HIGH SCHOOL STUDENTS ASPIRATIONS
FOR POST SECONDARY CAREER PROGRAMS

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Abstract

The purpose of this study was to find out what the students' perceptions are regarding the influence of the following factors in the students' career programs decision making: students' self-expectations; parents' expectations; teachers' expectations; industry's expectations; financial rewards; academic ability; upward mobility; sex role stereotyping; and availability of career information.

The study was carried out in Machakos district, Kenya between April and August 1988. The subjects were 210 form 3 (grade 11) students drawn from 3 different schools in the district. One school was an all girls school, one an all boys school and one a mixed school. For each school, two classes of 35 students each were used.

Data for the study were collected by use of a questionnaire developed by the researcher. This questionnaire was administered in each school by the researcher assisted by 2 teachers supplied by the school. The data were then analyzed and the results grouped into categories reflecting the questions addressed by the study.

Some of the major findings of the study were:

1. Programs in Agriculture are priority aspirations for both the boys and the girls.

2. Besides agriculture, the career program aspirations of the students followed the traditional gender lines such that most of the boys aspired for
technological programs while most of the girls aspired for office based programs.

3. There seemed to be no difference between the effects of parents' expectations on the boys and on the girls.

4. There seemed to be no difference between the effects of teachers' expectations on the boys and on the girls.

5. The boys believed that they had good academic abilities in Mathematics and science subjects while girls believed they were good in business education and languages.

6. The boys seemed to be more concerned with chances for further studies in career program than the girls were.

7. By the time students chose subjects for Kenya Certificate of secondary Education (K.C.S.E.) certification they had very little career information available to them.

8. Although technical education is a priority field for the government, it is not a priority aspiration for the students.

The findings of the study suggest that career guidance in the secondary schools in Machokos District is not effective. The author gives several recommendations for addressing the issues and concerns raised by the study.
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CHAPTER I
INTRODUCTION

BACKGROUND

Beginning in 1986, the Kenya government has expanded technical education at post-secondary level by converting the former technical schools into post-secondary technical institutions. Harambee Institutes of Technology (self-help post secondary technical institutions) are emerging in all parts of the country. The majority of their courses are geared towards post-secondary technical education. In fact, the entire Kenyan system of education has been overhauled, resulting in the 8-4-4 (8 years in primary school, 4 years in secondary school, and 4 years in university) system which stresses more and more facilities in technical education, especially at the post-secondary level. It is hoped that, with technical education, some of the students who do not get jobs can start small 'Jua Kali' industries (open air low investment industries), thus becoming self-employed.

The problem faced by the educators in Kenya now is that many students, especially girls, keep training for non-existent white collar jobs. Imulando (1984) described this situation;

with the phenomenal expansion at all levels and the resulting increase in school leavers, soon the jobs available in the Public sector, as well as the Private sector for people with general non-vocational training shrank and the
phenomenon of 'educated unemployed' started to show in the 1960's . . . the question was: 'What type of Education has a more direct effect on generating employment on a wider scale?'. (p. 15)

It is the aim of this study to examine this situation since even the government effort to support 'Jua Kali' and other small scale industries financially does not seem to be working.

HOW STUDENTS MAKE CAREER DECISIONS

Choosing a post secondary educational program necessitates making decisions. Since the decisions made at this time have a long lasting effect on the person's future and on their lifestyle, they should be made with care. For this reason, it is important to find out how students go about making these decisions, how much information they have, who influences them, and what the student's perception of those influences are. Herr (1970) divided the factors involved in career decision making into four groups:

(a) Personal variables such as aptitudes, interests, gender, age, physical strength, and self image.

(b) Social and cultural factors such as societal values, job requirements, and employment opportunities.

(c) Interpersonal relation factors such as peer pressure.

(d) Impersonal factors such as finances, rewards and payments, and location of facilities.
Herr argued that due to the conflicting nature of these factors, students go through a long process of weighing the significance of each factor before they make their final decision. He further argued that age becomes a very important factor when a student attempts to decide on a career and that at 17 years of age students are capable of making realistic career decisions.

FOCUS OF THE STUDY

The focus of this research will be on students who do not go on to University but who may choose to enter a training program at a middle college level. These middle colleges are vocational in nature. The main reason for concentrating on this group is because of the enormous number of students in Kenya who fail to gain entry to the universities. According to Eshiwani (1983), while the number of students finishing high school has been increasing, the number of students going to universities has remained almost the same (at between 23% and 27%). For example in 1978, of those who finished form 6, 27% went on to university. It should be noted that those who dropped out in form six joined a larger number of those who dropped out in form four. The resultant group of students not continuing on to university is very large. The 8-4-4 system will make this group more noticeable because there will be no form five classes to delay the dropout time of some of the students. This is a crisis situation and these students need
a lot of attention. The situation is worse for girls. According to Eshiwani (1983), only 0.44% of the girls who entered standard one in 1966 made it to form six by 1979. Given that only about 25% of the students who finished form 6 in 1979 went to university and that only 20% of those who went to university were girls, then one sees clearly that of all the girls who were within this school age group less than 0.1% entered the university.

This study attempts to examine students' perception of the factors that influence their choice to select a post-secondary education program.

SPECIFIC RESEARCH QUESTIONS:

1. What are the students' perceptions of the influence of the following factors on their decisions to enter a technical program at the post secondary level:
   (a) Students' self expectations?
   (b) Parents' expectations?
   (c) Teachers' expectations?
   (d) Industry's expectations?

2. Does sex role stereotyping influence the students' perceptions of factors which might influence their choice of a post secondary education program?

3. To what extent do the following factors seem to influence students' career choice:
   (a) financial rewards?
(b) student's academic ability?
(c) academic upward mobility?

4. Are students informed as to the academic requirements of different careers before they choose the subjects for the Kenya Certificate of Secondary Education?

SIGNIFICANCE OF THE STUDY

The results of this study, it is hoped, will help us to better understand some of the factors influencing students' career choices. This understanding is useful in assisting students in making appropriate career choices (according to their academic abilities, interests and aptitudes, and shifting job markets). In other words the study has implications in student counselling at secondary school level. This counselling is necessary especially before the students choose the subjects they pursue for the Kenya Certificate of Secondary Education (K.C.S.E.). These subjects determine the careers open to the students in the future. The study may also have implications in educating parents as to how they can help their children in choosing realistic career preparation programs at post secondary level. In addition, this study has implications for teacher training institutions. Researchers have stressed the role of role models in influencing student decisions (Grady 1984, Kilonzo 1983). Teacher training institutes like K.T.T.C., Kenyatta University and Kenya Science Teachers College may need to increase their quotas of
trainees in the non traditional career areas, such as increasing the number of women teachers in technical and science subjects.
CHAPTER II
LITERATURE REVIEW

INTRODUCTION

This chapter reviews the available literature related to the research questions (see Chapter I). The literature was grouped according to the issues in the following general theme:

a) gender segregation of jobs
b) effects of subjects studied at high school
c) parental influence
d) effects of self-concept
e) importance of career guidance
f) other factors that may influence career choices.

The information from all the articles in each group was analyzed and then synthesized to find out if there is agreement or disagreement in their findings. An attempt is then made to explain the agreement or disagreements found.

GENDER SEGREGATION OF JOBS

Research has shown that there are jobs that are female segregated and others that are male segregated (Kenkel and Gage, 1983). Kenkel and Gage (1983), for example argue that "Girls aspire to a small number of occupations while boys choose from a wider variety of jobs ... four occupations, nurse, teacher, secretary, and social worker have been found to dominate the occupational choices of girls" (p. 130). Also
Prediger, Roth and North (1984), in their study of eleventh graders, found that "More than half of the girls chose jobs that fell into three categories: education and social services; nursing and human care; and clerical and secretarial." Further, girls do not go for the higher paying and more available technological jobs. As MacCarthy (1976) puts it:

Employment needs currently and in the future are heavily concentrated in technological and service areas ... Women who continue to choose courses and programs which have no specific technological orientation are apt to find their employment in the low paying service areas ... (p. 6)

Studies done in Kenya show that what MacCarthy says above is true for Kenya even at University level. Eshiwani (1984) gives percentages of women in different faculties in both Nairobi and Kenyatta Universities as shown in Table 2.1:
Table 2.1

Percentage of women in different faculties in Nairobi and Kenyatta Universities

(a) Agriculture 20%
(b) Building Economics 2%
(c) Land Economics 21%
(d) Commerce 28%
(e) Arts 39%
(f) Engineering 2.2%
(g) Veterinary Medicine 13%
(h) Advanced Nursing 95%
(i) Law 50%
(j) Science 11%
(k) Education 1. Arts 50%
2. Science 8.4%

Except for nursing, law and arts education, the percentage of women was quite low, especially in the programs which required a background in science.

Another study in Canada, (Gaskel 1987) shows similar results. At university level, the enrolment data for 1984-1985 showed the percentages of females to be as in Table 2.2:
Table 2.2

Percentages of females in different faculties in Canadian Universities

<table>
<thead>
<tr>
<th>Field</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing</td>
<td>97%</td>
</tr>
<tr>
<td>Household Science</td>
<td>96.1%</td>
</tr>
<tr>
<td>Health Occupations</td>
<td>85.1%</td>
</tr>
<tr>
<td>Social Work</td>
<td>80.7%</td>
</tr>
<tr>
<td>Education</td>
<td>70.3%</td>
</tr>
<tr>
<td>Applied Arts</td>
<td>65.2%</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>62.5%</td>
</tr>
<tr>
<td>Arts</td>
<td>56.7%</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td>52.2%</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>47.6%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>43.0%</td>
</tr>
<tr>
<td>Commerce</td>
<td>38.2%</td>
</tr>
<tr>
<td>Medicine</td>
<td>37.8%</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>27.1%</td>
</tr>
<tr>
<td>Dentistry</td>
<td>23.2%</td>
</tr>
<tr>
<td>Engineering</td>
<td>10.7%</td>
</tr>
</tbody>
</table>

Also, the enrolment data for middle colleges (diploma colleges) in Canada for 1982/1983 shows the percentages of females to be as in Table 2.3:
The same situation exists in the United States despite the fact that the Education Amendment Act passed in 1972, prohibits sex discrimination in federally supported programs. Vetter and Hickey (1985), reported that ten years later, in 1982, women continue to enrol in great numbers in traditionally female programs. They reported that in 1982, the percentages of women enrolled in vocational programs were as shown in Table 2.4:
Table 2.4

Percentage of females in different career programs in United States Middle (Diploma) colleges

(A) In Male Dominated Careers
1. Architectural technology 22.1%
2. Civil technology 13.8%
3. Electronics 11.7%
4. Mechanical technology 11.9%
5. Industrial technology 15.6%
6. Electrical technology 7.8%
7. Automotive technology 5.1%
8. Water technology 14.8%
9. Agricultural mechanics 5.3%
10. Construction 7.4%

(B) In Female Dominated Careers
1. Dental assistants 95.5%
2. Nursing 91.2%
3. Dental hygiene 96.4%
4. Care of guidance of children 92.4%
5. Clothing management and production 89.6%
6. Home furnishings 80.7%
7. Medical assistants 90.2%
8. Typing 79.6%
9. Stenographer/secretary 93.5%
Other studies done in the U.S.A. back this up (see Marshall 1987).

