family farms as peasant farmers and housewives. Family farms belong either to the women’s husbands or sons. The labor statistics report also points out that men who work in the agricultural sector occupy the administrative or skilled and technical positions.

Moreover, this study revealed one interesting observation in relation to parental occupations, namely that most of the study participants who have a rural background were enrolled in the agricultural related programs at SUA. Although no generalizations are intended, this observation seems to support what was reported by Almasi (1993):

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61 The term “housewife” as applied in rural areas in Tanzania includes married women who are engaged full-time in agricultural production in the family farm or as laborers. In urban areas the “housewife” might also be engaged in some kind of income generating activities such as cooking and selling food in open spaces (Mama n’tilie).
A greater percentage of the respondents whose fathers belonged to professional, business and material job categories tended to enrol in medicine, law and commerce than those with parents belonging to the peasantry. On the other hand, a larger proportion of students whose mothers belonged to the professions tended to enrol in science subjects, medicine and engineering in contrast to respondents with professional fathers. The association between program of specialization and parental occupation appeared to be stronger for mothers (p=.05) than fathers (p=.13) (p. 123).

Almasi’s observation partly clarifies why more of the SUA participants have peasant fathers than the MUCHS participants. Moreover, his observation that a larger proportion of students whose mothers belonged to the professions tended to join the sciences, medicine and engineering is also interesting, although his definition of “professions” is not very clear. It is possible that he includes what I call here “associated professions,” such as teaching and nursing which in the present study include a diverse type of semi and professional occupations that employ people with primary, secondary and university educational backgrounds.
Experiences in Undergraduate Programs

Apart from reflecting on their career decision making experiences which took them a few years back, the research participants were also asked to examine their ongoing experiences in relation to what they anticipated when they joined their programs. In the following section I discuss what seemed to be the major concerns of the participants as indicated in the research findings in Chapter Five.

Cost-Sharing at the Personal Level

Shao, Kiwara and Makusi (1992) and Mbilinyi, (1994) discuss the effects of the implementation of Structural Adjustment Programs (SAPs) in Tanzania at the micro level. Ironically, cost-sharing in education was introduced when family incomes were dwindling. Moreover, not much attention has been paid on the effects of SAPs on the quality of education especially after government budget cuts on public education. Students, like other Tanzanians, differ in terms of material resources available to them despite the political emphasis on equity based on the principles of the Arusha Declaration (Nyerere, 1967). But the implementation of the SAP in education, in the form of cost-sharing did not acknowledge the fact that some students have parents who are salaried professionals while others did not. Thus, when viewed at the individual level, cost-sharing was like a punishment to some while the more privileged students might have seen the loan money from the government as an additional donation. This was noticeable when I visited some of the halls of residence where a few students had expensive music systems, television sets and video cassettes, electric cookers, and refrigerators, to name but a few, while others like Maggie, could only afford to buy a bottle of Coca Cola for lunch. Thus while Tanzania preached equality under Arusha Declaration a few years ago the country had completely embraced a capitalist culture by late 1990s. The gap between the rich and the poor was becoming easily noticeable and that is probably what we ‘need’ in order to “develop.”

The same kind of widespread poverty could be observed in any part of the Tanzanian society as indicated in one of my field notes: One day I went to buy stationery at the Tanzania Elimu Supplies (TES), a books and stationery store that is the official supplier for school and other educational materials in Tanzania. The TES is a parastatal organization under the
Ministry of Education and Culture like the Tanzania Institute of Education (TIE). I quote the following field note that I wrote on that day:

When I entered, six TES employees were sharing boiled groundnuts [peanuts] and talking about something I could not hear but I heard two words, “no money” when I went closer. As I was going into the shop, one of the TES employees was approached by a street vendor, popularly known as Machinga in slang Kiswahili or Mchuuzi wa nguo in more conservative Kiswahili. The street vendor was selling shirts. Apart from me, there were two men, I think they wanted to buy books. I went to speak with the TES employees who were eating groundnuts. I told them that I needed to buy some notebooks. One of them, the younger one, put aside his nuts, rubbed his hands against each other [to clean them] before coming to listen to my request. I told him that I needed to buy two notebooks, 1 exercise book and a writing pad. He sold these to me...When he was done, I asked him for the prices of other items such as the Map of Tanzania, and an Atlas used in Tanzania schools. He told me that these were out of stock, and added, “The last time they were available was in 1985 when Tanzania was given a grant by Sweden to publish them.”

There was no need to ask more questions because it was then that I recalled the 1970s when TES was created. We could get all our education supplies from there, but now it appears that employees are paid more for opening the store, than selling school supplies. This experience was another confirmation that lack of basic teaching and learning materials is not limited to the university level, it affects the whole education system, from the primary school to university.

Survival for Basic Needs. One of the major problems facing the study participants and one which consumed much time in this study was about cost-sharing, especially about the book and meal allowances that students get. They said that these allowances are not adequate and often come late. Some insisted that they can not concentrate in their studies because they have to think about where to get money for food. Others said that in order to survive they bring sacks of maize, rice and beans from home when they come to college and a few said they have self-imposed diet plans that consist of only one meal a day. These study participants
explained that a meal to them could be anything from a plate of beans cooked with dry maize (known as mukande in Kiswahili), rice with cabbage, a drink of Pepsi-Cola or just chewing candy or sweets (pipi kifuia). Some faculty members at the Muhimbili University College of Health Sciences were concerned that many of their students go to class hungry and they feared that this affects their ability to concentrate in class and would affect their health in the long run. But the majority of the teachers did not seem to know much about the well-being of their students and instead maintained that most students are not serious with their studies.

Most of the participants from the three campuses said that they do their own cooking in their rooms, the so called “self-catering.” The SUA participants said all students cook their own food. That was why the cafeteria was closed many months ago, due to the lack of customers. They added that most female students prefer to buy and cook their own meals, a few of them and most of the male students, form groups of between three to six students and employ female workers, known in Tanzania as “House Girls, in short, HG,” but more popularly known at SUA as Mercury (a translation of the HG, scientific symbol for Mercury). The Mercuries buy and cook food and clean. It was interesting to note that these “cost-effective” survival strategies designed by the students also have a “gender” component. The SUA participants said that the Mercuries are not trustworthy and they [the participants] prefer to buy and cook their own food. These participants also insisted that female students do not cook for male students as generally assumed by some university officials. I noted that participants’ survival choices are a reflection of their gender roles, because unlike the male students, female students have the cooking skills and experience that acts to their advantage and disadvantage. Knowing how to cook gives them the advantage of being in charge of their food needs. But it is also a disadvantage because they can not free themselves from the kitchen as easily as male students do so that they can let someone else cook for them while they study.

Buying food, cooking and cleaning take away most of the participants’ study time and it damages the environment of the halls of residence which were not built for this purpose [food storage and cooking] and is against university by-laws. But, these participants argued that they buy their food in bulk, they cook while studying, and, this is the best way to minimize costs, allows them freedom to choose what and when to eat (and also, how often),
in other words, take control of their food needs. Still, they would have more time for studies if they did not have to be concerned about self-catering.

**Academic Survival and Resistance.** The effects of the lack of educational materials are reflected in the teaching and learning process which is teacher-dominated and students almost entirely depend on teacher’s lengthy notes. But students seem to have taken control of the situation by devising their strategies which enable them to survive in this rather harsh academic environment. Their strategies fall into two main categories: survival and resistance. At first I found it difficult to believe what the study participants told me with so much confidence and without fear. I was more scared than some of them when they described how they get around without being detected by teachers and others in authority. Often it appeared that I was much like one of them and that they did not feel threatened to talk about some of these strategies. One day, for instance, while I was waiting for one of their teachers, I overheard two students talking about an assignment. Their conversation went as follows: the first student (female) asked the second student (male): “Have you finished your assignment?” And the second student replied “Yes.” And the first student asked, “From whom did you copy?” But after asking that question both of them looked at me and laughed.

Some of the research participants said that they go to class not to learn but to copy notes. Later they cram these notes and get ready to reproduce them in tests and examinations. Others said that based on how much teachers cover in one lecture, they do not think that they are expected to learn but just to copy the notes. This is what Freire (1972) calls the “banking system of education,” but it goes beyond the depository method of teaching to a situation where students literary cram word for word and reproduce it in examinations. To make things worse, many teachers were not aware that students actually cram their notes and reproduce them in tests and examinations.

Many participants complained that their timetables are too compact, pointing out that this becomes more serious when they are given assignments. These participants said that because they are usually given too many assignments, that are impossible to complete, they have devised something which the participants from the University of Dar es Salaam and the Sokoine University of Agriculture call *kudesa/madesa*. This has a more “scientific” name at the Muhimbili University College of Health Sciences where it is called *Symbiosis*. The participants explained that *Kudesa/madesa or symbiosis* basically means copying. They said
one can copy a whole completed assignment from another student or from past papers done by others in previous years with a few modifications (to fool the teacher). Many teachers said they had never heard about these terms. But all the students that I interviewed knew what these words meant. Their main concern was that if the teacher suspects that a male and female students have copied from each other, the teacher is more likely to punish the female student even when it is the male student who has copied from the female student. Ironically [not aware of these academic survival strategies], some teachers said that their students are better in written than spoken English.

The students I interviewed said that they were aware of the effects of some of these strategies on the quality of education that they were receiving but they had to use these strategies in order to pass examinations. They particularly said that they were aware that the poor quality of education they were receiving could limit their future career opportunities because they do not understand most of what is taught. But they argued that all they needed at the time was only to pass examinations and get their degrees.

Another strategy employed by students to survive academically is solidarity. Solidarity among the students (male and female) is a popular technic. In fact it is one of the foundations upon which students rely to shift the location of power from the teacher to themselves, [that is], to male students. This solidarity goes beyond the gender divisions. All students would unite against any teacher. On the positive side, students (male and female) often study together and carry out group discussions. They assist each other by allowing one another to copy notes, assignments or even examinations answers. The study participants said that they fear male teachers more than male students because teachers have to give them degrees or to fail them kunyaka\vukamata.

An analysis of students’ silence in class indicated that silence is complex but it can also be a form of solidarity among students against the teacher. It is a kind of shield or curtain to prevent the teacher from knowing what the student(s) know or do not know. Some of the study participants said that it is very dangerous to speak in class or to ask questions because that will give the teacher an indication of what the student knows or does not know. They said that teachers use these cues to decide about questions to ask in the final examinations. In this study students employed silence to express their refusal to co-operate with the school or teacher. Acts of resistance included cheating in a variety of forms, including cramming,
copying and or doing the examination as a group with leaders who give signs about the right answers. All these are aimed at shifting the academic power from the teacher as representative of institutional authority to the students, particularly, male students. On the survival side, students compliment teachers’ notes by participation in their group discussions and they assist each other in areas of difficulty. For example, it was the general practice in some classes that no student should answer the question posed by the teacher to the rest of the class. And if it so happens that the whole class can not answer a question or solve a problem, say in an assignment, the Class Representative (CR) will send a delegation of at least three students to the teacher, but no student should go to see the teacher alone.

**Gender In and Out of the Classroom**

Research done on classroom interaction in the US (Sandler and Hall, 1980; Sadker and Sadker, 1991 and Africa (Levitt, Bloch and Soumare, 1998; Brenner, 1998) has revealed that gender inequality exists in the classroom. Similarly, Gadalla (1998) and Walkerdine (1989) argue that classroom studies, especially in the study of Mathematics and the sciences are related to gender identity. These researchers stress that gender identities are socially constructed and are influenced by political and economic agendas. This argument is supported by other researchers who point out that gender roles and identities are socially constructed and are continually being contested through social interactions in new settings such as classrooms, school compounds and university campuses (Thorne, 1993; Wilkinson and Marret, 1985; Anderson-Levitt, Bloch and Soumare, 1998; and Brenner, 1998). This argument is more convincing than the biological and motivational theories in explaining women’s participation in mathematics and science, because it focuses on how power influences social interactions when some people have more power than others, more particularly the power of the teacher in a classroom situation where the teacher is dominant.

Some of the observations of these studies were confirmed in my study, for instance, many of the study participants said that they do not feel free to interact with either their teachers or the male classmates. But unlike the findings reported by studies done in other countries, the male students in the classes I observed did not overtly dominate classroom interactions in a physical sense. Instead they used more subtle means to achieve that same goal such as by nicknaming female students who speak in class, whistling to prevent female
students from asking questions or making contributions in class and during group discussions. Those described by Maggie as “hyperactive” are nicknamed and widely talked about or punched. Female students’ silence in the classroom can be seen as reflection of the “hidden domination” of male students. The participants said that their silence in class was mainly due to fear of their male classmates and their teachers. In addition to being marked down and caused to fail by teachers, like the male students, if they are outspoken in class, the female students also fear that speaking in class or seeking assistance for academic problems from teachers at their offices, could lead to being verbally intimidated or Punched by male students.

There were also some variations with class size. For instance, I noted that in the smaller classes teachers and students interacted more than in larger classes. Although he did not examine gender relations in the classroom, Astin’s study (1965) revealed that college environment is affected by the proportions of students and faculty in various fields. On the basis of this finding he concluded that the nature of the environment in any classroom depends on the field of study, regardless of the particular college attended. Classrooms reflected poverty experienced by students and their teachers and in terms of lack of the basic teaching and learning materials that are taken for granted in other countries.

But in addition, female students’ silence in this study can be viewed as a form of students’ solidarity against the teacher, especially male teachers. This becomes clearer when one listens to students’ narratives more carefully. For instance both at MUCHS and SUA, the study participants said that when a student speaks in class without getting the approval from the other students, mainly male, she/he might be given a warning by the CR. The need for this kind of solidarity among male and female students makes gender analysis complex because on the surface, it might appear that there is no gender specific differences between female and male students.