Australia also seems to have the same problems. According to Towns (1985) a report on the educational needs of girls in Australia termed "Girls, School and Society", released in 1975 and a second report for Victorian schools only entitled "Equal Opportunities in Victoria Schools" showed similar results. For example, the study on Girls, School and Society concluded that;

girls were not studying mathematics and science subjects at senior levels in the same numbers as the boys, girls were not experiencing a technical education in the same numbers as boys, that girls restricted their tertiary area of study and considered a limited range of job options compared to boys, that unemployment was higher for young female school leavers than it was for young male school leavers and that there were few positive female role models in senior administrative positions in school. (p. 5)

In fact, Towns argues that legislation for gender equity which was passed in 1977, has assisted men to get into what is seen traditionally as women jobs. As she puts it

anti-discrimination legislation has existed in some states of Australia since 1977. It is designed to legislate and conciliate as a supportive mechanism towards achieving equality of opportunity for women in the employment sector. But it would appear that the situation for women has not changed very much. Indeed it can be argued that the legislation has assisted men to gain employment in non-traditional areas for them such as
nursing, kindergarten teaching and as principals of girls schools whereas it has not assisted girls in achieving comparable in-roads into occupational areas which are non-traditional for women. (p. 8)

It can, therefore, be concluded that in Kenya and in many other countries, some careers are female segregated while others are male segregated. It can also be concluded that legislation does not seem to be effective as a tool against job segregation.

EFFECTS OF SUBJECTS STUDIED AT HIGH SCHOOL LEVEL

Towns (1985) suggests that one of the main reasons why Australian women do not have equal access to educational and employment opportunities is the types of subjects girls prefer to do or do well in at high school level. She argues that:

Even though girls remain at school for a longer period than they did ten years ago and thousands more girls than boys pass the Higher School Certificate in Victoria ... girls do not study the High School Certificate subjects which would be the most appropriate for tertiary entry or the employment market; the mathematics and sciences ... less than 1/3 of the students who pass physics, the most useful subject for studies in the technological areas, are female. (p. 9)

Sampson (1985) seems to echo these sentiments when she says that there is early segregation of subjects in Australian schools such that most girls study typing, shorthand, cookery and needlework, literature, languages, and history while boys
study carpentry, metalwork, technical drawing, maths, economics, physics, and chemistry. Consequently when segregation in subjects occurs, it translates to a situation where when the girls leave school, they are not able to get the better paying technical jobs.

A study done in Canada (Gaskel and McLaren 1987) stresses the effectiveness of mathematics in filtering students out of science and technology based careers. They argue:

Mathematics is an important focus of research because it is required for all university science programs. High school math courses serve as a 'filter' in that students who do not take these courses find it much more difficult, if not impossible to enter science and applied science programs ... (p. 133)

Some researchers appear to suggest that girls in single sex schools seem to respond better to taking non-traditional subjects which would assist them to join non-traditional career programs at post secondary level (Counsel 1982, Spender & Sarah 1980 and Stanworth 1983). In contrast, others suggest that the girls would have greater access to technologically oriented courses only if they attended co-educational schools. Fitzgerald (1982) concluded that, in co-educational schools, more attention is paid to boys than girls because boys are more aggressive and that co-educational schools tend to reinforce stereotyping. This issue needs further research.
It is clear from the above studies that legislation is not, by itself, capable of changing the polarization of programs along gender lines as it was expected to. It is important to establish first the causes of this polarization before one tries to prescribe corrective measures.

Research has shown that the problems of gender segregation identified above are not based on any biological or physiological reasons but mainly on reasons that are as a result of their socialization (Kenkel and Gage, 1983). They identify one of the reasons as lack of female role models in non-traditional jobs or career preparation programs. This is more so for low income family children. As Kenkel and Gage (1983) put it:

If the daughters have higher aspirations, as they do, they are forced to choose jobs that are not being modelled by their mothers, the mothers of their friends or even women within their own subculture.

(p. 135)

Kenya is a developing country with most of its population rural peasant farmers. Thus, most of the school children would fit the description of low income family children. Eshiwani (1983) found that in 1982 the educational background of parents of Kenyan university students by percentage was distributed as follows:
From this table it can be seen that 74.6% of the fathers and as high as 94.1% of the mothers of the university students were illiterate or semi-illiterate (Std. 8 and below). It is likely that the percentage would have been worse had Eshiwani attempted to establish the education level of the parents of secondary and primary school students. This is because students of better educated parents tend to be the ones who go on to University. It should also be pointed out that the above study established that 48.4% of the fathers had no form of employment and survived as peasant farmers only and that 60% of the families had 7 or more children.

In the U.S.A., one of the most developed countries in the world, MacCant (1984) identified socialization as a big factor in career choices. This is how she put it:

As legal and biological barriers have been overcome, access to the technologies has become an option for women. The barriers that remain are psychological and sociological and these will not be overcome until women take advantage of the education and training available to them. (p. 5)

The influence of socialization was also identified by O'Brien (1987) and Tucker and Asser (1980). These authors found that parents respond positively and even use rewards to encourage
their children to fit in traditional careers, according to gender rather than ability.

EFFECTS OF SELF-CONCEPT

Another factor that may influence careers chosen by women is their self-concept in math and sciences. A study done in Kenya by Eshiwani (1975) showed that form II boys had a more positive attitude towards math than girls and that boys scored higher on tests of mathematical reasoning, computation and comprehension of mathematical and scientific terms. Maritim (1980) argues that "in a classroom setting the child does not only learn what is prescribed in the school curriculum, but he also acquired a set of characteristics about himself and his abilities" and that "the pupils who thought highly of their abilities significantly out achieved those who had low perception of their abilities" (page 1). Gaskel (1987) showed that boys have more confidence in their maths ability than girls:

... Males were more confident than females; those choosing science were more confident than those not choosing science. In order to measure confidence there were five items ... On the scale formed by these items, boys scored significantly higher than girls ...

(p. 139)

Research has shown that self-concept appears to be multidimensional (Marsh, Parker, and Barnes, 1985). In an earlier study Marsh, Smith, Barnes and Butler (1983) found that self
concept in math correlated almost one to one with academic achievement in math.

Interestingly, while self-concept in a particular area appears to be related to achievement in the same or a highly related area, it does not appear to be related to actual aptitude. In a study done at Stork Technical College (Canton, Ohio), using General Aptitude test battery (GATB), it was found that as many women as men have high mechanical aptitude (Grady & Frye, 1984).

According to Grady & Frye (1984) the self-concept of students are formed before students leave high school. Grady & Frye (1984) argued that the only girls who end up in non-traditional programs and/or jobs are those with parents or close friends in these jobs, and sometimes a counsellor who noted that the girl is exceptionally good in math or science subjects at high school. The influence of gender, parents, counsellors and peers upon job selection was also emphasized by Wigfield (1984) who put it this way:

several different constructs are proposed to be indirect mediators of expectancies, including such things as children's interpretations of previous outcomes, and their perception of parents' and teachers' beliefs about them. These interpretations influence children's more general self perceptions. Another of these general self perception variables posited to indirectly mediate expectancies and values is the child's sex role identity (p. 4).
IMPORTANCE OF CAREER GUIDANCE

The main question now is what steps can be taken to improve the career decision-making of high school students? Kilonzo (1983) points out that one of the problems in improving the situation in Kenya lies in a lack of guidance and counseling. He sums up the situation as follows:

In fact, the function of the career masters is not any different from what it was thirteen years ago. They continue to work with form IVs, helping them to fill out career forms and giving out career information. There is no evidence of any work on guidance being done with form I's, II's or form III's. No career or Psychological counselling is available to pupils. (p. 9)

Kilonzo does not blame the teachers for this problem. He seems to suggest that there are constraints within the school system which make it hard for the teachers to be effective. He argues that there are no adequate facilities like private rooms where the teacher counsellor can meet individual students. He also argues that the teachers are not well prepared and therefore feel incompetent to handle the purely psychological and sociological problem, and that the situation is made worse by the fact that these teachers still have full teaching loads. They, therefore, have to do counselling in their spare time. Kilonzo suggests that the situation could be rectified if:
1. career masters are provided with the literature on guidance, in the form of pamphlets (these can be prepared at Kenyatta University);

2. career masters have some method of sharing ideas among themselves (workshops, seminars and/or short inservice courses at the Universities), and starting a careers journal.

The lack of effective guidance and counselling seems to have also been noticed in a study done in Canada (Gaskel and McLaren, 1987) where girls were quoted as saying:

"To tell you the truth I think counsellors just don't get enough of whatever it takes to become a counsellor."

"There is not enough counsellors. They are having to take care of a whole grade of people. They're spending their time running through the papers and there's not much time for them to sit around and rap." (p. 156)

One realizes the effects of lack of guidance when looking at why students made the choices they did not want to make. For example, in Gaskel's study (Gaskel and McLaren, 1987) the girls themselves said:

"I like to do the jobs men do. I think they are more interesting."

"I wish I had taken woodwork. I like working with wood."

"It would be exciting to be a truck driver. But I wouldn't know how to go about it." (p. 163)
To confront the psychological and sociological problem for girls Grady (1984) suggested that:

1. Secondary schools and post-secondary institutions must seek female role models in the nontraditional areas.

2. Female counsellors who are knowledgeable about traditional and nontraditional career areas for women must be sought.

3. Female counselling must become more broadly based, openly exploring the student's full range of aptitudes and interests.

4. Female instructors must be sought for these nontraditional areas of study.

OTHER FACTORS THAT MAY INFLUENCE CAREER CHOICES

Effects of School Organization

Some researchers have argued that school as an institution plays a big part in molding girls to be girls and boys to be boys so to speak (Holcomb 1981, Kelly and Nehlen 1982). One need only look at the power structure at school to see how it enforces this notion. Although in United States for example, women are the majority of teachers, especially in primary school levels, those in positions of authority are men. As Kelly et al put it:

The pattern of male authority over females holds in each school in the United States where 67.2% of all teachers are women, yet
women are less than 16% of all principals or assistant principals. These figures mask the status and wage hierarchies of educational institutions. Female principals are elementary school principals. Twenty percent of elementary school principals are women; less than 7 percent of middle school and secondary school principals are female. (p. 167)

This being true then the hidden message is that men are the bosses and the women are the subordinates. One should not wonder, therefore, when girls do not try very hard to move up the academic ladder. They realize that what is happening in school is the same as what is happening in society where, as Kelly and Nehlen say, "most of the women in authority supervise other women rather than men, mainly in predominantly female occupations" (p. 168). They may get the message that they are expected to avoid competing with men.

Even the subjects women teach, according to Kelly and Nehlen are gender defined, i.e., most of the women teachers teach languages and social studies. The authors quote figures from Simpson (1974) as showing that in the United States at higher levels the percentage of women teachers for different subjects are as follows: Business 1.9%, Engineering 0.4%, Physical Science 4.3%, Maths and Computer Science 43.3%, Education 20.6%.

Another aspect of school that sends hidden messages to students is the way males and females sexes are portrayed in the text books. Pictures in the text book typically show men
as engineers, doctors, scientists and technicians while women are shown as nurses, teachers, medical assistants and secretaries (Holcomb, 1987). In fact, Holcomb (1987) goes on to say that even the materials supplied to students to supplement the text books are gender segregated. For example, in health the kits sent to supplement text books are such that boys are supplied with doctors kits while girls are supplied with nurses kits. This gives the students the message that in the medical field boys are supposed to be doctors while girls are supposed to be nurses. For secondary school text books, the study shows that out of 102 illustrations of nurses, 100 were women and 2 were men while for doctors, out of 153 illustrations 127 were men and only 26 were females. Mangano and Patterson (1976) quote a poem by Darrow (1970) which goes as follows:

Boys have trucks
Girls have dolls
Boys are pilots
Girls are stewardesses
Boys fix things
Girls get things fixed
Boys invent things
Girls use what boys invent
Boys build houses
Girls keep houses
I'm glad you are a boy
I'm glad you are a girl
We need each other.
(p. 110)
Effects of the Methods of Teaching

Grant and Harding (1987) argue that while boys view the importance of learning science and technology as for producing products that work well, they seem not to consider the social implications of the products. In contrast, girls are more concerned with social implications. Grant and Harding (1987) suggest:

If school science and technology are presented as abstracted, lawbound, technical, unemotional and distanced from the personal, they will serve the needs of a particular group of emotionally reticent persons (usually male) who seek to escape from the demands of the real world. On the other hand, if science and technology are presented as creative activities with relevance to many other aspects of the human condition, then a wider range of young people seeking intellectual challenge, or a vehicle through which they make a contribution to the world, may be attracted to the study. (p. 134)

To support their claim they quote findings by Head (1980), Harding and Sutoris (1984) and Rajput (1985) who found that women would get into science and technology if social issues were used as the basis for teaching them.

There are some studies, though few in number, which show that girls outperform boys in maths and science. One such study, done in Hawaii, considered mathematics achievement for children of grades 4, 6, 8 and 10 and its relationship to gender, ethnic group, grade and year (Brandon, 1981). The findings were put this way:
contrasted with most studies, the study reported here shows girls with higher mathematics achievement levels than boys. That the Hawaii data show differences in Mathematics achievement favouring girls is not surprising: previous Hawaii studies give clues about Hawaii girls' superiority over boys in Mathematics' and the differences increase as the grade level increase. (p. 22)

It should be noted that there were factors which could have accounted for the results obtained. One of these factors has to do with the definition of mathematics achievement used. This test broke the skills tested into mathematical reasoning, mathematical computation and mathematical application. The study states that boys are good in mathematical applications and girls in computation problems. Another factor has to do with role models. As the study puts it "because of the high proportion of female Japanese-American Public School teachers in Hawaii, girls may have powerful female sex role models showing them that academic achievement is possible and desirable" (Brandon, 1981, p. 28).

Also ethnicity may have played a big part in these results. Hawaii is highly multi-ethnic with high composition of Japanese-Americans. Brandon (1981) argues; "Japanese-American boys do not acculturate as quickly as Japanese-American girls . . . and peer values may not favour high achievement" (p. 28). It is clear here that the difference between American school values and Japanese ethnic values clash and Japanese boys do not accept the school values but
the girls do. This value conflict may spill over and encourage all Hawaiian girls to compete effectively for domination in schools.

Another study which seems to argue for girls superiority in Math and Science was conducted in Rhode Island, Sharon and Sharon (1986). These authors found that

in addition to choosing as many high level courses as their male classmates, young women in the sample tended to receive higher grades for their work in maths and science classes than their male counterparts. Sixty percent of all A's awarded in math and science classes were earned by females . . . Female students also received more B's awarded in math and science classes (52%).

Like the Hawaiian study, there seems to be factors working here which need to be noted. One of those is counseling which the study says was very good in the schools. Another was parents involvement in education. They quote a counselor saying:

We are largely a blue collar state, you know—with lots of second generation immigrants. A father knows his son can always get a job in the trades, but he worries about his daughter's future. So he pushes her to be prepared for college. Maybe that is why girls in this state take more math and science than boys. (p. 23)

Role models also played a part, just as in the Hawaiian study. Sharon and Sharon (1986) found that, in Rhode Island, there
were more female math teachers than male ones which and acted as role models for the girls.

Another thing to note here is that the study used teachers grades and not a standardized test. These grades did not correlate with the scores obtained by the same students from the federal standardized test where the boys outperformed girls. This leads to questions about the reliability of the teachers grades. Sharon and Sharon (1986) saw this possibility of error. "Do maths and science teachers in this state inflate the grades of young women?" (p. 23).

Gaskel and McLaren (1987) shed some light on the issue of the difference in girls' performance in teacher grades and grades from standardized tests. They suggested that:

... when women receive lower scores on standardized mathematics achievement tests it may be primarily a result of the fact that they have taken fewer courses. Most studies do not match females and males on number of courses taken. However, the ones that do usually find that sex-related differences in mathematics achievement become smaller or disappear on some or all of the tests that are used. (p. 134)

If this was the only reason, the differences should not show in countries like Kenya where mathematics is a compulsory subject for all the students both in all primary and secondary schools.
The Status of Technical Education

Due to the way in which technical education in Kenya was introduced during colonial times, technical education has been viewed by both parents and students, and, to a point by some educators, as having a lower status than straight academics. King (1977) argued that when technical education 'for the African' was introduced the main goal was to produce a graduate who could work for the colonial masters on non permanent employment terms. Their main tasks were building plantation houses, churches and schools. King (1977) shows that there was a serious difference between the aims of the early technical or vocational education system and the expectations of the trainees themselves. He illustrated this difference with the following quotation from the colonial Director of Education about training of African apprentices at the then Native Industrial Training Depot.

The employment of ex-apprentices on the farm is not an unqualified success. The farmer appears to have two needs. The first is a handy man ... The second is a man to do a piece of work which will occupy a month or so. This is a real difficulty. The boy who leaves the Native Industrial Training Depot wants and looks for permanent work.

(p. 25)

When students realized where the technical education as planned was leading to, they disputed and rejected it as inferior to straight academics. This rejection was so strong that the people refused government schools which offered
technical programs and started their own independent schools which offered straight academics. Later when the technical aspect was removed from the school system and put in separate trade schools, the same mistake was repeated by making these schools terminal i.e., without providing a way for the graduates to raise their academic levels later in life if they so wished.

Productive Roles vs Reproductive Roles

Tetreault (1986) argues that the problem of gender equity in education is brought about by society overvaluing the productive processes of society, such as political, legal and economics processes, and undervaluing the reproductive processes of society like child rearing, housekeeping and management, and other nurturing roles. Reproductive processes, she argues, are just as important as productive processes of society.

If the kinds of career programs and jobs that women normally choose to pursue were considered as important as those men pursue, resulting in equitable pay for both types of resultant careers, then perhaps the need to persuade girls to join technology based programs would be unnecessary.

Effects of Job Segregation on Boys

Sadker and Klein (1986) argue that emphasis on sex stereotyped programs hurts boys too. These authors argue that job segregation hurts boys who do not fit what is seen as
'real men', athletic, competitive and aggressive. These boys often have psychological and social problems both in and outside school, especially when they aspire to careers seen as unfit for them. As Sadker and Klein (1986) put it,

Sex stereotyping limits boys career options and interests. Boys interested in ballet, nursing, teaching kindergarten, or parenting and homemaking encounter negative messages in school and beyond. A comprehensive approach to eliminating sex bias from schools would increase the educational, career, and family opportunities for male as well as female students. (p. 22)

This is a point of view that, although important, does not seem to have attracted the attention of many researchers. It looks like the main question now as far as gender equity is concerned is how to get girls to accept a move into male dominated, science and technology based careers. This study therefore deals with the equity question mainly from increasing career opportunities for girls as this looks like a priority need right now. Study is however needed to find out how boys who are not suited for what is seen as 'mans jobs' can be encouraged to take career programs of their choice, regardless of social and psychological pressure put on them both at school and in society.
CHAPTER III
METHODOLOGY OF THE STUDY

INTRODUCTION

This chapter explains how the study was carried out. It contains information on who the subjects are, the data collection procedure followed and how the data were analyzed.

SUBJECTS

The study was carried out in Machakos District between May and August 1988. During this time secondary schools in Kenya were clustered into the following four categories:

1. Government Maintained Schools - government supplies teachers and bears the running costs.
2. Government Assisted Schools - government supplies some of the teachers but the other teachers and all the running costs are paid for by the community.
3. Unaided Harambee Schools - all teachers and all running costs borne by the community.
4. Private Secondary Schools - schools owned and run by individuals or groups, as business concerns.