But underneath this apparent mutual understanding and co-operation, there was mistrust and denigration. The study participants who were interviewed and who took part in the focus group discussions at the three campuses stressed that their male colleagues do not see them as equals. For instance a female student’s contribution in a group discussion is not valued in the same way as the one made by a male student. Male students tend to ignore female students’ contributions until supported by male colleagues. Likewise, in Students Association meetings, male students jeer at female students who attempt to express their
views and tell them to sit down and listen to male students. Two specific incidents were given as examples of the hidden mistrust that underlies the female-male student relationship. Both examples are from the University of Dar es Salaam Main campus. The first one occurred in 1990 when a female student committed suicide due to alleged harassment by male students. The second incident took place towards the end of 1996 when a group of male students broke the doors of female students’ rooms and forced them to attend a Dar es Salaam University Students Organization (DARUSO) meeting.

Participants from the Faculty of Engineering explained that in their faculty male students laugh at students who make what are considered “illogical” comments or ask “illogical” or “non-Engineering” questions. Participants pointed out that although both male and female students are laughed at, most female students find it very difficult to participate in-class and out-of-class discussions for fear of being laughed at.

The female students from the Faculty of Engineering were particularly concerned that their male colleagues believed that whenever they get high marks, they do so because they get extra marks “for being women.” This means they have sexual relations with male professors who teach these courses. They stressed that this is very annoying and demeaning to them because they work harder than some male students. Besides some of these female students graduated from Special Secondary Schools for the Gifted. They wonder how some male students who came from regular secondary schools cannot imagine that female students can have better performance than them.

**Teachers' Views About Their Students**

Many teachers whom I interviewed said that students passive role in the classroom is due in part to their inability to communicate in spoken English and due to their poor understanding of the basic mathematical and scientific concepts. Some of the teachers said that if you ask a university student to speak in class, it is like punishing her/him. These arguments are quite convincing and for some time I believed that the teachers must be right.

But one of the female teachers I interviewed presented a different point of view. According to her, “some female students go to great lengths to activate sexual relationships with young faculty members and men in authority for expectations that they would be married by these men and have good economic lives” (an extract from Dr Gogadi’s interview, 1997).

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This female teacher cited some names of female students who had successfully activated relationships and had already been married to male teachers. It is unfortunate that even the female teachers — the very people who should be mentors and role models for the female students also share some of these sexist myths about female students.

Also, Dr Jimmy (pseudonym), one of the male teachers I interviewed said that he was once approached by a female student who had scored poorly in a test. Dr Jimmy said the female student presented herself in a manner which seemed to suggest that she was ready to have a sexual relationship with the professor in order to get a better grade than the one she had previously obtained. He told me that he was so much offended by the behavior of the female student. He stressed that he is a one-woman one-man kind of guy who highly respects family values but the female student seemed to suggest to him that his morals were low and that was what bothered him the most.

Most of the participants refuted both incidents saying that they had not come across anything like that. They insisted instead that they would do all they could to avoid any direct contact with their teachers for the same reasons mentioned above. They were also concerned that their teachers do not care about their success. One student described the teacher-student relationship as a “tug of war,” another called it “a slave-master” relationship. Other students said that some of their teachers want them to know how important they are. Hence in order to achieve this goal teachers “terrorize” students. Participants said that this process starts very early when they come in the first year and continues throughout their life at the university.

The Intern Doctors who took part in this study shared most of the experiences of the research participants. Dr Katarina for instance, insisted that teachers do not like to have many students in the classes they teach. If this is true it implies that little teaching that can facilitate students’ learning is done in the classroom. It can also be argued that students’ cheating practices in examinations and assignments are closely linked to their belief that teachers are basically not fair. It is for this reason that cheating can be viewed as a form of resistance. At one of the campuses this kind of resistance has been codified for use in examinations where first and second year examinations use the notorious “Multiple Choice Questions (MCQs). The five fingers on one’s hand are coded from A to E, so that thumb=A, the index finger =B and Baby finger =E. This plan usually involves the “knowing student” to sit in the middle of
those who do not know, and as he/she lifts one finger slightly, the others check that on their answer sheets.

**Students' Views**

The study participants did not always share some of the arguments made by their teachers. For instance, most of the participants attributed the “culture of silence” to a number of factors, apart from poor English skills, as claimed by many of their teachers. These include the fear of being “caught,” as they put it, meaning to be penalized by the teacher for asking him/her challenging questions. They referred to this term as *Kukamatwa* in Kiswahili. Others said that although the fear of being “caught” affects both female and male students in all the three campuses, there are other factors that affect female students only. For instance, unlike male students, female students live in the fear of being asked to have sex with male teachers. If a female student is very “vocal” in class, the male teacher may interpret that the female student is attracting his attention because she is interested in having a sexual relationship with him. Participants emphasized that this may lead to being “caught” in examinations and may cause one to fail. Most teachers argued that failing one subject cannot lead to a student being “discontinued.” But students stressed that they live in fear that their teachers might mark them down and contribute to their failure in the UE and be discontinued.

Besides, if a female student frequently asks questions in class or goes to see teachers in their offices, male students may attribute her future success in that subject to her sexual relationship with the male teacher.

**Sexual Harassment**

Sexual harassment was more implied than stated by the study participants. Unlike in western education, sexual harassment is a foreign concept in African and Tanzanian culture. Many of the research participants, for example, did not know what is meant by the expression “sexual harassment” and some of them had a very limited view of sexual harassment. Those who had some knowledge of sexual harassment equated it to rape and violence. Others thought it was what is known in Tanzania university campuses as *Mzee Punch*. But during the

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62 The term “discontinue” (disco) is used in Tanzanian universities where it means to have one’s studies terminated, or to be expelled from the university.
interviews many of the participants described certain behaviors of male students and some male teachers which can be defined as forms of sexual harassment.

Looking back might be useful in order to understand the present. Thirty year ago, Dubbledam (1970), when summarizing his research findings, said that one of the three main reasons why Sukuma parents were hesitant to send their daughters to school was, “the fear of unwanted sexual relations of the girls” (p. 133). Many changes have occurred in Tanzania since Dubbledam wrote his research report. For instance, many parents in Tanzania, [especially fathers as this study has indicated], encourage their daughters to attend school, to study science subjects and pursue higher education. Moreover, the study participants indicated, they all want to get their degrees and seek employment so that they can attain economic independence. But problems about sexual harassment are not widely discussed, although it is known that female university students might experience verbal harassment, abuse or be punched. I was told that punch is an anonymous group of people who scrutinize private lives of individuals for purposes of embarrassing them by publicly displaying this private information on walls. It is a type of personality assassination. Two of the participants at the Sokoine University of Agriculture narrated their personal experiences of being punched. One of them was punched and the other received a warning that she might be punched if she did not change her behavior. Some participants who had no personal experience with it felt that punch was a good way of correcting immoral behavior, although they too were concerned that it is only female students who are punched. Participants wondered why male students who misbehave for example, after excessive drinking-are not punched.

The participants also stressed that they avoid teachers because they fear that some of their teachers might want to ask them to have sex with them whenever they like. Based on the interview responses of these participants, it appears that this does happen, but students are too scared to tell any one for fear that they will fail the courses taught by the teachers who harass them. Moreover, unlike in other countries where sexual relations between teachers and students are illegal, in Tanzania, laws like those do not exist.

**Language, Identity and Knowledge**

**Language and Knowledge.** As pointed out in Chapter Two, English is the medium of instruction in higher education in Tanzania. It was also pointed out in Chapter Two that
Kiswahili is the official and national language of Tanzania. Historically the popularity of the Kiswahili language has threatened the widespread use of the English language. But many efforts have been made to eliminate Kiswahili and replace it with English, or at least down grade it to a language of the uneducated masses. This is partly why many suggestions about using Kiswahili as a medium of instruction in higher education have always met with strong resistance from the elite members of the Tanzanian society. This was evident in the views expressed by most of the study participants and some of their teachers who argued that Kiswahili has a limited vocabulary and is not adequate for use in higher education, particularly in the sciences and technology. Others said that it would be too expensive to translate some of the huge medical textbooks into Kiswahili. So they stressed that although the decision would be a very patriotic one and would promote the fast development of Kiswahili into a medium of instruction in higher education, they do not support such a move.

However, an examination of some of the study participants’ writing in their open-ended questions in the questionnaire explains why most of them copy assignments from their friends. Their poor oral English skills were implied in their decisions to be interviewed in Kiswahili rather than in English, the language in which the questions were originally posed. Only eight participants opted to be interviewed in English. These views indicate that although Tanzania became independent almost 40 years ago, cultural imperialism has yet to be eradicated. Dei (2000), writing about the role of indigenous knowledges in the academy from an anti-colonial discursive framework, states the following about the role of local languages like Kiswahili in knowledge production:

As a theoretical perspective, anti-colonialism interrogates the power configurations embedded in ideas, cultures and histories of knowledge production and use...‘Colonial’ is conceptualized, not simply as “foreign” or “alien,” but rather as “imposed” and dominating (p. 117).

Dei further stresses that the anti-colonial approach uses the indigenous knowledges as an entry-point. He argues that local and native languages play an important role in the education of the young and the “study of language and literature, in nurturing, supporting and publishing...Indigenous writers in the academies and Indigenous literary circles, encouraging that work not only be reflective of the cultures but also written in local languages” (p. 117, citing Thiong’o, 1986).
Based on the views expressed by the study participants and most of their teachers, Tanzania has a long way to go before Kiswahili is accorded its rightful place in the academy.

Although not many studies have been done to explore the issue of language proficiency in higher education in Tanzania, I came across one study by North (1985) on language proficiency and First Year Achievement, which he carried out at the University of Dar es Salaam. North points out that English might be a second or fourth language to some Tanzanian students. He argues that such a situation makes a lot of demands on the students’ ability to master the English language, apply it in a classroom situation so that s/he can understand lectures, note taking, write academic essays and read advanced textbooks in specialized fields such as Engineering and Medicine. North points out that proficiency in English is a highly significant factor in academic achievement:

Every student who fails to complete his [her] university education represents a waste of national resources, and when failure is due primarily to linguistic rather than intellectual deficiencies, [it is] a waste also of individual talents badly needed in the national development of high level manpower. For this reason, development of the language skills required for academic study should be seen as an important part of the university curriculum, contributing to the successful training of specialists in all disciplines (p.38-39).

The University of Dar es Salaam has a communications skills program which participants and their teachers find useful. However, it must also address individual students’ needs as well as specialized needs of students in specific departments or programs. Some believe that it should be taught by people who are also specialists in the specific fields of study such as Medicine and Engineering.

Most of the study participants refused to attribute their silence in class solely to their poor oral communication skills in English. But they agreed that the use of English as the language of instruction at the University level in Tanzania, makes learning more difficult than it should be, mainly because they have no opportunity to speak English except in class. In their efforts to encourage students to speak in class, some teachers use both English and Kiswahili, but without success. It was interesting to note that as soon as the class was over, everybody, including teachers, switched over from English to Kiswahili.
Identity and Knowledge

The politics of identity are well documented, especially in relation to education. Dei (1995) points out in relation to the education of Black students that most Black students found it difficult to express their personal and cultural identities. Bloch, Beoku-Betts and Tabachnick (1998) also argue that identities are fluid and are constantly being constructed. Bloch et al de-construct the term African women in order to allow for the possibility of heterogeneity of experience and fluid identities. Mohanty (1989) also stresses the significance of identity in feminist scholarship, in her discussion about Indian and third world women. Citing the women’s cultural and historical diversity in India, Mohanty argues that while Indian women who have diverse religious, castes and class backgrounds might unite against police brutality for example, an analysis of the police brutality, must be contextualized. She points out that strategic coalitions which construct oppositional political identities cannot be based on universalistic, ahistorical categories. Mohanty’s argument is very useful in the analysis of the findings of the present study of the factors that influence the career decision making and experiences of the Tanzanian female undergraduates. It implies that the findings of this study also have to be contextualized within the diversity of culture and the historical experiences of the participants as part of Tanzanian society and in relation to the education system of which they are products. As such, the expression “Tanzania female undergraduates” used in this study does not refer to a homogeneous group of female students. Rather it is a diverse group of students who differ from one another in religion, ethnicity, career goals and programs of study, social economic backgrounds and schooling experiences among others. Most people in Tanzania believe that these differences are not relevant in their everyday living. But the findings of this study indicate that although halls of residence, friendships are not officially organized on the basis of religion, ethnicity, or even gender, these sites of differentiation position the study participants differently, privileging some and disadvantaging others. For instance some of the study participants felt alone and had no friends and they did not belong to any discussion groups. Some of them said that discussion groups were organized along secondary school alliances. Others said that some teachers favor students from their ethnic groups. Moreover, most of the participants said that male students did not like belonging to the same discussion group with female students and even when they did, the
female students felt that their contribution in the group discussions were not valued in the same way as the contributions made by male students.

Therefore although female students may form group solidarity with male students against say the government' with regard to inadequate meal allowance or against teacher authority the analysis of these issues have to be contextualized. Students like Laila who get extra money from home may not understand how anybody can depend on the meal allowance while others like Maggie who survive by drinking a Pepsi Cola for Lunch because she can not afford a plate of rice with boiled cabbage see the meal allowance issue as their most serious problem threatening their survival on campus.

Similarly, there were cases where students in one program said that their teachers terrorize them by giving them failing grades, but in another department in the same faculty, teachers were praised for being in good-working relationship with their students. This does not negate the commonalities that tie all second-year Tanzanian female undergraduates or commonalities based on religion, geographical or ethnic backgrounds. Dei (1995) refers to this term as "group identity." Group identities unite male and female students who have things in common, they may also isolate those who have nothing in common with others. In this study the second-year Tanzanian female undergraduates in one campus did not share some of the views or experiences of the study participants in other campuses, this was particularly evident in the discussion about Mzee Punch. The MUCHS participants for instance, said that they were not exposed to Mzee Punch, although as Laila described, they experience a verbal form of sexual harassment which on further analysis, seemed to be just as intimidating as the Mzee punch experience. These are some of the examples of what one can observe when such experiences are viewed as specific, local historical and culturally situated.

**Representation**

Morrel (1999) describes representation as a process through which the "real" world is given meaning. She further points out that it is through representation that we both construct and represent a particular reality that has both subjective and objective dimensions. It is the second use of representation that I discuss in this section. Writing in a different context, Weiler and Middleton (1999) emphasize the need for an author to consider the ways in which s/he is implicated in the choice of what is represented, the uses of evidence, the
representation of “the other.” In this case, I must consider the female student” or “the second-year Tanzanian female undergraduate” and my own position [as a researcher] in relation to my study participants or “subjects.” Weiler and Middleton caution that in representation, the writer or researcher is often faced with the danger to write more about her/himself than about those s/he is studying or writing about.

Bearing this advice in mind, there is a need to point out that in my case, the situation is different because, although I was educated through the same education system, I am also aware that I do not share most of the experiences of my “others,” such as their experiences in undergraduate programs where they are a minority. Because I hold both an insider and outsider position, I do not claim to represent their experiences in the same manner that another educated Tanzanian woman who has a training in their respective programs would have done. I have tried as much as I can, to make their concerns, arguments and views central in this study as I explored, described, analyzed and tried to interpret these experiences in order to understand their significance in higher education in Tanzania. I am also aware that my role as a researcher gives me some kind of power and privilege which I would not have had without being in that position. This implies that although I may see myself as one of them, my identity and subjectivity are shaped by my researcher role which sets me apart from my research “others.” Weiler and Middleton (1999) point out that the focus on the ways women are represented in discourse is crucial because of the patriarchal nature of ideology and language.

The issues of language, power and representation have been widely discussed by many Third World and African feminist scholars also, especially by Bloch, Beoku-Betts and Tabachnick (1998) who point out that their study of women and education in sub-Saharan Africa is premised on the belief that language shapes and describes social life. They point out terms such as women, education and sub-Saharan Africa, carry certain meanings that together shape peoples’ beliefs about social life in what is known as “third world.” Bloch et al point out that the westerner’s representation of the “average” third world women as “other” has employed negative terms such as “ignorant,” “poor,” “uneducated” and “victimized” and many more in contrast to western women who are educated, modern and who are in control of their lives and can make decisions. This description is very similar to the representation of Tanzanian female students in the research literature as “failures” (Malekela, 1997), or as “not
interested” in the study of Mathematics or the Sciences, (Galabawa, 1996). This identity of a failing school girl who needs to be encouraged to like mathematics and science is generalized to all girls and women in Tanzania and is used to solicit funds from foreign donors. While I am aware that many Tanzanian girls who show initial interest in mathematics and science do not pursue these to the higher levels for a variety of reasons [speaking from personal experience], I advocate an alternative reading of Tanzanian female students schooling experiences which as Bloch et al (1998) stress [in relation to women in sub-Sahara Africa], takes into account the multiple representations of Tanzanian female students. As the findings of this study have indicated, the study participants were among the best students and some of them were among the Gifted students. But even these labels did not prevent some male students and men in the community to doubt the academic competencies of the study participants and to attribute their success to favoritism by male teachers because of alleged sexual relations.
Power

Dei (1995) points out that issues of authority and power especially in African settings, are often described in terms of respect. In my study, issues of power and authority were mentioned frequently in relation to how teaching and evaluation of students’ academic work were done, as well as in terms of the overall teacher-student relationship. Most of the study participants used expressions such as “to be terrorized” or laughed at by teachers who feel insecure either because they are too young or incompetent, or they use their expertise power to demand respect from the more experienced and mature students. Some teachers were aware of this misuse of authority and were quick to point out that some of their colleagues make the students feel so scared that they do not ever dare to ask a question, even when they do not understand what is being taught [but they would not admit it themselves!!]. Some students are scared and believe that they can not do anything because the teacher has the power to give them the degree or not. This feeling creates fear and as some participants said, it becomes dangerous when some male teachers purposefully mark down female students whom they want to use for their sexual pleasures. Apart from being a misuse of power, sexual harassment of female students by male teachers places the health of these students at high risk of being infected with sexually transmitted diseases such as Aids HIV or facing the problem of unwanted pregnancies.

As I pointed out when discussing resistance, most students have devised their own means of survival. Some of these strategies are damaging to them, such as cheating, but they help them survive academically in the short run. Teacher avoidance, if I can call it so, was a common strategy at all the three campuses. Most teachers I interviewed and others I met in corridors and staff rooms were so sure that their students do not speak in class due to poor oral English skills. These teachers also said that most of their students do not seek help after classes because they are not serious with school. But students’ interviews and focus group discussions show that most students spend most of their time in their studies and they are very well organized. Each of the student that I intervieweed gave me her list of activities from the time she wakes up at 6 am until she goes to bed at 1 am. These students also said that most of their teachers have little or no time for them because many of them are busy doing consultant research to supplement their meager incomes when their students expect them to be teaching. I therefore wonder how many teachers work that hard on their teaching jobs? But
unlike the students, teachers have the power to make decisions about students and they often do so based on their assumptions that students are not serious with their studies.

At the students’ level, male students enjoyed a certain amount of power, particularly in relation to the regulation of the behavior of the female students in and outside of the classroom. Most of the positions of responsibility, such as Class Representatives (CR) were mainly held by male students. The CR position does not carry any benefits but the CRs have more direct contact with the teachers and the students than any other student. Moreover, if a student answers the kind of general questions which students do not usually answer, it is the CR who is expected to warn the student. Therefore, holding a CR position has its own power privileges from the students’ point of view.

In the three campuses, the top positions in the students’ organizations, heads of departments and many other decision making positions were held by men. There is a commonly held view in Tanzanian society [even among women] that women can not lead. This does not mean that there are no token female leaders here and there, but as a general rule, many Tanzanians willingly elect a man rather than a woman to a position of authority even when the man does not qualify for the position. Therefore, women’s absence in positions of power is not an indication that they cannot lead, but it is proof that the society does not want to be led by women. For example, during my field work at the University of Dar es Salaam, an Engineering student who could hardly make a speech in English was elected the President of the Dar University Students’ Association (DARUSO) because he is a man. The Engineering students who took part in this study, who were among those who had elected the male student instead of the sociology female student, said that they elected the Engineering candidate because if the female sociology student was elected, the male students, especially the Engineering students, would give her a hard time. But during the focus group discussion, some of the study participants who had also elected the male Engineering student, said that after the elections they overheard some male Engineering students saying that it would have been a “joke” to have a female student as president of DARUSO. Barb said that it was then that she realized that there is a need for a solidarity among female and male students should be made to realize that university education is not only for them. Female students have the right to study in a peaceful environment and to lead just as male students do.
Attitudes Towards Women

In her analysis, Barb argues that the reason primary school boys get along well with the girls is because at this stage, the boys are still not gender sensitive. But by the time they are in secondary school, they have assumed adult roles like those of other males. Barb said that this is why many male students find it difficult to accept female students as their equals in and out of the classroom. It seems that many people, including male students, are more at ease with the identity of a failing woman, one who does not excel. But once they encounter a woman who excels, one who does not fit the “failing woman identity,” that they have been socialized to accept as an ideal woman, they have difficulties. This observation is supported by the experiences of many participants who have been discouraged to pursue their career goals. Often they were asked, “Will you make it?” The Intern Doctors, for instance, said that many people do not believe that they are doctors, not because they are incompetent, but because they are women. Hence the surprise response, “So you are Doctors?” seems to carry the unstated view that women are expected to be nurses, not doctors.

Similarly male students assume that their female classmates are less intelligent than them simply because they are women. I argue that this perception of women as failures has to change and women should be given space to be what they are capable of being—be it lawyers, foresters, pilots, surgeons, mechanical engineers or nurses.

These observations indicated that while there is much talk about the need to encourage women to join the male dominated professions such as Engineering and certain specialized medical professions, many people in the Tanzania society still hold negative attitudes towards women. Some participants especially those from the Faculty of Engineering and at the Muhimbili University College of Health Sciences for instance said that they feared that they might not find employment in their fields of study because of negative attitudes towards women Engineers and Medical Doctors. They pointed out that female professionals in their fields are doubted, despised and not accepted as equals by male professionals and employers. I have also become aware that in Tanzania, there are laws which prevent the employment of women in certain professions (United Republic of Tanzania, 1992). Some participants from the Faculty of Engineering cited their Industrial Practical training experiences. Some employers state openly that they would not employ female Engineers because women are given grades without working for them. Many employers would use all the excuses they have
to refuse to employ women of a childbearing age for instance. Some may justify their decisions by saying that male laborers at the construction sites are not prepared to be supervised by female Engineers.

Likewise, the Intern Medical Doctors I interviewed said that even some patients address female doctors as “nurses.” One of the Intern Doctors described her surprise when, after discharging one of her patients, the patient addressed her as nurse and asked her to call the doctor for her so that she, (the patient) could be discharged. Yet another Intern Doctor told me about one of her professors who advised her to pursue graduate studies in Pediatrics. She wondered why the professor did not advise her to specialize in Surgery. The three Intern Doctors also told me that the security guards at the Hospital Entrance also doubt when female doctors say that they are doctors. The Interns said that male doctors go through the same entrance without being checked because they carry their white clinical coats to indicate that they are doctors. But when female doctors do the same, security guards ask them for ID cards.

All these experiences indicate that most people are mentally not ready to see women in these new roles, which have been assumed by many to be male roles. This also implies that there is a need to focus not so much on the girls, but on the society. This study has shown that if given space, girls can excel just as well or better than the boys. Some of the participants said that they need to be accepted as equals and to be respected as competent professionals in their respective fields of study. They said that they are tired of always being required to prove to others that they can “make it.”

But at the heart of all this denial and even ridicule, it could be argued that men who feel insecure use psychology to make women doubt themselves, have low self-confidence and fear. They do this to ensure that women do not join male-dominated, better paid and secure jobs in the sciences. These behaviors are then taken as natural character traits of women and in turn used to explain women’s low participation in higher education, particularly in the sciences and technology where they are most under-represented. In Tanzania for instance, the education system from primary to university has accepted girls’ and women’s low performance in examinations as a fact that can not be analyzed. Educational decisions are made to reflect this reality. For instance, Almasi (1993) points out that girls are admitted into secondary school with lower marks than boys. There is a similar strategy at the University of Dar es Salaam which as Muhando-Mlama (1997) explains, was introduced by the university
to increase the number of women in higher education. These strategies could have been useful on a short term basis while more lasting ones were being sought and research is done to find out why girls perform poorly in national examinations. But instead the short term solutions are viewed as permanent, hence suggesting that girls’ and women’s poor performance in examinations is their own fault or is due to their natural constitution as women and nothing can be done about except to lower their marks in various levels of education.

On the other hand, the few who perform well are either viewed as exception (or “Special) or told that they are favored by male teachers who are their sexual partners. Based on the findings of this study, it appears that there is a need to shift the focus of our attention from the many failures to the few successful cases so that we may learn from their examples and use that to increase women’s participation in higher education. The research findings also indicate that there is a need to focus more on societal attitudes rather than on the girls as failures. Most of the research participants had a keen interest in education, particularly in higher education. They did not need to be encouraged but rather to be accepted, supported and freed from being doubted, despised and ridiculed so that they can think in peace and pursue their professional goals.

**Family: Present and Future**

It was noted that over 30% of the research participants came from interethnic family backgrounds, while one came from an inter-racial family background. It was further observed that some ethnic groups such as the Barbaig, Fiome, Makonde, Yao, Jaluo, Ndali and Zaramo among others, were only listed as father’s but not as mother’s ethnic groups. There could be many explanations, but one of them could be that educated men from ethnic groups which are less represented in education tend to seek wives from ethnic groups which have more educated women, such as the Chagga, Haya, Sambaa and Nyakyusa. If this is true it could imply that ethnic groups which have fewer educated women are in the process of being integrated into those with more educated women, although intermarriages are not always influenced by education. The purpose of this study is not to make universal generalizations, however, this observation indicates that the possible relationship between women’s participation in education and interethnic marriages needs to be further examined. For instance, one might explore the factors which motivate women and men to marry outside their
ethnic groups and explore how or whether inter-ethnic marriages influence women's education choices and experiences; does it relate to the girls’ expected future opportunities in marriage or career? Does it influence their experiences at the university?

When responding to the question about their anticipated spouses, many of the participants said that they expect to marry men who are older than themselves and who have higher education. Many of them also said that they expect to marry men from any ethnic backgrounds but stressed that their husbands should be of the same religious backgrounds as their own. This is also an interesting observation because it seems to suggest that the research participants are likely to be more tolerant of ethnic than either religious or social class differences. This could imply that as far as these participants are concerned, religion and social class differences are important in their everyday lives than ethnicity.

Although not the majority, some of the participants said that they expect their husbands to support them in their pursuit of higher education and professional development. But almost none of them made any suggestions which challenge the existing patriarchal family structure in which women do most of the house chores while men dominate the decision making process.