Within category 1 there were three types of schools:

   a) Boys Only schools
   b) Girls Only schools
   c) Mixed (girls and boys) schools.

Schools within the other three categories were normally mixed schools.
In Machakos district, there were 218 secondary schools in total. Category 1 had 39 schools. Nine of these were boys only schools, ten were girls only schools and 20 were mixed schools. The other categories had the following number of schools each: category two - 80 schools, category three - 70 schools and category four - 28 schools.

Three schools were used in this study. One of the schools was a boys only school selected from category 1. The second school was a girls only school selected from category 1 also, and the third school was a mixed school selected from category 2. The reasons why category 3 and 4 schools were not used is because their intakes are not well monitored, and their teachers are privately employed and normally untrained. Consequently, the standards of these schools are quite different (normally very poor) from those of other categories.

The boys school and the girls school had three form three classes each. The agreement with heads of these schools was that full classes would be used in the study so 2 classes of 35 students each were selected from each of the 2 schools. The mixed school had 2 form 3 classes with 35 students each.

INSTRUMENTATION

Two questionnaires were used to collect the information used in this research. The main questionnaire was the students' questionnaire which was used to obtain information on the students' perceptions regarding career preparation
programs. The second questionnaire, the background questionnaire, was used to check the actual enrolment patterns of students in the middle colleges. The purpose of the background questionnaire was to find out whether the perceptions of the secondary school students tested were reflected in the actual enrolment patterns in the middle colleges.

Student Questionnaires

The students' questionnaire had 19 questions. Question one was used to obtain information on the students' choices of career programs which they would like to enter following their completion of form 4. The other questions formed groups around issues considered to influence students' choices of career programs identified in question 1. Group one, comprising questions 7, 8, 15 and 16, was used to obtain information on students' perceptions of the appropriateness of various career programs for girls and boys. Question 7 asked the students to state 3 jobs which they thought were more suitable for boys while question 8 asked them to state three jobs they thought were best suited for girls. Question 15 asked each student if they believed that there were jobs which boys performed better than girls, while question 16 asked them if they believed there were jobs girls performed better than boys. For both questions 15 and 16, if they said yes, they were asked to give an example and to give the reasons why they
thought so. For each of the questions 15 and 16 if a student said no, they were asked to give the reasons why.

Group 2, which included questions 2 and 4, was used to obtain information on the students' perceptions of the expectations of significant others. Questions 2 and 4 asked the students to indicate the careers they thought their parents and their teachers, respectively, would want them to train for.

Questions 11, 12, 13 and 14, together formed group 3 which was used to obtain information on students' perception of the influence of non-interpersonal factors on their career preparation program choices. Question 11 addressed the issue of job availability in different careers, question 12 the issue of chances for further studies, question 13 whether technical programs are above, below or at the students' academic ability, and question 14 the students' perceived abilities in different academic subjects.

Group 4, consisting of questions 3, 5, 18 and 19, was used to obtain information on the amount of information the students had prior to choosing the subjects they would pursue for a Kenya Certificate of Secondary Education (K.C.S.E.) Certification, which would, in part, determine the career fields they would be able to fit into in the future. Also, through these questions, the sources of information the students used to obtain their career information was determined. Question 3 asked the students the number of times
they discussed careers with their parents and question 5 the number of times they discussed careers with their teachers. Question 18 asked the students to explain what they thought people in different careers did, while question 19 asked them to indicate where they got their career information from.

Question 17 was used to find out the weight students placed on each of the factors considered above when they chose the career programs they wished to pursue. The idea here was to find out if girls placed their weight on different factors from those on which boys placed theirs.

A copy of the student questionnaire is provided in Appendix A.

Background Information Questionnaire

The background information questionnaire was in form of a table. The college administrations were asked to fill in information about the number of men and women enrolled in different career programs in each of the years 1985, 1986, 1987 and May 1988. The programs identified in the background questionnaire were those offered in middle colleges in Kenya. Teacher training, which was included in the students questionnaire, was not listed because only one of the middle technical colleges (K.T.T.C.) offered teacher training programs.

A copy of this questionnaire is included as Appendix B.
QUESTIONNAIRE ADMINISTRATION

The students' questionnaire was administered by the researcher. In all three schools surveyed, each class of 35 students was put into its own classroom. For each class, a teacher was assigned to supervise and make sure that students did not discuss the questions.

The students were assured that the questionnaire was purely for research purposes and that their responses had no effect on their future decision to choose other career programs. They were made aware though that information they were providing would be used by the Ministry of Education for planning purposes, so it was important that they take it seriously. Throughout the whole time the students worked on the questionnaire, the researcher moved between the two classes (within each school) answering questions and clarifying points that proved confusing to the students.

The background questionnaire was completed by the administration of each of the colleges surveyed. Seven colleges were selected for the survey. The researcher took the questionnaires to the colleges and collected them from the colleges after they were completed. The aim of this exercise was to provide information for comparison with the information from other countries as obtained through review of literature.
PROTOCOL

Before the study was conducted, permission had been obtained from the president's office as is required in Kenya today. A certificate was issued which was shown to the headmasters of the boys and mixed schools and the headmistress of the girls school surveyed.

Arrangements were made, with the headmaster of each sample school, for the data collection at the convenience of the school in order to minimize school disruptions.

DATA PREPARATION

The students' responses were given numerical codes for the purpose of data analysis. Preliminary examination of the responses to question 1 revealed that it would be more profitable to cluster the career programs into four categories: office, technical, agriculture and teaching. A fifth career program, medical, was identified initially by the girls (mainly nursing) and boys (mainly doctor) under the category other (see question 1 in student questionnaire). This category was maintained in the files but was not included in the analysis because it was not specifically given as one of the options to the student. It was felt that if this option had been given more students would likely have chosen it. Therefore the obtained frequencies in this category could not be used as a true representative response.
The coded data were transferred to Fortran coding forms. Identification codes for each school, each student in the school, and the gender of each student were included. The data were then entered in the computer with 100% verification. A 10% random sample of the students' data was selected from the computer file and compared with the original questionnaire. One error (wrong gender) was found.

Due to the format and type of data collected by the background information questionnaire, it did not require coding. It was therefore analyzed by hand.

STATISTICAL ANALYSIS

Student Questionnaire

For the student questionnaire, the statistical analysis was carried out in two stages; preliminary analysis and a final analysis.

Preliminary Analysis

A preliminary analysis was first carried out to check if there were differences in the career program choices between girls from the mixed school and from girls only school, and between boys from the mixed school and from the boys only school. There were no pattern differences found between the perceptions or aspirations of the boys or the girls from single sex schools and those from the mixed school.
Final Analysis

After ascertaining that there were no pattern differences, the schools were combined for a final analysis. The analysis was carried out using SPSS:X CROSSTABS program on the Amdahl 5860 computer maintained by U.B.C. Computing Centre. The statistics used were frequencies, percentages and chi-squares.

Background Questionnaire

The yearly enrollments of all the boys and girls in the Kenyan colleges surveyed were totaled and entered into one table. For each program, percentages of males and females in each year of enrolment were calculated and also entered into the table. Then the overall percentages for each program for all the years together were calculated such that the overall picture of gender representation in each program could be seen.
CHAPTER IV

RESULTS

INTRODUCTION

The results of analysis of the responses made to both the student questionnaire (Appendix A) and the background questionnaire (Appendix B) are presented in this chapter. First, a description of subjects is presented. This description is followed by presentation of results corresponding to the four main sections of the student questionnaire.

a) Students' perception of gender appropriate careers

b) Perception about the expectations of significant others

   i) Parental influence

   ii) Teacher's influence

c) Perception about the influence of non-interpersonal factors; and

d) The amount of career information the students have and their sources.

The questions that address the particular issue under each of these topics were analyzed separately. However, to aid in interpretation, the results were grouped together. A comment was then made as to the overall contribution of that particular issue towards the questions addressed by the study. The chapter concludes with presentation of the results related more specifically to technical education. As stated in
Chapter 2, Kenya government has been encouraging students to pursue technical education. The government seems to believe that this type of education will have the advantage of giving the students skills for starting small scale industries in the rural areas, thus reducing rural urban migration. Also, it is presently believed that most jobs in industry are technology based and that a large portion of office based jobs will be taken over by computers and dictaphones.

DESCRIPTION OF THE SUBJECTS

The group of students surveyed consisted of 118 boys and 92 girls. Their ages ranged from 15 to over 19 years of age as shown in Table 4.1.

<table>
<thead>
<tr>
<th>Students' Ages</th>
<th>15 years</th>
<th>16 years</th>
<th>17 years</th>
<th>18 years</th>
<th>19 and above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>1.7%</td>
<td>7.8%</td>
<td>12.1%</td>
<td>29.3%</td>
<td>49.1%</td>
</tr>
<tr>
<td>Girls</td>
<td>0.0%</td>
<td>14.1%</td>
<td>40.2%</td>
<td>34.8%</td>
<td>10.9%</td>
</tr>
</tbody>
</table>

The girls were younger than the boys. For example only 10.9% of the girls were over 18 years of age as compared to 49.1% of the boys. However, 14% of the girls and 9.5% of the boys were below 17 years of age.

Since the majority of the students were 17 years or older, it was felt that they were capable of making realistic
career choices if they had the right information and guidance to do so (see Herr, 1970).

The major occupations of the students' parents were as shown in Table 4.2.