Many of the participants said that the only form of marriage they know is that between a woman and a man (heterosexual). Many of them seemed to take marriage for granted or as something “natural.” It was very common to hear them reply to the question about whether they plan to get married with such answers as “of course” or “that is obvious.” But a few said that if having children outside marriage was not a taboo as it is in Tanzania, they would prefer to have children without being married. These participants were convinced that marriage takes away a woman’s freedom because married women have to do things according to their husbands’ wishes. They pointed out that after working so hard to get a degree, they would not allow anybody to interfere with their careers. Others said that some men abuse their wives regardless of the wives’ education or profession. A few of the participants were aware that they might be forced into divorce if they marry abusive men. It was for this reason that some of them said that they prefer to have only one child. These participants explained that they would not be able to take care of more than one child on their own in case they are divorced.
The majority of the study participants said that they expected to combine careers with family responsibilities (marriage, child bearing and housework). However, most of them were planning to postpone marriage until they complete their studies and would make sure that they are well established in their professions before they get married. They emphasized that they attach a lot of weight to the need to achieve economic independence before marrying and having children. Economic independence would ensure that they could take care of themselves and their children. These participants stressed that economic independence is paramount to their success. The intention to delay marriage and child bearing in order to pursue higher education and economic independence has its price for women as studies in other countries have indicated. For instance, Hijab (1988) found that Gulf girls were aware that “any woman going to post-graduate work knew she was taking the first step to spinsterhood” (p. 128). This observation seems to support what Laila, one of the Zanzibari participant who also comes from a Moslem background like the Gulf girls was concerned about when she said that none of the Zanzibari men would like to marry a doctor. Similar concerns were expressed by the Intern Doctors who said that one of the factors which limited women’s participation in the medical field was the need for female doctors to choose between family and career advancement. But many participants seemed naive or ignorant about the implications of combining family and career responsibilities. Also, they did not seem to imagine that family responsibilities are not the speciality for women but are the responsibility of all members of the family including fathers, husbands and brothers. These research participants did not seem to be aware that in other parts of the world, many women are able study or work outside the home because social services such as child care and kindergarten schools are available.

Summary

Many Tanzanians, including a few women, have acquired higher education since Tanzania became independent in 1961. The present achievements should be appreciated in relation to historical experiences under colonial rule. It was not a very long time ago when it was believed by a few colonialists that offering education to Africans was like, “throwing pearls to swines” (Rodney, 1972, p. 300). But underneath this racially loaded remark was the fear that educated Africans would bring an end to colonialism, and maybe they were right in
a sense, if not end it, at least change its strategies. I could also argue that women have historically been denied university education because it is feared that highly educated women will demand equality, to be seen and treated as human beings.

In his famous book, *How Europe Under-Developed Africa*, Rodney continues:

> On the whole, colonial schools remained subtly indifferent to the 20th century. New ideas that were incorporated into the capitalist metropolis never reached the colonies. In particular, the fantastic changes in science did not reach African classrooms, for there were few schools where science subjects were taught. Similarly, the evolution in higher technical education did not have any counterpart in colonial Africa (p. 270).

Rodney’s argument can be better understood when viewed in relation to the current World Bank higher education policy for Africa that directs African countries like Tanzania to promote Primary education in order to develop by producing more cotton, coffee without using much technology, provided the country pays the debt. Moreover, all the basic social services in the rural areas such as water, health and transport which are taken for granted in urban areas, are not available in the rural areas. Thus Tanzania continues to be “an agricultural country” depending on unskilled female labor, most of whom have primary education and have no legal rights on the land they use for agricultural production. And, as other nations go to space, Tanzanians and other Africans who are poor, are encouraged to go peasantry. So one might ask, when then will Africans like those in Tanzania ever need higher technological education? In particular, when will the Tanzanian women ever need higher technological education? Or, do Africans, specially African women, need higher technological education?

Rodney stresses that, to advocate women’s education in African countries like Tanzania, implies that employment opportunities for the highly educated women should be made available. However, this study indicates, many people in Tanzania are still caught up in the colonial era when the few women who obtained education became secretaries, teachers and nurses. Barb, one of the Engineering participants, pointed out that Tanzanian society has constructed an image of an educated Tanzanian woman “as secretary.” It is for this reason, Barb suggests, that many people find it difficult to accept other women such as those who are Engineers for instance, who do not fit the expected gender roles.

As pointed out in Chapter Two, colonial education and higher education in particular, was used to prepare those who were expected to be civil servants. And looking at the way
colonies were administered, the civil service was for men (Rodney, 1972), thus the use of the word “manpower” development. The current policy makers and administrators in Tanzania still view the civil service, higher education and technology as “male” fields where a few exceptional women might be admitted, but not accepted.

One of the questions posed at the beginning of this study was: How do we come to an understanding of the role of women in higher education in Tanzania as a result of exploring the career decision making experiences of the participants of this study? The study confirms that although women as a group are under represented in higher education, particularly in science and technology, there is an urgent need to take a multiple approach when examining women’s participation in higher education. Although writing in a North American context, Dei (1999) argues that there is a need to affirm the context in which differences are produced. He suggests the need to dislodge from such power relations. One of the weaknesses of studies of gender inequity in education in Tanzania is the view of girls/women as permanent homogenous categories and their failure to examine the significance of the differences among girls and women in terms of women’s participation in higher education. This study indicated that although the participants had many things in common and shared experiences, they also differed from one another in terms of their religion, ethnicity, their parents’ education and occupations, the type of schools they attended and the kind of programs they joined at the university. These differences position them differently in relation to schooling and career decision making experiences. And although on the surface it appears that all girls in Tanzania have equal access to higher education, there is a need to answer a number of questions: For instance: How come that the majority of the study participants are mostly Christians? Why is it that two of the 120 Tanzanian ethnic groups: the Chagga and the Haya are over represented in this study? And, how come that only one of the MUCHS participants comes from a peasantry family while 19 of the SUA participants have parents who are peasants? This study was not aimed at making generalizations. However, based on what was said, it can be speculated that higher education in Tanzania is hierarchically organized such that the Medical students were more likely to be highly regarded, the engineering participants were seen as “strange” while the SUA participants in general, and the Home Economics and Human Nutrition participants in particularly, were looked down upon not only by other students, but by the Tanzanian society in general.
Chapter Eight: Emerging Themes, Conclusion and Recommendations

Personal Factors

Interest

This research has indicated that one major personal factor which influenced the participants’ decisions to join their current programs was their own interest. Most of those who said that their decisions to pursue higher education was motivated by their interest in Mathematics are studying Engineering. However only a small portion of those interested in either mathematics or Biology were able to pursue undergraduate program such as Engineering and Medicine which required competencies in these two subjects. The observation that only these subjects seemed to be the most popular ones is an indication of the participants’ narrow or limited view of careers in general and undergraduate programs in particular.

The findings of this study have also shown that a much larger group of the participants is made up of the participants who liked Biology and wanted to study Medicine. While a few of these were admitted into the Doctor of Medicine program, the rest were selected to join other programs. Most of the SUA participants and some of the MUCHS participants who are not studying Medicine are those who did not qualify to study Medicine that is, those who had poor performance in their Advanced Certificate Secondary Education Examination (ACSEE). This observation implies there is a need to find out why female students who are interested in mathematics and science subjects fail to qualify for undergraduate programs of their choice.

Career Advice from Significant Others

Due to lack of career guidance and counseling within the education system in Tanzania, many participants obtained career information and advice from a variety of sources. Some, especially those whose fathers have a post secondary education, said that their decisions to choose the Science subjects and to pursue higher education were influenced by their fathers. Although most participants got a lot of support from their mothers, only a few participants said that their mothers gave them direct advice or assisted them in their decisions about which school subjects to take or whether to pursue higher education. Some explained that a mother only suggests and the father decides. There was also one participant who avoided a career in Engineering because she hates her abusive father who is an Engineer.
Other participants who were not advised by their fathers or mothers, said that their brothers or other male relatives and family members encouraged and advised them to study science subjects and to pursue higher education.

Although teachers are influential in shaping students' career interests, it was noted that the participants who relied on career advice from teachers were those who did not get such advice from home. Some of these participants said that their teachers prevented them from joining the science combinations of their choice, which would have made them eligible candidates for programs of their interest. Also, although some teachers willingly offered career advice to their students, they did so without adequate information about university programs and without professional training in career guidance and counseling. Other participants said that they obtained such advice wherever it could be obtained. These include Sifa, a Doctor of Medicine participant who said that by watching a television series, she was able to know about the nature of a doctor's work. The other is Nyina, who was brought up by her elder sister. She learned from a street flower vendor that selling flowers is a profitable business. Nyina analyzed this information and convinced herself that if the street vendor who was not highly educated could make a living by simply selling flowers, what if she studied Horticulture and established her own vegetable and fruit business? It was then that Nyina decided to study Horticulture at SUA.

**Policy and School Related Factors**

**Curriculum Options**

An analysis of educational records indicates that in Tanzania, there are more secondary schools for boys than for girls. By 1997 there were 31 boys' secondary schools which offered Advanced Certificate of Secondary Education science options but only 14 such schools for girls. This study has also indicated that there are more Advanced Secondary Schools that offer the Physics, Chemistry, and Biology combination (PCB) to girls than any other Science combination available to girls. Students who study the (PCB) subject combination are those who aspire to be doctors. Moreover, while Physics, Geography and Mathematics is available to boys, it is not available to girls. Instead, the Chemistry, Biology and Nutrition (CBN) subject combination which has limited career options is only available to girls.
School Type

Most of the participants of this study completed Form Six in Government Girls' Boarding\textsuperscript{63} Secondary schools (80.8%). Among those who were interviewed, seven were Special Selected Students (gifted). And, four of the five participants who attended Private Secondary Schools (Boarding and Day), are enrolled in MUCHS programs. Also, 3 of the MUCHS participants who were interviewed said that they attended schools in other countries. But in contrast, none of the FoE participants completed Form Six in a Private Secondary School. Moreover, none of the Special Selected Students (gifted) was enrolled in any of the SUA programs. These observations seem to suggest that although the numbers of participants from each campus was different, the FoE and SUA participants seem to have much in common in their socio-economic backgrounds which reflect more rural and less urban settings. In contrast, most of the MUCHS participants come from a non-rural but more urban and interracial and middle-class backgrounds.

Teaching in Secondary Schools

The majority of the study participants who completed their Form Six in Government Secondary schools said that their performance in the Advanced Certificate of Secondary Education Examination (ACSEE) was affected by poor teaching in secondary schools. They said that their performance was poor because they were taught science theoretically and, consequently, they had no practical skills. This observation supports a comment made by some teachers who said that many of their students lack a conceptual understanding of scientific principles, precision and laboratory skills and have poor mathematical backgrounds. These participants and their teachers attributed poor teaching in secondary schools to poor funding that is reflected in shortage of teachers, lack of teaching and learning resources such as textbooks, science equipment and chemical agents required for laboratory experiments.

Many participants cited Physics as a secondary school subject that is poorly taught and whose teachers are difficult to understand. One Doctor of Medicine participant in particular, said that she still finds it difficult to know how to apply Physics. Some of those who

\textsuperscript{63} Participants who attended Day Schools in urban areas but stayed in hostels such as Jangwani in Dar es Salaam, are included in this list because Forms Five and Six Students are usually admitted into the hostel while those who are in Forms One to Four stay at home.
completed Form Six in urban secondary schools said that tuition classes, which they attended after school, enabled them to achieve better examination results, particularly in Physics.

Poor teaching was also one of the problems experienced by the former Special Selected Students. They too said that their performance would have been much better if the Ministry of Education had made better plans for them as Special students. For instance, they emphasized that there were no Special teachers who had been trained how to teach Special Students. They also had problems with their Physics teachers, and the tuition classes they attended during the holidays assisted them to pass the Advanced Certificate of Secondary Education Examination.

**Choice or Selection?**

Most of the participants were selected to join their undergraduate programs based on the marks they obtained in the ACSEE. But only the Engineering participants and many of the Doctor of Medicine participants seemed to be satisfied with the selection outcomes. With the exception of a few, such as Shukuru who sought a degree of Home Economics and Human Nutrition for over 20 years, the majority of the SUA participants were not happy with the way selection is done (especially at the Secondary School level). They stressed that teachers decided to select them for various science combinations based on their marks. But the teachers did not pay much attention to the participants’ interests or to their career aspirations. While answering the question, “Why did you join your current program?” Some of the SUA participants said that they were “pushed” into these programs because they did not qualify for any other program, thus they “ended up” at SUA.
Lack of Career Guidance and Counseling

Before joining their current programs, most participants had a very limited view of careers available to them. Their experiences confirmed that career guidance and counseling as a profession does not yet exist in Tanzania. Instead, teachers select students on the basis of examination results. Students who score highly in Science subjects and Mathematics are selected to join Special Schools while the second group of those who have high marks in the final examinations are selected to study various Science combinations. Within the Sciences, the combinations which do not include the study of Mathematics such as Chemistry, Biology and Geography and Chemistry, Biology and Nutrition, are the most limited in terms of career opportunities. Due to lack of career guidance and counseling and due to poor advice from some of their teachers, some of the participants who studied CBG discovered rather late how limited this Science combination was.

Most of those who studied the PCB combination were so sure that they would be admitted into the medical program that they knew nothing about other programs. Moreover, some of those who joined programs of their choices, especially Engineering and Medicine, also knew very little about these programs. It appears that the overall negative perception of the Sokoine University of Agriculture is also an indication of limited view about careers in Science.

Moreover, the hierarchical value of university programs, which seems to indicate that the Doctor of Medicine is a popular undergraduate program at MUCHS, is in fact a reflection of the number of Advanced Certificate of Secondary Education schools which offer the PCB combination, which is greater than any other Science subjects accessible to girls in Tanzania.

Some participants of this study pointed out that ignorance about university programs, admission requirements and lack of career guidance and counseling contribute to women’s low participation in higher education in Tanzania, especially in the Science and Technology programs.
Societal Influences

Societal influences are not easy to identify even in a qualitative study like this one. However, it was noted that societal factors that might have influenced the participants’ decisions to pursue higher education in their current programs were reflected in their family backgrounds and in societal attitudes towards women and female professionals. But many of the participants made conscious efforts to contradict societal views about what careers are either appropriate or suitable for them as women. It is also interesting to note that none of the participants joined a career similar to that of her mother, even those whose mothers have a university education. During the interviews some said that after a careful analysis of their fathers’ and mother’s occupations, they preferred careers similar to their fathers. The exception in this category was Cecy who avoided Engineering because it is her father’s profession.

Also, what is notable about the participants of this study, what sets them apart from their peers, is their strong determination to prove others wrong. One of the Electrical Engineering participants described herself and her female colleagues as “persistent” or ving’ang’anizi (in Kiswahili). She said that they are the kind of people who are strongly motivated to succeed and it is not easy to convince them otherwise. Some participants said they decided to join programs which they were told are too difficult for them because they are women. Others were told that because they are women, a diploma is enough, they do not need to have degrees. But they went ahead and joined degree programs, just to show their relatives and friends that they were wrong.

Participants’ Experiences in Their Current Programs

Cost-Sharing Effects on Teaching and Learning

The cost-sharing policy affects the participants in many ways such as lack of basic teaching and learning resources like textbooks, journals, inadequate book and meal allowances and shortage of teachers. The shortage of the basic teaching and learning resources influences the teaching styles. It was noted that the participants heavily depend on lengthy lecture notes they copy from their teachers. Teaching and learning are characterized by cramming, rote learning, kudesa/symbiosis, that is, copying and cheating during examinations.
As pointed out earlier, lack of teaching and learning materials and cost-sharing at all levels of education in Tanzania can be traced to the 1986 Tanzanian government’s decision to reduce its budget for education and to introduce user-fees in basic social services: education, water and health (Ministry of Education, 1986). Some of the effects of this policy on the quality of education and individuals are long term and may take time before they are known.

**Silence in the Classroom**

Silence in the classroom was explained differently by the participants and their teachers. Most of the teachers I interviewed said that students do not speak in class because they lack the necessary oral skills in English and they find it difficult to communicate with the teacher and the other students. A few teachers said that students’ silence in class reflects the teacher’s teaching style. This comment was supported by what I observed in some of the classes where I carried out classroom observation. In these classes the teacher presented so much material during the lecture that the only thing students did was to copy these lengthy notes, which they did not have time to digest.

The experiences of most participants of this study who as a general rule do not speak in class, can be summarized in the words of one science student whom I interviewed during the pilot study who simply said, “We never talk.” The participants who do not speak in class said that their silence in class is mainly due to fear. They fear that male teachers might think that they are interested in having an affair with them. They explained that, if a teacher is interested in having an affair with a female who is not interested, the teacher might “catch” (fail) (kukamata/kunyaka) the female student in the tests or examinations. Most participants said that it is for this reason that they do all that they can to avoid any direct or personal contact with teachers, especially male teachers.

These participants also said if they speak in class, they fear that male students might think that they (female students) are interested in the male teachers, especially if after that, they score higher grades than the male students. The SUA and FoE participants said that speaking in class might cause them to be punched. The MUCHS participants on the other hand, said that although they would not be punched because punch does not exist at MUCHS,
the whole college would talk about them. They would be called names and they might also be given a warning by male students or the Class Representative.

Participants from other programs said that they speak in class because their teachers make sure that every student participates in classroom discussions. I also noted that silence in class was more common in large and combined classes than in small and medium-size classes comprising 20 to 50 students. It was also a reflection of the teacher-student and female-male student relationships. For instance, not only do students, (female and male) keep quiet in class, many of them avoid having any personal contact with their teachers outside the classroom. It was stressed that in general, there is a mistrust between teachers and their students (a tug of war) that centers around the evaluation of students. Students keep a low profile so that the teacher might not think that they know more than him/her (machinoo).

**Sexual Harassment**

Although many of the study participants were not familiar with the term sexual harassment and some had a vague idea that it is a form of either rape or punch, their experiences indicated that they had been exposed to a variety of intimidating behavior which is known as sexual harassment in other contexts. These experiences included physical harassment for instance being beaten, laughed at, whistled at, ridiculed or jokes about women morphology told in class by teachers who want to amuse their students, male students who tell female students to go home and make babies instead of being at school or by male employees in various situations. But because these acts are not clearly defined as harassment or more specifically as sexual harassment, it is difficult even to start a discussion about the effects of such behavior on those to whom it is directed.

**Career Expectations**

The majority of the Sokoine University of Agriculture participants were almost sure that they would not find employment after graduation. Many of them said that they were going to consider applying for master's degrees to make themselves more marketable. Others, said that they were looking forward to self-employment. The other group, comprising mainly of the participants from the Faculty of Engineering and the Muhimbili University College of
Health Sciences said that they expected to be employed in their specialized fields. Additionally, some of the Doctor of Medicine participants said that they prefer to work in the private sector rather than for the government because if they work for the government, they might be sent to work in rural hospitals where they do not want to go.

Some Engineering participants, especially those who were studying Civil, Chemical and Process and Mechanical Engineering said that they fear that they might not be employed in their fields of specialization. They said that their professional success might be limited by gender stereotyping of Engineering as a male profession.

**Careers Or Family?**

Most of the research participants stressed throughout the study that, they are working so hard to attain their degrees and that the most important thing for them is to have a reliable career which will ensure their economic independence. Many of them said that it is only then that they will consider being married and having children. To make sure that they can achieve these goals, many of these participants said that they would like to do the following: marry men who are slightly older than themselves and who have at least one degree and have no more than two children.

There were also a few participants who had different views about marriage and having children. Laila, one of the few participants from Zanzibar who would like to get married after graduation, is worried that as a Doctor of Medicine, no man in Zanzibar will be interested in marrying her. On the other hand, Cecy, a Doctor of Dental Surgery student said that her family did not prepare her for marriage or to have and care for children. She stressed that marriage is not likely to work for her, and that, her major ambition, is to get a job after graduation.

**Conclusion**

In conclusion, it is important to stress that the research findings show that these participants’ decisions to pursue higher education were influenced by many factors, including their own interest in school subjects, especially Mathematics and Biology. Although competence in these two subjects would enable the participants to pursue many of the undergraduate programs, most of them were only interested in Engineering and Medicine.
Moreover, most of the participants who did not qualify to join programs of their interests said that their poor performance in the Advanced Certificate of Secondary Education Examination was due to poor teaching, especially lack of practical experience in science. Based on this observation, there is a need to move away from the current view which constructs a Tanzanian girl/woman as a failure to a girl/woman as a high achiever. Many participants of this study have been the best students in their classes and others in their schools or communities. But many people in Tanzania still believe that these female students can only score high marks because male teachers favor them as a result of having sexual relations with the female students. The study also calls for the need to validate the existence of women who excel at school and at the work place. Further, there is a need to acknowledge diversity among girls/women in terms of racial, ethnic, religious and socio-economic family backgrounds and how these interact with other factors in constructing the experiences of women in Tanzania.

There is also a need to critically examine the policy- and school- and societal-related factors which might explain women’s low and uneven enrolment in undergraduate programs such as Agriculture, Engineering and Medicine.

Listening to the participants and reading their questionnaire responses indicate that their desire to pursue higher education was motivated by their desire to be economically independent. It is probably for this reason that the SUA programs are not very popular because many of them do not lead to direct employment. Still, they joined the SUA programs as Greta, a BSc Agronomy participant put it, “just to get degrees.”

The study has also shown that despite the rhetoric about “encouraging” girls to study Science subjects in Tanzania, most people appear to be more comfortable with the image of a Tanzanian girl as a failure. This could be a possible explanation as to why the participants of this study most of whom had the best performance in their classes, schools and zonal areas, experienced little acknowledgment from others, including their own parents, teachers, and classmates. They are despised, their competencies doubted and, they are often unfairly judged. My discussions with some members of the Faculty of Engineering did not give any indication that the above allegations were valid.

This study has indicated that career decision making experiences, the participants’ experiences in their current programs and their career expectations are influenced by multiple
factors, some of which are personal, others are policy and school-related, others are influenced by significant others such as parents, especially fathers. It has also been noted that the actual experiences of individual participants are mediated by racial, ethnic, religious and social economic status backgrounds. The dominant role played by fathers is a reflection of who makes decisions in the homes of the participants.

The seeming popularity of the Doctor of Medicine is a reflection of three things: (i) educational policy preferences reflected in the provision of more Advanced Secondary Schools that offer the PCB subject combination than any other science subject combination available to girls in Tanzania; (2) limited knowledge about careers in science; (iii) job security—the Doctor of Medicine graduates are more likely than others to be employed after graduation.

This study also attempted to respond to the question How do we come to an understanding of the role of women in higher education through studying the factors influencing the career decision making experiences of Tanzanian female undergraduates and through studying the career opportunities available to female professions in these fields? The findings of this study can be used as baseline data for a major study on why Tanzanian women pursue higher education, which would involve more students enrolled in more programs and more post-secondary institutions.

This study was not aimed at making generalizations. However, based on the participants views and suggestions, it appears that more studies like this one are needed so that we can have a more comprehensive picture of the experiences of women in higher education. But this study has indicated that if women are to be an integral part of higher education, the female students should be accepted and treated as equal participants in the learning process. This implies that before more women are encouraged to join university programs, especially where women are a minority, there is a need to create an environment that will make female students feel that they are not intruders.
Recommendations

Need for Educational Policy and Action

Funding. The government should diversify sources of educational financing to include the community, the private sector and individuals. The implementation of the cost-sharing in education should take into account the realistic financial needs of students. There should also be special funding programs for girls and boys whose parents can not pay for their education. These should target girls and boys from social groups which are under represented in higher education because of their ethnicity, religion, rural and urban poor backgrounds. The Tanzanian government should reduce and finally stop depending on foreign donors to finance education.

Schools and Universities. Schools and university campuses should ensure that they promote teaching and learning environments which are harassment free and where female and male students live and study as equal participants. Teachers should also respect their students. Addressing women's under representation at the university level calls for very fundamental changes to be introduced in higher education. One of the long-term strategies that will promote women's participation in higher education in the sciences should be to restructure higher education institutions, especially universities, to reflect women's presence, needs and involvement in decision making. Male [university] students should be educated not to despise female students. Other suggestions include the following: (i) Formulate and implement policies aimed at eliminating all forms of harassment that exist in university campuses. University by-laws should make it illegal for anyone to harass, abuse or despise another person in society and at educational institutions and work places. Also, there should be a good [a girl friendly] learning environment that's, female students should not be intimidated or harassed in their studies. Moreover, there is a need to provide social services to students such as family housing and child care. There is also an acute need to introduce career guidance and counseling at all levels of education in Tanzania from primary to university.

Teachers. The teaching competence of university teachers should be evaluated regularly and new university teachers should be taught how to teach. Apart from being updated in their fields, teachers at all levels of education should participate in gender sensitivity seminars and workshops.
Students' Intake. Expansion of students' enrolment should be matched with the provision of teaching and learning resources which are technologically updated.

Women's Education. In order to eradicate gender inequity in education in Tanzania, there is a need for an education policy for women that is formulated by women and for women from the kindergarten to the university and one that is committed to promoting women's participation in various education settings and the profession. Projects aimed at promoting women's participation in science or higher education should take into account the diversity of women's social and economic locations in the society and avoid benefitting women from groups which are over represented in education and the professions.

Need for Employment Opportunities. The employers and the government should provide employment to female graduates as an incentive for young girls to study science at the university level [role models].

Role Models. Female scientists should be diligent, effective and efficient when performing their duties so that young girls and female students can look up to them as role models.

The Society. The government in collaboration with local communities, women's organizations, and female scholars and leaders should set up a program aimed at the eradication of negative societal attitudes towards women and use the mass media and available technology to disseminate it. Emphasis should be on successful experiences and how to replicate them or learn from them instead of the present pre-occupation on girls as failures.

At the Family Level. Both parents should be supportive and actively involved in the education of their children. It implies that mother's advice needs to be taken seriously even when it differs from that of the father. Moreover, fathers should be prepared to share the decision making power with their spouses. And, they should create an environment that is conducive for studying. Fathers, mothers and other relatives should also have high expectations for their daughters and they should not hold negative and stereotypical views that girls are only good in Home Economics studies but not in engineering and related careers.

Need for a Gender Specific Higher Education Policy.
This study indicated that the majority of the participants are Christians. And most of them came from only 2 of the 120 Tanzanian ethnic groups: the Chagga and the Haya. I therefore
recommend that from now on, all policies and strategies, short term and long term that are
aimed at promoting women's participation in higher education in Tanzania should take
women's diversity into account. The Ministry of Science, Technology and Higher Education
in collaboration with the Ministry of Education and Culture should set up an inter-ministerial
gender-specific policy that will promote women's participation in higher education in science
and other fields while taking into account the diversities that exist among Tanzanian women
in relation to the existing inequalities based on race, religion, ethnicity and socio-economic
backgrounds as well as other differences among Tanzanians.

Tanzanian universities should be re-structured to reflect the presence, needs and
contributions of women (students, faculty and staff) in the teaching, administration and the
physical environment. In particular, there is a need for anti-harassment policies, guidelines
and offices that will ensure the implementation of those policies. And. Sexual harassment and
other forms of harassment should be illegal in Tanzania.

Moreover, there should be research funds for faculty members to carry out research
during holidays instead of the current practice in which teachers' depend on consultancies
from donor agencies.

The Need for Further Research

(1) It was noted that women were under represented in most undergraduate programs
and were completely absent in other programs. In order to have a broad view of factors which
influence Tanzanian women to pursue higher education in science and technology, there is
a need to identify through research and eliminate those barriers that inhibit women's
participation in these programs.

(2) The research findings also indicated that the study participants' knowledge of
undergraduate programs was very limited. Most of those who studied PCB and PCM subject
combinations at the Advanced Certificate of Secondary Education level, wanted to join only
two of the university programs: Medicine and Engineering respectively. There is a need
therefore for more studies like this or larger studies that will explore the career plans that
students in other undergraduate programs had before joining the university. The findings of
such a study or studies would be useful in strategies aimed at designing career guidance and
counseling for girls at all levels of education in Tanzania.

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(3) This study also indicated that the participants’ decision to pursue higher education was more influenced by their fathers. This also calls for a study that examines the extent to which fathers influence their daughters’ decisions to study science subjects and to pursue university education. Such a study could also investigate the role played by mothers in the education of their children. The findings of such a study would be used in designing strategies for promoting the school and family collaboration in promoting girls’ and women’s participation in Science and Technology and in higher education.