Table 4.2
Parents' Occupations

A. Father's occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer</td>
<td>52.6%</td>
</tr>
<tr>
<td>Business</td>
<td>8.6%</td>
</tr>
<tr>
<td>Teacher</td>
<td>10.5%</td>
</tr>
<tr>
<td>Engineer</td>
<td>2.9%</td>
</tr>
<tr>
<td>Driver</td>
<td>2.4%</td>
</tr>
<tr>
<td>Clerk</td>
<td>2.9%</td>
</tr>
<tr>
<td>Salesman</td>
<td>2.4%</td>
</tr>
<tr>
<td>Other</td>
<td>17.6%</td>
</tr>
<tr>
<td>n</td>
<td>210</td>
</tr>
</tbody>
</table>

B. Mother's occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer</td>
<td>55.5%</td>
</tr>
<tr>
<td>Business</td>
<td>6.7%</td>
</tr>
<tr>
<td>Teacher</td>
<td>12.4%</td>
</tr>
<tr>
<td>Nurse</td>
<td>1.9%</td>
</tr>
<tr>
<td>Housewife</td>
<td>16.3%</td>
</tr>
<tr>
<td>Secretary</td>
<td>2.4%</td>
</tr>
<tr>
<td>Clerk</td>
<td>2.9%</td>
</tr>
<tr>
<td>Other</td>
<td>1.9%</td>
</tr>
<tr>
<td>n</td>
<td>210</td>
</tr>
</tbody>
</table>

It is important to note here that slightly more than 50% of the students reported that their parents are farmers. In Machakos, most of the farmers are subsistence farmers whose income is quite low. Consequently the majority of the students in the present study were from families with relatively low incomes.

STUDENTS PERCEPTION OF GENDER APPROPRIATE CAREERS

The first question dealt with in this study asked the students to identify their desired career preparation-program after form four (see question no. 1, Appendix A). Listed in Table 4.3 is a summary of the responses to this question for both the boys and the girls.
Table 4.3

Students' Perception of Their Desired Choices of Career Preparation Program

<table>
<thead>
<tr>
<th></th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teaching</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>7.4%</td>
<td>39.8%</td>
<td>43.5%</td>
<td>9.3%</td>
<td>108</td>
</tr>
<tr>
<td>Girls</td>
<td>34.4%</td>
<td>2.9%</td>
<td>44.3%</td>
<td>18.6%</td>
<td>70</td>
</tr>
<tr>
<td>Overall</td>
<td>18.0%</td>
<td>25.3%</td>
<td>43.8%</td>
<td>12.9%</td>
<td>178</td>
</tr>
</tbody>
</table>

Chi square = 42.87; df = 3; p < 0.05

Note:  
(a) Office includes secretarial, and clerical career programs.
(b) Technical includes mechanical, electrical, building, and automotive career programs.
(c) There were 32 missing cases. The total number of subjects was 210.

Agriculture was the most frequently selected career preparation program (43.8%), followed in order by technical (25.3%), office (18.0%), and teaching (12.9%). However, as shown in Table 4.3, there are significant differences between boys and girls ($\chi^2 = 42.87; p < .05$). While more girls than boys indicated that they would select office programs (34.3% girls verses 7.4% boys) or teaching programs (18.6% girls verses 2.9% boys), a greater percentage of boys (39.9% verses 2.9% girls) indicated that they wished to enter technical programs. Equal percentages of boys and girls (44%) indicated that they would enter agriculture.

To aid in interpreting these career program choices and to examine the influence of gender, the students were asked to
indicate which jobs they thought were most suitable for men and for women (Questions 7 and 8). Their responses are summarized in Table 4.4. Interestingly, while almost 44% of the students indicated they wished to enter a career preparation in agriculture, 12.9% of the students suggested that a job in agriculture was best for boys as compared to only 2.6% who said a job in agriculture was best for girls. The differences in the remaining jobs seen by the students as best for boys and girls mirrored the differences in the career preparation program choices, e.g., for office, 46.6% girls vs. 6.2% boys (Table 4.4), compared to 34.3% girls vs. 7.4% boys (Table 4.3).

Table 4.4

<table>
<thead>
<tr>
<th></th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teaching</th>
<th>Nurse</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>As Boys</td>
<td>6.2%</td>
<td>60.6%</td>
<td>12.9%</td>
<td>6.0%</td>
<td>0.0%</td>
<td>210</td>
</tr>
<tr>
<td>As Girls</td>
<td>46.6%</td>
<td>0.5%</td>
<td>2.6%</td>
<td>24.7%</td>
<td>17.7%</td>
<td>210</td>
</tr>
</tbody>
</table>

Chi square = 281.6; df = 4; p < 0.05

Note: Each student gave 3 jobs for girls and 3 for boys.

The reasons given by the students as to why they felt a particular job was more suitable for boys or for girls are summarized in Table 4.5.
Table 4.5
Reasons For Classifying Jobs as Best for Boys and for Girls

(A) FOR BOYS

<table>
<thead>
<tr>
<th></th>
<th>Financial Benefits</th>
<th>Boys Better in Academics</th>
<th>More Physical Strength</th>
<th>Interests Boys Not Girls</th>
<th>Forceful Character Required</th>
<th>Industrial Preference</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOYS</td>
<td>21.2%</td>
<td>24.2%</td>
<td>39.4%</td>
<td>4.0%</td>
<td>8.1%</td>
<td>1.0%</td>
<td>99</td>
</tr>
<tr>
<td>GIRLS</td>
<td>9.8%</td>
<td>18.3%</td>
<td>65.9%</td>
<td>3.7%</td>
<td>2.4%</td>
<td>0.0%</td>
<td>82</td>
</tr>
<tr>
<td>OVERALL</td>
<td>16.0%</td>
<td>21.5%</td>
<td>51.4%</td>
<td>3.9%</td>
<td>5.5%</td>
<td>0.6%</td>
<td>181</td>
</tr>
</tbody>
</table>

(B) FOR GIRLS

<table>
<thead>
<tr>
<th></th>
<th>Less Physical Strength</th>
<th>Less Thinking Ability Required</th>
<th>Interests girls and not boys</th>
<th>Requires more tolerance</th>
<th>Gives time for family</th>
<th>Industry Prefers</th>
<th>Girls Better in Communication</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOYS</td>
<td>57.0%</td>
<td>5.0%</td>
<td>8.0%</td>
<td>16.0%</td>
<td>6.0%</td>
<td>3.0%</td>
<td>5.0%</td>
<td>100</td>
</tr>
<tr>
<td>GIRLS</td>
<td>52.7%</td>
<td>6.8%</td>
<td>9.5%</td>
<td>13.5%</td>
<td>10.8%</td>
<td>2.7%</td>
<td>4.1%</td>
<td>74</td>
</tr>
<tr>
<td>OVERALL</td>
<td>55.2%</td>
<td>5.7%</td>
<td>8.6%</td>
<td>14.9%</td>
<td>8.0%</td>
<td>2.9%</td>
<td>4.6%</td>
<td>174</td>
</tr>
</tbody>
</table>

The major thing to note here is that the students seem to believe that jobs requiring a lot of physical strength and high academic ability are for boys. They also indicate that boys are more concerned with financial rewards in a job than are girls.

To further check gender stereotyping, the students were asked to indicate whether they believed there were jobs that boys performed better than girls (question 15) and jobs that girls performed better than boys (question 16) and if so, to
give an example of each. They were also asked to give reasons for their answers. These responses are summarized in Tables 4.6 and 4.7.

Table 4.6

Are There Jobs Boys Can Do Better Than Girls

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>94.4%</td>
<td>5.1%</td>
<td>118</td>
</tr>
<tr>
<td>Girls</td>
<td>88.0%</td>
<td>12.0%</td>
<td>92</td>
</tr>
<tr>
<td>Overall</td>
<td>91.9%</td>
<td>8.4%</td>
<td>210</td>
</tr>
</tbody>
</table>

Chi-square = 2.42247 ; df=1 ; n.s.

(B) Examples

<table>
<thead>
<tr>
<th></th>
<th>Secretarial</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Catering</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>1.3%</td>
<td>94.8%</td>
<td>2.6%</td>
<td>1.3%</td>
<td>77</td>
</tr>
<tr>
<td>Girls</td>
<td>0.0%</td>
<td>98.7%</td>
<td>1.2%</td>
<td>0.0%</td>
<td>74</td>
</tr>
<tr>
<td>Overall</td>
<td>0.7%</td>
<td>96.7%</td>
<td>2.0%</td>
<td>0.7%</td>
<td>151</td>
</tr>
</tbody>
</table>

(C) Reasons For Saying Yes

<table>
<thead>
<tr>
<th></th>
<th>Boys are brave</th>
<th>Boys better in academics</th>
<th>Requires a lot of strength</th>
<th>Girls prefer safer work</th>
<th>Girls like neatness</th>
<th>No time for family</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>13.3%</td>
<td>10.0%</td>
<td>59.9%</td>
<td>11.1%</td>
<td>1.1%</td>
<td>5.6%</td>
<td>90</td>
</tr>
<tr>
<td>Girls</td>
<td>2.7%</td>
<td>6.8%</td>
<td>83.8%</td>
<td>2.7%</td>
<td>2.7%</td>
<td>1.4%</td>
<td>74</td>
</tr>
<tr>
<td>Overall</td>
<td>8.5%</td>
<td>8.5%</td>
<td>70.1%</td>
<td>7.3%</td>
<td>1.8%</td>
<td>3.7%</td>
<td>164</td>
</tr>
</tbody>
</table>

NOTE: 1. The five boys who responded no indicated that anybody can do any job as long as they are trained in it; 10 out of 11 of the girls who responded no suggested the same.

2. There is no disagreement between boys and girls in believing that there are jobs which are more suitable for girls than for boys.
Table 4.7

(A) Are There Jobs That Girls Can Do Better Than Boys

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>72.2%</td>
<td>27.8%</td>
<td>115</td>
</tr>
<tr>
<td>Girls</td>
<td>75.8%</td>
<td>24.2%</td>
<td>91</td>
</tr>
<tr>
<td>Overall</td>
<td>73.8%</td>
<td>26.2%</td>
<td>206</td>
</tr>
</tbody>
</table>

Chi-square = 0.11668; df=1; n.s.