(4) This study also noted that although 35 ethnic groups (including three racial groups: Africans, Arabs and Indians) are represented in the study, 63% indicated that the language most spoken in their homes is Kiswahili. There is a need therefore, to establish whether similar results can be obtained if a similar study is carried out on a different group of students. Moreover, while the popularity of Kiswahili is historical and political, there is a need to carry out studies which examine the future of the less spoken Tanzanian ethnic languages.

(5) Many teachers insisted that students’ poor oral skills in English influence the students’ learning. But the participants challenged that argument insisting that they keep silent in class because they fear being intimidated by male students and harassed by male teachers. I therefore suggest that students’ silence in class needs to be further explored in all university programs. The findings of such a study will help in designing strategies aimed at improving teaching and learning in Tanzanian universities, improve the teacher-student relationship and reduce or stop harassment on university campuses. Additionally, there is a need for studies that explore the male-female student interaction and how gender is constructed in and outside the classroom.

(6) Many of the study participants said that because of the way they are taught science at the lower levels, most of them do not understand what is taught in their current undergraduate programs and that is partly why they copy from each other, cram and cheat on examinations whenever necessary in order to pass examinations and get degrees. These observations need to be studied so that the extent of this problem can be determined and suggestions made about how to solve it and improve the quality of education in Tanzania.

(7) Poor teaching was seen as an indication of lack of teaching and learning resources due to a reduced government budget for education as a result of the implementation of the Structural Adjustment Program (SAP). There is a need therefore, to carry out a larger study
to examine in more detail how SAP is affecting the provision of social services—such as education and especially its effects on the education of rural and poor urban girls from religious and ethnic groups which are under represented in higher education.

(8) Many participants pointed out that without attending tuition/tutorial classes, they could not have passed their Form Six examinations. I suggest that the Ministry of Education and Culture should fund policy oriented research that will examine the benefits of tuition so that instead of taking an authoritative approach by banning tuition classes, the Ministry could integrate tuition into additional teaching activities of teachers and charge a fee for using school facilities and use that money to make minor repairs of the facilities in those schools.

**Pedagogical and Instructional Implication**

There is a need for a pedagogical and instructional shift in teaching from the primary school to university level. The present teaching and learning approaches which are geared towards reproducing bulky materials which are either hurriedly crammed or copied from teachers’ notes for purposes of passing examinations, should be replaced by teaching and learning styles that foster inquisitive minds, problem-solving skills and which make learning both exciting and meaningful to the learners and their teachers.

This would imply that the present school and university curriculum need to be reviewed so that the present curriculum which has many remnants of the colonial emphasis on [h]umanpower is replaced by a curriculum which is community oriented, inclusive and takes into account the learning needs of all members of the whole community and not of men alone. The significance of using a local or indigenous language becomes crucial in relation to the role of language in promoting indigenous knowledges. Tanzania is one of the lucky African countries which have a highly literate indigenous language, [Kiswahili] that is spoken by the majority of the people, people from the local communities can be invited to take part in academic issues when Kiswahili is spoken.

The development of such a school curriculum would require the full participation of all the segments of the society, especially the input of female educators and local people. The implementation of the new curriculum for science and other subjects should also emphasize the practical significance of learning not only science but other subjects as well.
There is also an urgent need to promote career guidance and counseling from the primary to the secondary schools in Tanzania.

**Rethinking Schooling in African Contexts**

**Language**

Language is crucial to the survival of culture and history of communities. This is especially so in Africa where most indigenous languages are at the risk of disappearing due to non-use. Even popular and highly literate languages like Kiswahili might not survive the strong winds of cultural imperialism that is supported by global capital, multinational companies and American film industry. There is a need therefore to take specific steps to promote the use of indigenous languages in the delivery of education in African contexts which also centers the collective histories of Tanzanian and the role of their oral histories. I therefore suggest that Tanzania could pave the way for other African countries by adopting Kiswahili as the medium of instruction in higher education in Tanzania.

**The Issues**

The research findings also indicate the need to conceptualize educational issues from an anti-colonial conceptual framework in articulating education issues in Africa (Dei, 2000). Dei advocates a rethinking of schooling and education in African contexts that calls for a shift of focus from the broad generalizations to the local, specific, historical and culturally situated analysis of educational issue such as cultural identity, language, the curriculum, teachers, the educational process. He also stresses the need to locate educational issues in Africa within the larger political and economic issues which affect Africans and others in the South.

This study was informed by an anti-colonial African centered feminist conceptual framework in examining how issues of gender equity in education were interlocked with identity, difference, representation, and power. I was also concerned about the role of women in higher education. More specifically I wanted to understand how the study of why Tanzanian women pursue higher education could inform my understanding of the role of educated women in Tanzania and in other African contexts. I argue that educated African and Tanzanian women have an important role to play in higher education by being role models to younger women and by using their research skills in doing action-oriented and policy
research on issues that concern women in their communities and to promote collaboration between women and girls who are still in schools. As Amadiame (1987, p. 199) stresses that "the drive for change and improvement, the momentum and specifications must be left to the individuals in the local areas. Women outside such areas should give information and support only when invited to do so."
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Appendix A: Regional Distribution of the Tanzanian Population By Usual Residence

Table A1

The Regional Distribution of the Tanzanian Population by “Usual Residence” in Percent
Based on the 1988 National Population Census

<table>
<thead>
<tr>
<th>Name of Region</th>
<th>Regional Population as Percentage of Total Tanzanian Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arusha</td>
<td>5.8</td>
</tr>
<tr>
<td>Dar es Salaam</td>
<td>6.0</td>
</tr>
<tr>
<td>Dodoma</td>
<td>5.4</td>
</tr>
<tr>
<td>Coast [Pwani]</td>
<td>2.7</td>
</tr>
<tr>
<td>Iringa</td>
<td>5.2</td>
</tr>
<tr>
<td>Kagera</td>
<td>5.7</td>
</tr>
<tr>
<td>Kigoma</td>
<td>3.7</td>
</tr>
<tr>
<td>Kilimanjaro</td>
<td>4.8</td>
</tr>
<tr>
<td>Lindi</td>
<td>2.8</td>
</tr>
<tr>
<td>Mara</td>
<td>4.0</td>
</tr>
<tr>
<td>Mbeya</td>
<td>6.0</td>
</tr>
<tr>
<td>Morogoro</td>
<td>5.5</td>
</tr>
<tr>
<td>Mtwara</td>
<td>3.8</td>
</tr>
<tr>
<td>Mwanza</td>
<td>8.0</td>
</tr>
<tr>
<td>Rukwa</td>
<td>3.0</td>
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<tr>
<td>Ruvuma</td>
<td>3.4</td>
</tr>
<tr>
<td>Shinyanga</td>
<td>7.6</td>
</tr>
<tr>
<td>Singida</td>
<td>3.7</td>
</tr>
<tr>
<td>Tabora</td>
<td>4.5</td>
</tr>
<tr>
<td>Tanga</td>
<td>5.5</td>
</tr>
<tr>
<td>Zanzibar North</td>
<td>0.4</td>
</tr>
<tr>
<td>Zanzibar Central/South</td>
<td>0.3</td>
</tr>
<tr>
<td>Zanzibar Town/West</td>
<td>0.9</td>
</tr>
<tr>
<td>Pemba North</td>
<td>0.6</td>
</tr>
<tr>
<td>Region</td>
<td>Percentage</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>Pemba South</td>
<td>0.5</td>
</tr>
<tr>
<td>Other</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Total Population = 23,161,575

*Source:* Based on the *National Population Census* (United Republic of Tanzania (1992, p. 130)).
Appendix B: The Swahili and Arabic Script Transliterated Into Roman Script By
The Germans

ARABIC AND ROMAN ALPHABETS

<table>
<thead>
<tr>
<th>ARABIC</th>
<th>ROMAN</th>
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<td>ج</td>
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</tbody>
</table>

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Appendix C: The Tanganyika University Fund

List C1. Names and Contributors Towards the Tanganyika University [University College Dar es Salaam] Fund

<table>
<thead>
<tr>
<th>Name</th>
<th>Place</th>
<th>Shs</th>
<th>cts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mr Salum Athuman</td>
<td>Dar es Salaam</td>
<td>500</td>
<td>00</td>
</tr>
<tr>
<td>2. Mr D.P.K. Makwaia</td>
<td></td>
<td>500</td>
<td>00</td>
</tr>
<tr>
<td>3. Mr J.K. Nyerere</td>
<td></td>
<td>200</td>
<td>00</td>
</tr>
<tr>
<td>4. Mr Juma Mzee</td>
<td></td>
<td>150</td>
<td>00</td>
</tr>
<tr>
<td>5. Mr Ibrahim Bofu</td>
<td></td>
<td>150</td>
<td>00</td>
</tr>
<tr>
<td>6. Mr Schneider Plantan</td>
<td></td>
<td>100</td>
<td>00</td>
</tr>
<tr>
<td>7. Mrs Jayant Stores</td>
<td></td>
<td>100</td>
<td>00</td>
</tr>
<tr>
<td>8. Bibi Tuhuma Daudi Kirumbi</td>
<td></td>
<td>50</td>
<td>00</td>
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<tr>
<td>9. Bibi Mariam Madenge</td>
<td></td>
<td>50</td>
<td>00</td>
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<tr>
<td>10. Mr Lila Mwinyikondo</td>
<td></td>
<td>50</td>
<td>00</td>
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<tr>
<td>11. Bibi Panya Majaliwa</td>
<td></td>
<td>50</td>
<td>00</td>
</tr>
<tr>
<td>12. Mr Abdallah Simba</td>
<td></td>
<td>50</td>
<td>00</td>
</tr>
</tbody>
</table>

Honourable David P.K. Makwaia made the first contribution of 500 shillings and Honourable Julius K. Nyerere made the second by contributing 200 shillings and others followed. In addition, 871 shillings were contributed by the Tabora Delegates [members of the Legislative Council]. A total of 74 Tanganyikans (4 women and 70 men) contributed towards this first example of a self-reliance effort towards higher education. A sum of 7,971 shillings had been contributed by 16th March, 1958. At the end of the list there was this statement: “Contributions Continue...” followed by, “I believe Education is a good thing and we ought to assist the future Tanganyikan citizens” says the Honourable David Makwaia (The African, Sunday, March 16, 1958, p.7).
UNIVERSITY OF DAR ES SALAAM
OFFICE OF THE VICE-CHANCELLOR
P.O. BOX 35091 • DAR ES SALAAM • TANZANIA

Telephone: 43500-9 Ext. 2001, Direct 46841
Telex: 41541 UNIVIP
41327 UNISCE
41854 UNENG TZ

Ref.: AB3/12 (B)

20th January, 1997

The Chief Administrative Officer
DAR ES SALAAM.

UNIVERSITY STAFF AND STUDENTS
RESEARCH CLEARANCE

The purpose of this letter is to introduce to you Mrs Grace Khwaya Puja who is a bonafide academic member of staff of the University of Dar es Salaam and who is at the moment conducting research. Our staff members undertake research activities every year especially during the long vacation.

In accordance with a government circular letter Ref.No. MPEC/R/10/1 dated 4th July, 1980 the Vice-Chancellor was empowered to issue research clearances to the staff and students of the University of Dar es Salaam on behalf of the Government and the Tanzania Commission for Science and Technology.

I therefore request you to grant the above mentioned member of our University community any help that may facilitate her to achieve research objectives. What is required is your permission for her to see and talk to the leaders and members of your institutions in connection with his research.

The title of the research in question is "Factors that Influence the Career Aspirations, Expectations and Opportunities of Tanzanian Female Undergraduates".

The period for which this permission has been granted is from January 1997 to July 1997 and will cover the following areas/offices Dar es Salaam.

Should some of these areas/offices be restricted, you are requested to kindly advise her as to which alternative areas/offices could be visited. In case you may require further information please contact the Research and Publications Office, Tel. 43500 Ext. 2021.

Prof. M.L. Luhanga
VICE-CHANCELLOR

27/01/97
Appendix E: Schedule of Activities for the Study

Phase One
January - February, 1997: Arrive in Tanzania from Canada. Obtain Research Clearance, documentary reviews, familiarization at the three research sites, piloting and revision of research strategies.

March - May, 1997: Carry out data collection at the Faculty of Engineering (FoE), Muhimbili University College of Health Sciences and at the Sokoine University of Agriculture (SUA).

June - July: Preliminary data coding, analysis and conduct focus group discussions.

August: MUCHS focus group discussion, interview university and educational officials, library research and documentary reviews.

Phase Two
End of August, 1997: Return to Canada.

September, 1997 - March, 1998: Continue data coding and analysis and prepare preliminary research report for the University of Dar es Salaam (requirement for fieldwork funding).

April - August, 1998: Translate interviews from Kiswahili and transcribe; complete data organization, coding, and analysis.

Phase Three

April 1999 ... April, 2000: Write and submit complete draft to editor.

May 2000: Receive feedback from editor and make revisions.

June 2000: Submit edited draft to supervisor, receive feedback and make revisions.

June-July: Revise and submit second draft to editor, receive feedback from editor, make revisions and submit third draft to Thesis Committee members.
July-August, 2000: Receive feedback from Thesis Committee members, revise and complete oral defense Forms.

Oral Defense: Friday, October 6, 2000 at 10:00 am, at 63 St George St., School of Graduate Studies in Room 301.
Appendix F: The Classroom Observation Guide

**General Questions About the Class**

(1) **The Physical Setting**: What is the location of the room/lecture theater in relation to other buildings, size, furniture available sitting arrangement of participants in each session indicating gender of student and class size. How is the class organized?

(2) **The Activities**: What is done, by whom, when and how? Any teaching aids used by the teacher? What do the students do and what does the teacher do? How can you describe the teacher/student and student/student interactions?

How is evaluation done?

How does this interaction differ from the others? In what ways is it similar?

How is space shared by participants (including the teacher)?

What nonverbal cues can you observe? How can these be understood or what does it/they mean?

**Specific Questions About Female students**

(1) How do female students experience classroom interaction in relation to male students?

(2) How does the teacher relate with female students in comparison with male students?

(3) Who are the active participants in class?

(4) How is active participation contested and or maintained?

(5) How does the teacher relate with active versus silent students?

(6) Does the teacher’s feedback differ on the basis of gender?

(7) How do female and male students relate with one another?

(8) How do same sex students relate with one another?

(9) Are there any differences among classes in terms of women’s participation in class?

(10) What issues are discussed in class and who raises them?
Appendix G: A Letter of Introduction to the Study Participants

Title of the Study: Women's Participation in Science and Technology: Factors Influencing Career Decision Making Experiences of Tanzanian Female Undergraduates.

This study explores why Tanzanian women pursue higher education. More specifically my study is an attempt to find out why you joined your current undergraduate programs where women have historically been under represented such as Agriculture, Medicine and Engineering. Based on the findings of this study I hope to suggest alternative strategies that will contribute towards the promotion of gender equity in science and technology in particular and higher education in general.

The purpose of this letter is to invite you to participate with me in this research project which will be submitted as a requirement for my doctoral thesis in Sociology in Education at the Ontario Institute for Studies in Education at the University of Toronto, Canada.

As a Tanzanian woman who has gone through the same kind of socialization and education system I share most of your experiences and I am convinced that by the time I complete this study I will feel that I have written the story of my life from other women's perspective. I also expect to learn a lot from you, because you have successfully followed the route which I too aspired to follow but did not.

I will collect data through many methods including: classroom observations (a semi-participant observation), a questionnaire, interviewing and focus group discussions that I will carry out at the end of the study.

You are welcome to take part in the study but you are also free to withdraw from the study at any time. I also wish to assure all of you that I am obliged to protect your identity and your reputation through the use of pseudonyms and code numbers. But, I might also use some institutions' real names. I therefore wish to assure you that all the information you share with me will be treated as highly confidential.

Sincerely Yours,

signed

Grace Khwaya Puja

Contact Address: Faculty of Education, University of Dar es Salaam, P O Box, 35048, Dar es Salaam, Tanzania Tel. 43500-8 Ext. 2194.
Appendix H: Consent Form

Women’s Participation in Science and Technology: Factors that Influence the Career Decision-Making Experiences of Tanzanian Female Undergraduates.

To Whom It May Concern

I understand that Grace Khwaya Puja, a doctoral student at the Ontario Institute for Studies in Education of the University of Toronto will be interviewing me for the purposes of her study about Factors that Influence the Career Aspirations, Expectations and Opportunities of Female Tanzanian Undergraduates in science and technology. I also understand that she is interested in making use of any of my views that I will share with her through the questionnaire, interviews and any other appropriate information pertaining to my engagement as a Tanzanian female undergraduate.

Through this letter I am giving Grace consent for the use of any interview transcriptions or interview notes, and any other relevant information she may feel fit in any publications as well as her doctoral thesis on factors that influence the career aspirations, expectations and opportunities of Tanzanian female undergraduates. She is obliged to protect my identity and reputation through the use of a pseudonym, code number or any appropriate identity changes such as the name of the faculty, department and/or organization and the city whenever that is necessary.

I also understand that my participation in this study is voluntary and that I have the option of withdrawing from the study at any time if I so decide.

Participant’s Signature..........................Date......................
Appendix I: A List of Some Tanzanian Ethnic Groups and Languages

Note to the Respondents: Use the following list of Tanzanian ethnic and language groups to respond to the question about the name(s) of your parents’ ethnic backgrounds and language(s) most spoken at your home.

1. Ki/swahili
2. Ki/gogo
3. Ki/nyaturu/Kirimu
4. Ki/nyakyusa
5. Ki/nyamwezi
6. Ki/sukuma
7. Ki/luguru
8. Ki/makonde
9. Ki/chagga
10. Ki/haya
11. Ki/sambaa
12. Ki/luguru
13. Ki/masai
14. Ki/ha

15. Other language...(if your ethnic group/language is not listed, write 15 and name it.. (Most of the 120 Tanzanian ethnic groups are listed by Ogot, B.A and J.A. Kieran (eds) (1968). A Survey of East African History, figure 10, p. 80).
Appendix J: A Questionnaire for the Tanzanian Female Undergraduates

All female undergraduates in three Second Year classes in three Tanzanian universities will be asked to respond to this questionnaire.

Question 1: Participant’s Number ( ) Write down the number assigned to you by the researcher, do not write your name.

Question 2: Year of study: 1, 2, 3, 4, 5, Circle one that applies to your level of study.

Question 3: Write down the name of your specialization in the space provided

Question 4: Write down your most favorite hobby and why you like it

Question 5: Circle the appropriate answer that corresponds to your age group.
1. Years 20 - 24
2. 25 - 29
3. 30 -34
4. 35 and above

Question 6.0: Write down the name and type of Secondary School(s) you attended (see number for types of school below):

Question 6.1: Forms 4

<table>
<thead>
<tr>
<th>Name of School</th>
<th>Type of School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
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</tbody>
</table>

Question 6.2: Form 6

<table>
<thead>
<tr>
<th>Name of School</th>
<th>Types of School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. girls/boarding/private
2. co-education/day/private
3. girls/boarding/public
4. co-education/day/public
5. girls/day/public
6. co-education/boarding/public

Question 7: Circle the religion to which you are affiliated
1. Islam
2. Christianity
3. Other religion ................. name it ..............

Question 8: Name the Language spoken most at your home
........................................ (see attached list of some Tanzanian ethnic and language groups).

Question 9: Circle the highest educational Level attained by each of your parents:

Question 10.1 Mother’s Education

Years of Formal Education

1. never attended school
2. 1 - 4 - Years
3. 5 - 8 - Years
4. 9 - 12 - Year
5. 13 - 14 Years
6. Course after Primary
7. course after Secondary
8. University
9. do not know
10. deceased

Question 10.2: Fathers education

Years of Formal Education

1. Never attended school
2. 1 - 4 - Years
3. 5 - 8 - Years
4. 9 - 12 - Years
5. 13 - 14 - Years
Question 11: How many brothers and sisters do you have?

Number of Sisters

- One sister
- Two sisters
- Three sisters
- More than three

(circle the appropriate response)

Number of brothers

- One brother
- Two brothers
- Three brothers
- More than three brothers

(circle the appropriate response)

Question 12: Write the ethnic group to which each of your parent belongs (refer to the attached list of Tanzanian ethnic groups):

12.1 Mother’s ethnic group

12.2 Father’s ethnic group

Question 13: Write down the name of the main occupation for each of your parents.

13.1 Mother’s occupation

13.2 Father’s occupation

Question 14: Are you the only daughter in your family?
1. Yes 2. No (circle the appropriate response)

Question 15: Are you the:
1. First Born
2. Second born or
3. Third Born in your family? (circle the appropriate response)

Question 16: What factors do you think influenced your decision to enrol in this university program?

Question 17: In your view, what influences female students' decisions about career aspirations in your field of study?

Question 18: Based on your own everyday experiences, do you think that the university learning atmosphere is friendly to female students?

- Yes - NO (circle the appropriate response)

Tell me more about your response.
Question 19: If you were asked to name three factors which contribute to women's low enrolments in science and technology in Tanzanian universities, what would those factors be? Please rank them as follows:-

19.1. The factor that contributes most

19.2. The second contributing factor

19.3. The third contributing factor

Question 20: What do you think should be done to promote women's participation in science and technology at the university level in Tanzania?

Question 21: If you were to decide on your field of study today, would you still select this field you are studying now?

(circle the appropriate response)

- Yes  - NO

Tell me more about your reasons

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Question 22: Do you have sisters/brothers or other relatives who have University Education

- Sisters
  - Yes
  - NO

- Brothers
  - Yes
  - NO

- Other relatives
  - Yes
  - NO

If you have no relative who has university education tell me the levels of education and occupations of at least two of your closest relatives:

Relative 1 (state relationship)

Education (highest level see list of educational levels above)

Occupation (name of occupation)

Relative 2 (state relationship)

Education (highest level see list of educational levels above)

Occupation (name of occupation)

Question 23: Do you think that having higher education changes the way women are perceived/treated in the Tanzanian Society?
(circle the appropriate response)

* Yes

* NO

Tell me more about your views

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Question 24: Rank the following in terms of importance to you
Marriage, Children, Career such that 1 = Very important

2 = Important

3 = Not important

Marriage ......................................................

Children ......................................................

Career ......................................................

Question 25: Have you ever felt that any male (student/teacher/employee expected/asked you to offer them any sexual favours since you joined this university?

* Yes

* NO

If your response is Yes, tell me what favors were expected/asked/requested and how you responded?

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Question 26: It is said that in Tanzania, boys outperform girls in all subjects in Secondary School National Examinations
What do you think contributes to this situation?

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Do male students outperform female students in your class?

(circle the appropriate response)

- Yes
- NO

Tell me more about your response

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Question 27: Some university teachers believe that most students do not speak in class because they find it difficult to communicate in English. Do you agree with this observation?

1. Agree strongly

2. Agree

3. Do not agree

(circle the appropriate response)

Question 28: If you agree with the above observation- do you think that using Kiswahili as a medium of instruction at all levels of Education (Primary to University) would solve this problem?

- Yes
- NO
If your response is no, tell me your reasons

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**Question 29:** Some educators argue that Girls' Secondary Schools which perform well in Secondary School National Examinations (Forms 4 & 6) have good leadership and committed teachers.

What do you think about this observation?

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**Question 30:** Reflect on your own for a minute and tell me if you think that you have noticed any change in your own academic performance from primary through secondary to university?

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**Question 31:** In the following list circle the one subject which you found most difficult when you were in Secondary School

11.1 Biology
11.2 Maths
11.3 Chemistry
11.4 Physics
11.5 Geography
11.6 English
11.7 Kiswahili
(circle the appropriate response)

**Question 32:** Do you think that female students academic performance would have changed if they were to attend single-sex women only university

- Yes
- NO

(circle the appropriate response)

Please give reasons to support your response

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**Question 33:** Do you think that women are more respected/accepted in Tanzanian society if they have degrees in Agriculture, Veterinary, Forestry, Home Economics, Horticulture, Medicine, Nursing, Pharmacy, Dentistry or Engineering?

(circle the appropriate degree program)

Tell me more about your views

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**Question 34:** The Tanzanian economy is in a state of crisis due to the implementation of Structural Adjustment Program (SAP)-

How has the current economic situation in the country affected you as a university student?

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Appendix K: A List of Students’ Interviews

**Family Factors**

(1) What earliest memories of your family and/or friends do you recall?
(2) What influence if any, have your parents had on your education?
(3) Can you recall any specific incidents about your parents’ reaction when you were selected to come to university?
(4) In your opinion, how has your social/economic family background influenced your studies?
(5) What are your future plans in terms of career, marriage and having children?
(6) What do you hope for in a future mate (that is, spouse/husband)?
(7) If you were asked to rank marriage, children and career from 1 - 3 in terms of their importance to you, how would you rank them?

Please give reasons for your response.

**The Schooling Process Factors**

(1) Tell me what you recall as the most memorable, periods of your school life.

What among these memorable periods are the most critical events in your life?

(2) Please describe them to me and tell me why you think these are very crucial to your life.
(3) What are some of the significant relationships bad or good you have had with teachers/lecturers?
(4) Generally speaking, how can you describe your everyday experiences at the university in and out of the classroom?
(5) What understanding of this field did you have before you chose this program?
(6) How did you get it?
(7) Can you describe a typical day at this university for a woman student enrolled in your program?
(8) Please describe a typical practical day for me.

**Society Factors**

(1) What has been your own experiences as a girl/woman growing up and living in Tanzania?
(2) Do you think that having higher education changes the way women are perceived in the Tanzanian society?
(3) If so describe the change, and if not, tell me why you think education does not make a difference.
(4) In your opinion, do you think that there is any particular practices, beliefs, attitudes which are detrimental to women’s interests in Tanzania? (5) If you think so, what are they? (6) Can you suggest any strategies to change this situation? (7) Based on your everyday observations, what are the chances of a woman with professional qualifications like yours to advance to the top position? Explain your response. (8) As you grew up, Do you recall having contact with any professional women in your area of specialization whom you think influenced your career decisions in anyway? (9) How do people in your community/street/village see you in relation to your specialization? (10) In your opinion; do you think that women are more accepted in the Tanzanian society if they have degrees in Agriculture, Engineering or Medicine? Why? (11) If you were to choose the field of study today, would you still select this field you are studying now? Tell more about your response. (12) In your opinion, do you think that Tanzanian men like to marry women with your kind of specialization? (13) If you had a choice to choose your teachers/lecturers, would you choose a male or female teacher? Give reasons to support your preference. (14) What do you think is the role of women scientists and professionals as change agents in the Tanzanian society in relation to the liberation of women as a way to bring about social change and development? (15) In your opinion, do you think that there is gender equality in Tanzania? and, (16) Why do you think so? (17) Could you tell me how you would describe the term “sexual harassment? (18) Tell me more about your source of information for this description.

**External Factors**

(1) Do you see any difference between the way education was provided about five years ago and the way it is provided now? (2) Have you come across the term “globalization of the world economy”? (3) If you have, what do you think it means? (4) How does this concept apply (mean) to the Tanzanian context? (5) How do you think policies such as the implementation of the Structural Adjustment Program (SAP), the IMF and World Bank’s influence national policies for social services such as education and health? (6) In your view, how do you think these policies affect/will affect women’s access to higher education especially in your area of specialization? Please explain your response.
(7) What strategies do you think the Tanzanian government should use in the provision of science and technical related higher education for women? Give more details for your response. (8) What alternative strategies would you suggest to ensure more enrolments for women in degree programs in your field?