(B) Examples

<table>
<thead>
<tr>
<th></th>
<th>Secretarial</th>
<th>Clerical</th>
<th>Teaching</th>
<th>Nursing</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>.42.6%</td>
<td>6.6%</td>
<td>0%</td>
<td>50.8%</td>
<td>61</td>
</tr>
<tr>
<td>Girls</td>
<td>47.4%</td>
<td>8.8%</td>
<td>5.3%</td>
<td>38.6%</td>
<td>57</td>
</tr>
<tr>
<td>Overall</td>
<td>73.8%</td>
<td>7.6%</td>
<td>2.5%</td>
<td>44.9%</td>
<td>118</td>
</tr>
</tbody>
</table>

(C) Reasons For Saying Yes

<table>
<thead>
<tr>
<th></th>
<th>Girls have better attitude</th>
<th>Less physical strength required</th>
<th>Girls better in communication</th>
<th>Girls like merciful neatness</th>
<th>Job is simple</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>41.7%</td>
<td>10.0%</td>
<td>0%</td>
<td>5.0%</td>
<td>33.3%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Girls</td>
<td>38.3%</td>
<td>17.0%</td>
<td>2.1%</td>
<td>8.5%</td>
<td>29.8%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Overall</td>
<td>40.2%</td>
<td>13.1%</td>
<td>.9%</td>
<td>6.5%</td>
<td>31.8%</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

(D) Reasons For Saying NO

<table>
<thead>
<tr>
<th></th>
<th>Boys can do any job</th>
<th>Boys and girls have same aptitude</th>
<th>Physical strength is no deterrent</th>
<th>Anybody trained can do any job</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>73.3%</td>
<td>0%</td>
<td>3.3%</td>
<td>23.3%</td>
<td>30</td>
</tr>
<tr>
<td>Girls</td>
<td>54.5%</td>
<td>4.5%</td>
<td>0%</td>
<td>40.9%</td>
<td>22</td>
</tr>
<tr>
<td>Overall</td>
<td>65.4%</td>
<td>1.9%</td>
<td>1.9%</td>
<td>30.8%</td>
<td>52</td>
</tr>
</tbody>
</table>

NOTE: 73.3% (30) of the boys and 54.5% (22) of the girls who responded no indicated that boys can do any job while 23.3% of these boys and 40% of these girls indicated anybody trained can do any job.
One very important aspect to note from Table 4.6 and Table 4.7 is that although only 8.4% of the students suggested that there are no jobs boys can do better than girls, as high as 25.6% suggested that there are no jobs girls can do better than boys.

The reasoning that jobs seen as requiring a lot of physical strength would be classified as men's jobs was expected. What was not expected is that the students, including the girls themselves, suggested that boys could do certain jobs better than girls because boys are better in academics.

To further clarify the issue of physical strength, students were asked to indicate the amount of physical strength required to perform technical jobs (question 10). The results are summarized in Table 4.8.

<table>
<thead>
<tr>
<th></th>
<th>Requires more strength than I have</th>
<th>Requires strength that would leave me tired</th>
<th>Requires strength that I can handle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>9.5%</td>
<td>15.5%</td>
<td>75%</td>
</tr>
<tr>
<td>Girls</td>
<td>25.0%</td>
<td>18.5%</td>
<td>56.5%</td>
</tr>
</tbody>
</table>

Chi-square = 10.45; df = 2; p < 0.05
The strength factor may have an effect on the reluctance of girls to get into technical jobs since 43.5% of the girls seem to think that technical jobs require a lot of strength to do.

Also, to further clarify the issue of academic requirements, and their influence upon the decision to enter technical careers, the students were asked to indicate the level of academic ability required to perform technical jobs (question 13). The responses were summarized as shown in Table 4.9.

Table 4.9

Students' Perception of Academic Ability Required to Perform Technical Jobs

<table>
<thead>
<tr>
<th></th>
<th>Above my Ability</th>
<th>At my Ability</th>
<th>Below my Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>20.5</td>
<td>76.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Girls</td>
<td>41.3</td>
<td>53.3</td>
<td>5.4</td>
</tr>
<tr>
<td>Overall</td>
<td>29.7</td>
<td>66.5</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Chi Square = 12.95; df = 2; p < 0.05

The results seem to support the students' belief that boys are better academically than girls (see Table 4.6 Part C); since 41.3% of the girls compared to 20.5% of boys seem to believe that technical jobs require higher academic ability than they can achieve. This perception might have an effect on the girls' reluctance to get into technical education.
Summary

Comparing the results for questions 7, 8, 15 and 16 to the results for question 1, it can be seen that with the exception of agriculture there is a direct relationship between what the students saw as appropriate for their gender and what they chose. Also, both boys and girls agree on which jobs they perceived as women jobs' and they perceived as 'mens jobs'. Thirdly, they seem to agree on the reasons for classifying the jobs as either suitable for women or for men.

PERCEPTIONS ABOUT THE EXPECTATIONS OF SIGNIFICANT OTHERS

The students were asked to indicate the career preparation programs they believed their parents (question 2) and teachers (question 3) would choose for them. Both parents and teachers were identified, through literature review, as the people in the best position to influence a student's choice. These perceptions were then compared with what the students had indicated they would choose for themselves.

Parental Influence

The responses to questions 1 and 2 are summarized together in Table 4.10. The table provides an indication of the extent of agreement between what career preparation programs students chose for themselves and what the students perceived their parents would choose for them. The summaries are reported separately for boys and girls.
Table 4.10
Agreement Between Students' Choice And Their Perceived Parents Choice

(A) Boys

<table>
<thead>
<tr>
<th>Q1</th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Technical</td>
<td>1</td>
<td>18</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1</td>
<td>8</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Teaching</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5</td>
<td>34</td>
<td>36</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: Q1 = Students' choices of career preparation programs
Q2 = Perceived parents' choices of careers for their sons

(B) Girls

<table>
<thead>
<tr>
<th>Q1</th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>11</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Technical</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Agriculture</td>
<td>3</td>
<td>0</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Teaching</td>
<td>5</td>
<td>0</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19</td>
<td>2</td>
<td>26</td>
<td>13</td>
</tr>
</tbody>
</table>

Note: Q1 = Students' choices of career programs
Q2 = Perceived parents' choices of careers for their daughters
The results in Table 4.10(A) show that 48 boys out of the 83 boys who responded to both questions 1 and 2 had choices that agreed with their perception of what their parents would choose for them. This works out to an overall agreement of 57.8%. Of these 48 boys, 2 were in office, 18 in technical, 23 in agriculture, and 5 in teacher training. It should also be noted that even when the student's choice and his perceived parental choice do not agree, both choices are concentrated around technical programs (34 students and 26 parents) and agriculture (36 students and 33 parents) and that only 5 students and 6 parents choose office programs. This makes office the least popular choice for boys both by the students and their parents.

The results in Table 4.10(B) show that of the 60 girls who responded to questions 1 and 2, 34 matched their own choice of a career preparation program with what they perceived their parents' would choose for them. This works out to an overall 56.7% agreement. For the girls, the agreement was distributed as follows: office - 11, technical - 1, agriculture - 16, teaching - 6. It should be noted here that even when the student's choice and her perceived parental choice do not agree, both choices are concentrated around office programs (19 students and 19 parents) and as with the boys agricultural programs (26 students and 21 parents). The least popular choice for girls is technical programs (chosen by only one girl).
A comparison of the agreement for boys and the agreement for girls is shown in Table 4.11.

Table 4.11

The Difference Between Agreement for Boys and for Girls with Perceived Parents' Choice

<table>
<thead>
<tr>
<th></th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>2</td>
<td>18</td>
<td>23</td>
<td>5</td>
<td>48</td>
</tr>
<tr>
<td>Girls</td>
<td>11</td>
<td>1</td>
<td>16</td>
<td>6</td>
<td>34</td>
</tr>
</tbody>
</table>

Chi Square = 20.99; df = 3; p < 0.05

Looking at the results of Table 4.10(A) and 4.10(B), one realizes that there is no difference between the overall percentages of girls and boys whose choices matched their perceived parents' choices. However, Table 4.11 shows that there is a difference in the programs for which there was agreement for girls and for boys. For boys, the main fields of agreement are agriculture (23 out of 48) and technical (18 out of 48) while for girls they are agriculture (16 out of 34) and office (11 out of 34).

Teachers' Influence

The responses to questions 1 and 3 are summarized together in Table 4.12. This table provides an indication of the extent of agreement between what career programs the students chose for themselves and what they perceived their teachers would choose for them. The summaries are reported separately for boys 4.12(A) and for girls 4.12(B).
Table 4.12
Agreement Between Students Choices and Their Perceived Teachers Choice

(A) Boys

<table>
<thead>
<tr>
<th>Q3</th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Technical</td>
<td>3</td>
<td>22</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1</td>
<td>10</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>Teaching</td>
<td>3</td>
<td>7</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8</td>
<td>41</td>
<td>44</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: Q1 = Students' choices of career preparation programs
      Q3 = perceived teachers' choices

(B) Girls

<table>
<thead>
<tr>
<th>Q3</th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>13</td>
<td>1</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Technical</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2</td>
<td>0</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Teaching</td>
<td>6</td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>23</td>
<td>2</td>
<td>29</td>
<td>11</td>
</tr>
</tbody>
</table>

Note: Q1 = Students' choices of career preparation program
      Q3 = perceived teachers' choices
As shown in Table 4.12(A) the overall agreement between what the boys chose for themselves and what they perceived their teachers would choose for them was 51 out of 102 boys or 50%. Of these 51 boys, 1 was in office, 22 in technical, 23 in agriculture and 5 in teaching. Where the boys' choices did not agree with their perceptions of their teachers' choice, both choices concentrated around technical (41 students and 32 parents) and agriculture (44 students and 36 parents) as compared to office (8 students and 7 parents) and teaching (9 students and 27 parents).

Table 4.12(B) shows a 44.6% overall agreement between the girls' choices and what they perceived their teachers would choose for them (20 out of 65 who responded to both questions 1 and 4). These 20 are distributed as follows: 13 in office, 1 in technical, 12 in agriculture, and 3 in teaching. For girls, where there was disagreement between their choice and what they perceived their parents would choose for them, both choices concentrate around office (23 students and 29 parents), agriculture (29 students and 15 parents), and teaching (11 students and 17 parents). This indicates that technical jobs are not seen as suitable for girls judging by the girls' own choices (only 2) or by their perceived teachers' choices (only 4).

A comparison for the agreement for boys and for girls is shown in Table 4.13.
Table 4.13

Difference Between Boys' Agreement and Girls' Agreement With Perceived Teachers Choice

<table>
<thead>
<tr>
<th></th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teaching</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>1</td>
<td>22</td>
<td>23</td>
<td>5</td>
<td>65</td>
</tr>
<tr>
<td>Girls</td>
<td>13</td>
<td>1</td>
<td>12</td>
<td>3</td>
<td>29</td>
</tr>
</tbody>
</table>

Chi square 33.32; df = 3; p < 0.05

Summary

Comparing the results in Table 4.10 to those reported in Table 4.12 it seems like parents have a slightly higher influence on the boys' choices (58% agreement with parents compared to 50% agreement with teachers) and the girls (57% agreement with parents verses 44.6% agreement with teachers) than the teachers have.