(9) Five years from now, what do you think you will be doing? (10) Have you ever considered the possibility of being promoted to the executive position in the area of your training? (11) Generally speaking how are female professionals in your field viewed by other people? (13) Do you know any woman or female executive in your field of specialization? (14) If yes, tell me more about her.
Appendix L: Recent Graduate Students’ Interview Questions

(1) To begin with, I would like each one of you to tell me about your selves, your families, about your parents, what are their occupations, your brothers and sisters if you have any, their education backgrounds and occupations?

(2) I would like you to go back in time as you can and try to recall the circumstances which you think influenced your decision to study science subjects and to pursue higher education in your fields of specialization (s) [medicine/electrical engineering].

(3) Can you tell me what expectations you had when you started your program, your experiences as a student and now as a qualified professional in your field?

(4) What did you know about your program before you joined it, what were the sources of your information? What do you know that you did not know before?

(5) If you were to make your career decision today, would you still join the same program? Please tell me more about your response.

(6) What plans do you have for the future, tell me for instance whether you plan to pursue graduate studies and if so the field in which you expect to specialize in?

(7) Considering that very few women study science and even fewer join your field of training, what do you think needs to be done to promote women’s participation in science in general and especially at the undergraduate level in your area?

(8) If you were asked to talk to school girls in Tanzania about women’s participation in your field of training, what would you tell them?

(9) When you reflect on your schooling experiences, what are some of the most memorable things you recall which you think have contributed in one way or another in your decision to join your present profession?

(10) My discussion with female undergraduates and their teachers have shown that the teacher-student relation is not very positive. How would you describe the teacher\student relationship during your schooling days?

(11) What are your experiences in and out side the classroom? Some of the students I interviewed said that since they joined their programs two years ago, they have never asked or answered a question and they fear to go to seek help from male teachers. What are your experiences in relation to these issues?

(12) What are your experiences as female professionals in your field?
(13) Some people say that it is very difficult for female professionals to advance in their fields because of family responsibilities? (14)

What are your views about issues such as marriage and motherhood and women's career success?

(15) In your opinion, how are societal attitudes towards female professionals in your field? (16) Do you think that female professionals are more respected than women who are not professionals?

(17) When you were a student, did you at any time feel that either teachers or male students treated you differently because you are a woman? If so can you describe how you were treated?

(18) There is something called "Mzee Punch" in some university campuses, have you ever heard anything about Mzee Punch, if so what have you heard?

(19) Do you have any other comments?

(20) Research on girls' participation in science education in Tanzania indicates that many girls do poorly in national examinations, but some university teachers say that in general, female undergraduates have better performance than male students, can you comment on these observations?
Appendix M: Interview Questions for University Lecturers and Academic Deans

(1) Generally speaking, how would you describe women students' participation in higher education in Tanzania?

(2) How does female students' enrolment and performance in this faculty compare to other faculties in this university?

(3) Would you say there is an increase or decrease in women's enrolment in your department? How does this compare to women's enrolment in other departments?

(4) Do you think there are any problems that students in this university face in relation to their academic life. If there are any problems, can you please describe them?

(5) Are there specific problems faced by female students only? If so, what are they?

Teachers only

(7) How do you find female students' participation in your classes?

Female Faculty only

(8) Are there any special concerns that you think you face because you are a female lecturer/faculty? If so, what are they and why do you think male lecturers/faculty do not experience these problems?

(9) What suggestions would you like to make towards the promotion of women's participation in higher education in your field of specialization?

(10) Some people say that female students solicit sexual relationships with male teachers in order to get good grades, as one of the few female teachers at this university, what are your views about this observation?
Appendix N: Discussion Questions for University and Educational Officials

(1) Cost-Sharing
   (a) Inadequate Allowances
   (b) Students from poor families
   (c) Payment of the loan without employment after graduation

(2) Non-availability of textbooks-supplementary reading materials such as journals, inadequate funding for libraries, closure of the University of Dar es Salaam bookshop and privatization of university bookshops.

(3) Poorly maintained buildings such as the MUCHS, SUA and non-availability of toilets for female students, faculty and staff. [for SUA and FoE officials] Why are there no specific toilets for female faculty/female students?

(4) The University curriculum/timetable, teaching and learning. How does the university curriculum prepare students for self-employment?

(5) Ministry’s policy on how to increase female students’ participation in higher education in general and in mathematics, science and technology in particular.

(6) What is the Ministry of Science, Technology and Higher Education doing to ensure that female students do not experience sexual harassment?

(7) What are the Ministry’s plans about the Mazimbu campus?

(8) Why is the failure rate at SUA higher than in the other two campuses? (in 1995/96 academic year a third of the SUA students failed the UE and were discontinued).

(9) Are there plans to build the Ministry of Science, Technology and Higher Education headquarters?

(10) Can you explain what is meant by “Special Schools”, why they were established and their future? Is there a special secondary school curriculum for “Special Schools?” If so, are there separate examinations for “Special Students?” How are the teachers for “Special Schools” trained?

(11) How would you describe female student’s performance in national examination?
Appendix O: Chiku’s Typical Day

Chiku, is a Second Year Tanzanian Female Undergraduate who offered her Typical Day to be used as an example to show how busy a Second-Year Tanzanian female undergraduate can be.

**Chiku’s Typical Day is a Wednesday**

6:30 am - 7:45 am: Wake Up, take a shower, prepare and eat breakfast/tea.
7:45 am - 8:00 am: Go to school/class
8:00 am - 1:00 pm: Attend classes
1:00 pm - 2:00 pm: Lunch Break
5:00 pm - 6:00 pm: Rest
6:00 pm - 8:00 pm: Cook and eat supper
8:00 pm - 1:00 am: Preparation/Group Discussion (private study).
1:00 am - 2:00 am: Study
2:00 am - 6:30 am: Sleep.

Chiku said that around the examination time (May to June) she sleeps for 2 hours only.

Chiku like most of the students [female and male] prepares her own food but when she gets some money from home, she eats at one of the university cafeterias. She said that food prices differ from one cafeteria to another and added that the most expensive food costs Shs 700/=.

Chiku takes turns to cook with her roommate. She said that she prefers to buy and cook her own food because that way she can decide what to eat, when and is assured that she will have a meal everyday.

This list of activities indicates that Chiku like many of the Second-year students, have little or no time for anything else except studies. This list of activities contradicts what some of the second-year teachers believe, namely that many students are not interested in their studies and they waste most of their time on what one Electrical Engineering teacher described as “non-academic issues, such as buying and cooking food [self-catering] or attending meetings in which they lay strategies on how to get good grades during the examinations without studying hard for them.”
Appendix P: Three Examples of Participants’ Meal Plan Strategies

(1) An “Off-Campus Meal Plan”

Nina, a Doctor of Medicine participant belongs to the Bohora Community and to the Shia Moslem sect, even as a medical student, meals are an important aspect of her religious faith and her community makes sure that everybody follows the rules about meals and other things. Those who disobey are secluded from the community and therefore, Nina’s meal plan puts much emphasis on all food being Halal. She explained that halal food means that it is prepared by a Shia Moslem and all meat food products have to be cut for the first time by a Moslem who would normally say the following prayer, “Bismilah Rahiman Rahim” or “In the Name of God” as he/she cuts the meat. Nina said that all sea food such as fish has to be halal also and that she can not eat fish whose head she has not seen. It is for this reason that Nina did not live on campus although she had a room assigned to her. She said that whenever she has to spend the whole day on campus, her sister sends a house servant to bring food for her. Nina said that before she can eat the cafeteria food, she needs to know where the meat comes from, that is, whether it was a Moslem who cut the meat or not. So generally, Nina does not eat the university cafeteria food. Instead, she gets food from her sister and her food consist mainly of vegetables and rice, soup, potatoes.

(2) “ Inferior Commodity” Meal Plan

Asiimwe, a Food Science participant cooks her own food as do all the students at the Mazimbu campus where the privately owned cafeteria that sold food at high prices was closed a few months ago. According to Asiimwe, the problem many of her SUA colleagues have [at Mazimbu] is that they eat what they call “inferior commodity” foods, that is, low quality foods or cheap foods in terms of prices. She listed these as follows: \textit{ugali} (similar to corn meal) beans, dried sardines (\textit{dagaa}), rice, \textit{bamia} [okra] and spinach, eggs [only twice per week], meat [only once a week] and fish [also once per week], fruits [such as mangoes also once per week].

(3) The \textit{Kefu} Meal Plan

Zena, a Doctor of Medicine participant also prepares her own food. She volunteered to give an example of how much she would spend if she was to buy food from the cafeteria or \textit{Kefu} as she and her colleges call it. Her budget for meals in a day is based on the meal allowance of shs 1,000 per day that she gets from the government as part of her loan.
Breakfast
Tea 2 cups x shs 65.00 = shs 130.00
2 Chapati [similar to a pati] (s) x shs 100.00 = shs 200.00
Total Breakfast --- shs 320.00
Lunch 1 plate of rice with beef x shs 400.00
Supper
1 plate of chips with chicken x shs 700.00
1 soft drink x shs 250.00
Total daily meal = shs 1670.00

Thus if Zena was to depend on the cafeteria food services, she would end up with a deficit of Tanzanian shs minus 670.00 every day x 30 days she would need at least shs 20,100.00 or she would be in debt. She argued that it is for this reason that she buys and cooks her own food and in that way the money she gets is enough, she can eat what she wants, at her own convenience and can concentrate in her studies.
Appendix Q: Some Examples of the 1990 Punch Against the President

The following are examples of my own reflections on the 1990 Punch Against the President of the United Republic of Tanzania and the Chancellor of the University of Dar es Salaam.

It was said that there were two volumes of punch against the President, but they were not made available to the general public. The only thing I read from the University of Dar es Salaam notice boards in 1990 and that I can faintly recall is what I present here. One of these writings was presented as though it was a radio announcement:

"The Radio Tanzania Announcement Punch"

The position of the Chancellor of the University of Dar es Salaam is vacant...We need suitable candidates to apply. But the prospective candidates should not have the following qualifications or characteristics:

Education: He should not have attended madras and he should not be a holder of a diploma in education through correspondence from the university of...[I have forgotten the name of the university but it was a British university where the former president obtained his diploma in education through correspondence]. Marital Status: He should not have more than one wife...[the former president had more than one wife...].
There were many more but I can not remember them and even these are just my recollections, I do not know how close they are to the actual texts. These examples are aimed at showing what punch means or how it is used.

A number of government ministers were also punched. For instance one minister who was said to be gay [homosexual] was drawn in women’s clothing. The Prime Minister [at that time] was “awarded” a number of “degrees” for allegedly being an alcoholic or drunkard.

There were many others and we [the University of Dar es Salaam Academic Staff Assembly (UDASA) members] were told that when all the punch materials had been collected, they made up “two volumes of punch’ although a ‘volume’ was never defined.
Appendix R: A Glossary of Swahili Words and Expressions and Their English Translations Used in The Study

_Ama!:_ huu kweli ni mwaka wa wanawake! Kwa hiyo sasa mtasema kuwa wanaume waanze kuzaa watoto!?: Truly this is women’s year! So you [people] will now say that men should start to bear children...?!

_Basi_ engineering _nilikuwa sitaki kabisa_... _sitaki_: So I did not want engineering at all, I didn’t’ want it...

digirii _ya kitandani_: bedroom degree meaning a degree obtained by a female student as a result of having a sexual relationship with a male teacher

_Elimu Dunia_: Mundane Education... not religious

_fanya fujo uone_ (FFU): do/cause problems and you will see, or face the consequences... but the official meaning of the word is Field Force Unit, a section of the police force that is notoriously known for using tear gas to disperse mobs/crowds [suspected of causing trouble].

_fundi umeme_: electrical technician.

_haa!:_ exclamation remark to show disbelief, or surprise.

_jiwe_: stone

_joto_: heat

_kale kasichana kanakaa pale mbele kanauliza maswali sana_: The little girl who sits in front asks very many questions. The prefix “ka” is used to despise someone and it also implies a diminutive stature.

_kiherehere_: the state of showing off, unsettled behavior

_kipanga wa hesabu/hisabati_: mathematics brainer, genius [also means a hawk].

_kudesa_ known at MUCHS as “symbiosis” [madesa]: (slang) used by university students which means copying from another student, text book, old notes or examination paper [it also implies cheating] and present these as one’s school work.

_kujigonga_: to knock oneself against a hard object and get hurt, in the study it means to “indicate interest [on the part of the female student] in having a sexual relationship [with a male teacher]

_kujigonga-gonga: see kujigonga_ [Swahili words are often used in repetitive way to indicate emphasis

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kilaza/vilaza: a Swahili slang' which the participants said is used to mean poor achiever, unsuccessful or failure. The word 'Kilaza' was the surname name of a musician from Morogoro area in Tanzania

kulazimisha: to force.

kukosoa jamii: to criticize society/community

kuruka kichura: to jump like a frog

kunyakwa/kukamatwa: to be caught [read as] to be unfairly marked down by the teacher for failure in examinations.

machinoo: a “swahilized” version of the English expression “know much”, used as a pronoun in reference to a student who asks questions which are meant to challenge the teacher and to show that the student knows more than the others.

madesa see kudesa [madesa]: is used as a noun from the verb kudesa.

magonjwa ya zinua/wanawake: sexually transmitted diseases

maji ukiyavulia ngu la zima uyaoge: (proverb) Once you start doing something, you have to do it to the finish even if there are problems.

mama N’tilie: Mum, give me some [food].

makande: a cooked mixture of maize [corn] with beans that is eaten as a staple food by some ethnic groups in Tanzania

marungu: big clubbed sticks.

mwenzangu: my partner/colleague/companion.

pipi: a kind of candy, kifu: chest pipi kifu -- lozanges

taifa: nation

tulionja joto ya jiwe: to “taste the heat of a stone” used here to mean “we had a nasty experience”.

tulipigwa sana, yaani: we were severely beaten. The word “yaani” is often used to emphasize a point but is hardly used alone, it is an equivalent of the word ‘really’.

vinga’ng’anizi: people who persist.

wizara:[government] ministry

ya/ha: of

Zawadi: gift, also used as girl’s name as in this study