PERCEPTIONS ABOUT THE INFLUENCE OF NON-INTERPERSONAL FACTORS

The non-interpersonal factors that were seen potentially to have influence on students when selecting their career preparation programs and which were considered in the present study included job availability, academic ability and chances for further studies.

The extent of agreement between students' choices of career programs and their perceptions of job availability in different fields (Question 11) is summarized in Table 4.14.
TABLE 4.14
Agreement Between Students' Choices and Their Perception of Programs with High Job Availabilities

(A) Boys

<table>
<thead>
<tr>
<th>Q4</th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Technical</td>
<td>4</td>
<td>27</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1</td>
<td>7</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>Teaching</td>
<td>2</td>
<td>7</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8</td>
<td>41</td>
<td>45</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: Q1 = Students' choices of career preparation program
Q4 = perceived job availability

(B) Girls

<table>
<thead>
<tr>
<th>Q4</th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>13</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Technical</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2</td>
<td>0</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Teaching</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>23</td>
<td>2</td>
<td>30</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: Q1 = Students' choices of career preparation program
Q4 = perceived job availability
The results of Table 4.14(A) show that the agreement between what career program the male students chose (Table 4.3) and the program they perceived as providing the highest chance of obtaining a job was 49.5% (51 out of 103 boys). This agreement, however, is not evenly distributed in each program but rather favors certain programs, i.e., 1 for office, 27 for technical, 19 for agriculture and 4 for teacher. It should also be noted that only 1 male student saw office as having high job availability, making office the least preferred career for boys.

The results for girls indicate an agreement of 47.8% (32 out of 67 girls) between what they chose and the program they saw as having the highest possibility of getting a job. This agreement is distributed differently to that for boys careers (Table 4.14(A)). For girls, the distribution is 13 for office, 1 for technical, 12 for agriculture and 6 for teacher training. This shows that technical is not a popular choice by the girls (only 2 girls chose it) though 11 of them see technical as a field with higher job availability.

A comparison for the agreement for boys and for girls is shown in Table 4.15.
Table 4.15

Difference in Agreement Between Girls and Boys with Their Perception of Career With Higher Job Availability

<table>
<thead>
<tr>
<th></th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>1</td>
<td>27</td>
<td>19</td>
<td>4</td>
<td>51</td>
</tr>
<tr>
<td>Girls</td>
<td>13</td>
<td>1</td>
<td>12</td>
<td>6</td>
<td>52</td>
</tr>
</tbody>
</table>

Chi-square = 36.6; df = 3; p < 0.05

Looking at Table 4.15, it is seen that there is no difference between boys and girls agreement with their perception of the chances for job availability in agriculture and teaching careers. However, there is a big difference between their agreements as concerns chances for job availability in technical careers and office based careers.

The results of the agreement between students' perception of the careers with higher chances for further studies (question 12) and the students own choices are as shown in Table 4.16.
Table 4.16

Students' Perception of Program Leading to Jobs
With a Better Chance for Further Studies

(A) Boys

<table>
<thead>
<tr>
<th>Q5</th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Technical</td>
<td>2</td>
<td>28</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2</td>
<td>8</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>Teaching</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8</td>
<td>41</td>
<td>43</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: Q1 = Students' choices of career preparation programs
      Q5 = Perceived chances of further studies

(B) Girls

<table>
<thead>
<tr>
<th>Q5</th>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>7</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Technical</td>
<td>6</td>
<td>2</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Agriculture</td>
<td>5</td>
<td>0</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Teaching</td>
<td>6</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>24</td>
<td>2</td>
<td>28</td>
<td>13</td>
</tr>
</tbody>
</table>

Note: Q1 = Students' choices of career preparation programs
      Q5 = Perceived chances of further studies

The results of table 4.16(A) shows an agreement of 55.9%, between the male students' career program choice and the program they see as having higher chances for further studies.
(57 of 102 who answered both question 1 and question 11). The agreement however was not evenly distributed in all the fields; 3 were in office, 28 in technical, 21 in agriculture, and 5 in teacher training.

The agreement shown in Table 4.16(B) between the female students choices and the programs they see as having higher chances for further studies is 42.8% (28 out of 67). The 28 students represented by this agreement are distributed in different programs as follows: 7 in office, 2 in technical, 13 in agriculture and 6 in teacher training. It was noted that although only 2 girls chose technical, 21 of them rate it as the field with the highest chances for further studies.

Looking at Tables 4.16(A) and 4.16(B) together one realizes that there is an appreciable difference between girls (42.8%) and boys (55.9%) as regards the agreement between students' own choice and their perceptions regarding career programs that lead to further studies. It seems as though further studies is not a priority for girls.

A comparison for the agreement of the students' own choice and their perception of further studies for boys and for girls is shown in Table 4.17.
Table 4.17

Difference Between the Girls and Boys Agreement with their Perception of the Career Programs with Better Chances for Further Studies

<table>
<thead>
<tr>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Teacher</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>3</td>
<td>28</td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td>Girls</td>
<td>7</td>
<td>2</td>
<td>13</td>
<td>6</td>
</tr>
</tbody>
</table>

Chi square = 59.43 ; df = 3 ; p < 0.05

Another factor that this study considered was students perception of their own academic ability in different subjects. The students were asked to rank what they perceived as their four best subjects (see question 14). The results are tabulated in two ways in Table 4.18. First in part A for the students best four subjects and part B for the student's overall best subject.

TABLE 4.18

Students' perception of their academic ability in different subjects

(A) As one of the students best four subjects:

<table>
<thead>
<tr>
<th>Business</th>
<th>English</th>
<th>Geography</th>
<th>History</th>
<th>Maths</th>
<th>Science</th>
<th>Swahili</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>41%</td>
<td>59%</td>
<td>62%</td>
<td>38%</td>
<td>68%</td>
<td>58%</td>
</tr>
<tr>
<td>Girls</td>
<td>63%</td>
<td>77%</td>
<td>61%</td>
<td>38%</td>
<td>58%</td>
<td>37%</td>
</tr>
</tbody>
</table>

(B) As the students best subject:

| Boys     | 13.6%   | 19.4%    | 17.8%   | 12.7% | 29.7%   | 18.6%   | 11.9% |
| Girls    | 22.8%   | 28.3%    | 17.4%   | 13.0% | 18.5%   | 7.6%    | 15.2% |
It is seen that while there are no differences between boys and girls in their perception of their academic ability in Geography and History but the rest of the subjects are polarized along gender lines. Girls seem to perceive themselves as good in Business, English, and Swahili while boys seem to perceive themselves as good in Mathematics and Science. This may be one of the major reasons the girls chose office jobs over technical. Technical jobs generally require good grounding in science subjects for which the girls seem to have negative self-perception, while office jobs seem to require good ability in languages for which the girls seem to have positive academic self-perception.

Summary

Looking at all the major factors examined in the study, Table 4.19 was produced as a summary, which was expected to show the factors with high overall influences on the students' choices.

Table 4.19

Summary of the effects of different factors on student choice

<table>
<thead>
<tr>
<th></th>
<th>Parent Expectations</th>
<th>Teacher Expectations</th>
<th>Job Availability</th>
<th>Further Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>57.8%</td>
<td>50.0%</td>
<td>49.5%</td>
<td>55.9%</td>
</tr>
<tr>
<td>Girls</td>
<td>56.7%</td>
<td>44.6%</td>
<td>47.8%</td>
<td>42.8%</td>
</tr>
</tbody>
</table>
IMAGE OF TECHNICAL EDUCATION

As pointed out in Chapter II, the Kenya Government has devoted itself to increasing the technical capacity of the country. The issues related to the image technical education projects to the students were examined in this study. First, the students were asked to indicate how interesting technical careers are (question 9). The results are summarized in Table 4.20.

TABLE 4.20

Students level of interest in technical careers

<table>
<thead>
<tr>
<th></th>
<th>Very interesting</th>
<th>Interesting enough</th>
<th>Dull</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>65.8%</td>
<td>32.5%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Girls</td>
<td>50.0%</td>
<td>44.6%</td>
<td>5.4%</td>
</tr>
</tbody>
</table>

Chi-square = 6.31; df = 3; p < 0.05

It is surprising to note that Table 4.20 shows that only 1.7% of the boys and 5.4% of the girls indicate that technical education is dull yet 60.2% of the boys and 97.1% of the girls chose some other career.

Question 6 was used to find out if the students thought the industry would be willing to employ them, regardless of gender, if they were trained as technicians. The summary of the responses to this question is shown in Table 4.21.
Table 4.21

Students' Perceptions of Industry's Preference for Employment in the Technical Fields

<table>
<thead>
<tr>
<th>Industry willing</th>
<th>Industry hesitant</th>
<th>Industry not willing</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>68.1%</td>
<td>25.9%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Girls</td>
<td>58.9%</td>
<td>32.2%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Overall</td>
<td>64.1%</td>
<td>28.6%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

Chi-square = 1.9544; df = 2; N.S.

The perceived industrial preference of boys and of girls was essentially the same ($\chi^2 = 1.95; p < .38$) therefore cannot be taken as a reason for girls not choosing technical training programs.

Lastly, the students' intended program choices were compared with the distribution of students currently enrolled in the technical colleges in Kenya. This distribution is shown in Table 4.22.

Table 4.22

Enrolment Patterns for Males and Females In Technical Colleges in Kenya Between 1985 and 1988

<table>
<thead>
<tr>
<th>Office</th>
<th>Technical</th>
<th>Agriculture</th>
<th>Home Economics</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>0.8%</td>
<td>88.0%</td>
<td>10.3%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Girls</td>
<td>51.9%</td>
<td>11.2%</td>
<td>10.7%</td>
<td>26.2%</td>
</tr>
<tr>
<td>n</td>
<td>331</td>
<td>2283</td>
<td>323</td>
<td>180</td>
</tr>
</tbody>
</table>

Chi square = 2117.3; df = 3; p < 0.05
Comparing the enrolment data summarized in Table 4.22 with the students' choices in Table 4.3 one realizes that although agriculture is the most preferred career preparation program for 43.8% of the sampled students, the preparation of students currently enrolled in agricultural career programs in the technical colleges sampled is only 10.1%. It should be noted however that in both Table 4.22 and Table 4.3 the percentages of females and males in agriculture are equivalent. Apart from agriculture, Table 4.22 shows that a greater percentage of girls than boys enrolled in office work (51.9% vs. 0.8%) while boys prefer technical work (88% vs. 11.2%). These results follow a similar pattern to that observed in Table 4.3 where more girls than boys prefer office (34.3% vs. 7.4%) and more boys than girls preferred technical (29.8% vs. 2.9%).

AMOUNT OF CAREER INFORMATION THE STUDENTS HAVE AND THEIR SOURCES

Besides assessing student perceptions about career programs they preferred to enter and the influence of different factors upon their decisions, the students were also asked about the career information they had before choosing the subjects they would take to prepare for the form 4 national examination, K.C.S.E., and where they got this information. First the students were asked to indicate the times they discussed careers with their parents (question 3). A summary of the results is shown in Table 4.23.
TABLE 4.23

Number of times students had discussed career choices with their parents

<table>
<thead>
<tr>
<th></th>
<th>Discussed more than once</th>
<th>Once</th>
<th>Never discussed n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>40.4%</td>
<td>20.2%</td>
<td>39.5%</td>
</tr>
<tr>
<td>Girls</td>
<td>37.4%</td>
<td>22.0%</td>
<td>40.7%</td>
</tr>
<tr>
<td>Overall</td>
<td>39.0%</td>
<td>21.0%</td>
<td>40.0%</td>
</tr>
</tbody>
</table>

Chi-square = 0.21; df = 2; n.s.

These results show that as far as the students could remember only about 40% of the girls and 40% of the boys had discussed career choices with their parents more than once. These students being in form 3 had already chosen the subjects they were pursuing for K.C.S.E. which would determine which career programs they would be eligible for in the future.

As said before, the other group of people who are close to the students is their teachers, so it was logical to find out how much discussion there might have been between the students and the teachers (question 5). The results are tabulated in Table 4.24.
TABLE 4.24

Number of times students discussed career choices with teachers

<table>
<thead>
<tr>
<th></th>
<th>More than once</th>
<th>Once</th>
<th>Never Discussed</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>26.3%</td>
<td>12.7%</td>
<td>61.0%</td>
<td>118</td>
</tr>
<tr>
<td>Girls</td>
<td>17.8%</td>
<td>31.1%</td>
<td>51.1%</td>
<td>90</td>
</tr>
<tr>
<td>Overall</td>
<td>22.6%</td>
<td>20.7%</td>
<td>56.7%</td>
<td>198</td>
</tr>
</tbody>
</table>

Chi square = 10.51; df = 2; p < 0.05

These results show that only 26% of the boys and 17.8% of the girls, as far as they could remember, had discussed careers with their teachers more than once. Also they show that as high as 51% of the girls and 61% of the boys had not discussed any careers with their teachers before they chose the subjects they were going to pursue for K.C.S.E.

Question number 19 asked the students their source of career information. The results are shown in Table 4.25.

TABLE 4.25

Sources of career information

<table>
<thead>
<tr>
<th></th>
<th>Parents</th>
<th>Peers</th>
<th>Teachers</th>
<th>Books</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>5.4%</td>
<td>43.2%</td>
<td>23.4%</td>
<td>27.9%</td>
<td>111</td>
</tr>
<tr>
<td>Girls</td>
<td>12.0%</td>
<td>25.3%</td>
<td>42.2%</td>
<td>20.5%</td>
<td>83</td>
</tr>
<tr>
<td>Overall</td>
<td>8.2%</td>
<td>35.6%</td>
<td>31.4%</td>
<td>24.7%</td>
<td>194</td>
</tr>
</tbody>
</table>

Chi-square = 13.21; df = 3; p < 0.05
From these results it seems that 71% of the boys feel that their main source of career information was either books or their peers. For the girls the percentage is lower at 45.8%. One should note that only 5.4% of the boys and 12.0% of the girls indicated that their main source of career information was their parents, although parents, as the primary socializers, should have had more input. Also, it seems as though teachers have more effect on girls' choices (42.2% regarded them as their major source) than on boys (only 23.4% regarded them as their major source).

Question 18 was used to find out if the students knew what different people in different careers do. It may be necessary to point out here that an elaborate explanation was not expected and any indication of some idea of what the occupation involved was taken as knowledge. The results, tabulated in Table 4.26, showed mixed levels of knowledge from occupation to occupation and also showed a gender difference in these knowledge levels according to whether the job is traditionally gender appropriate. Exceptions of this are masonry, typist and electrical technician where students, female or male seemed to have fair knowledge. For clerical, both female and male students seemed to have all sorts of ideas of what a clerk does in an office, almost to giving him or her the overall running of the company or institution.
**TABLE 4.26**

What students think people do in different careers

<table>
<thead>
<tr>
<th></th>
<th>Mechanical Technician</th>
<th>Electrical Technician</th>
<th>Secretary</th>
<th>Clerk</th>
<th>Accounts Person</th>
<th>Mason</th>
<th>Typist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(A) BOYS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know</td>
<td>63.6%</td>
<td>78.0%</td>
<td>53.4%</td>
<td>44.9%</td>
<td>70.3%</td>
<td>92.4%</td>
<td>86.4%</td>
</tr>
<tr>
<td>Don't Know</td>
<td>36.4%</td>
<td>22.0%</td>
<td>46.6%</td>
<td>55.1%</td>
<td>29.7%</td>
<td>7.6%</td>
<td>13.6%</td>
</tr>
<tr>
<td><strong>(B) GIRLS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know</td>
<td>43.5%</td>
<td>79.3%</td>
<td>64.1%</td>
<td>42.4%</td>
<td>65.2%</td>
<td>91.3%</td>
<td>88.0%</td>
</tr>
<tr>
<td>Don't Know</td>
<td>56.5%</td>
<td>20.7%</td>
<td>35.9%</td>
<td>57.6%</td>
<td>34.8%</td>
<td>8.7%</td>
<td>12.0%</td>
</tr>
<tr>
<td><strong>(C) OVERALL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know</td>
<td>54.8%</td>
<td>78.6%</td>
<td>58.1%</td>
<td>43.8%</td>
<td>68.1%</td>
<td>91.9%</td>
<td>87.1%</td>
</tr>
<tr>
<td>Don't Know</td>
<td>45.2%</td>
<td>21.4%</td>
<td>41.9%</td>
<td>56.2%</td>
<td>31.9%</td>
<td>8.1%</td>
<td>12.9%</td>
</tr>
<tr>
<td>n</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
</tr>
</tbody>
</table>

Special attention here should be drawn to key occupations like Mechanical Technician, Secretarial and Clerical work, which are gender polarized occupations. Large percentages of both girls and boys do not seem to know what these occupations involve, i.e., for mechanical 36.4% of boys and 35.9% of the girls, for secretarial 46.6% of boys and 35.9% of the girls, for clerical 55.1% of boys and 56.2% of the girls. It is
therefore unrealistic to expect these students to make reasonable choices of career preparation programs. It is fair to say many of the students are faced with having to choose programs which would prepare them for future careers while they have mysterious ideas or no idea at all about what the careers involve.
CHAPTER V

DISCUSSION AND IMPLICATIONS OF THE RESULTS

INTRODUCTION

This chapter is organized into five main sections. In the first section, the discussion and implications of the results reported in the last chapter are provided. This discussion is divided into six subsections. In the first subsection, the results pertaining to students' choice of career program are presented (part (a) of the first research question). In the second, the results related to students' perception of the influence of gender are discussed (research question number two). The third subsection contains a discussion of the results describing the influence of parents' and teachers' expectations upon the career program decisions made by students (question 1). The fourth subsection, influence of non interpersonal factors, deals with research question number three and addresses such factors as financial rewards, academic ability and academic upward mobility. Subsection five, sources of career information, addresses the issue of availability of career information to the students prior to making choices of subjects for K.C.S.E. certification. This relates to the fourth research question (see chapter 1). Finally, the sixth subsection, image of technical education, attempts to explain the possible reasons why technical is not preferred by the majority of the students.
although the government has established it as a priority field of education.

The second main section outlines the conclusion of the study. This section provides synthesis of the information from the different issues addressed by the study.

Section three, recommendations, is divided into two subsections. The first subsection deals with the availability and the quality of guidance and counselling in secondary school. The second subsection deals with the issue of providing role models for the students.

The fourth section suggests related topics needing further research in order to clarify issues addressed by this study. The fifth section of this chapter deals with the researcher's concluding comments, mainly on how other countries are dealing with the issue of gender inequity which this study sees as a possible cause for the gender segregated career aspiration of high school students.

**STUDENTS' OWN ASPIRED CAREER PREPARATION PROGRAM**

The results of this study showed that programs in agriculture were a priority aspiration for both girls and boys (about 44% for both boys and girls). This is in contrast with the results of previous research done in Kenya (Eshiwani, 1984), and elsewhere (Marshall, 1987; Velford and Hickey 1985), all of which showed agricultural careers at post secondary level to be male segregated. For example, Eshiwani
(1984) shows only 20% females in agriculture programs. It is not clear why agriculture seems to have become the favourite career for the students. What is seen as a possible reason is that the change to the new 8-4-4 system of education which has established levels of subjects in the secondary school curriculum. The first level contains the core subjects that each school must offer. These subjects are 1) English, 2) Maths, 3) Physics, Chemistry and Biology or Biological Science and Physical Science, 4) Geography, 5) History and Government, and 6) Swahili. Poorer schools which do not have facilities for pure Chemistry, Physics and Biology offer Physical Science and Biological Science. The second level contains the following optional subjects: Home Science, Agriculture, Woodwork, Metalwork, Power Mechanics, Building Construction, Electricity, and Drawing and Design. Any school which offers Physical Science and Biological Science instead of Physics, Biology, and Chemistry must offer one of these subjects. Since the cost of facilities needed in school is borne by the community, most of the rural schools, whose communities income is quite low, offer agriculture as their optional practical subject as it is the cheapest in terms of facilities and equipment. Also due to previous experience with food shortage, the government has recently launched a campaign for self-sufficiency in food production, which has caused food storage facilities to be built all over the country. It is possible therefore for the students to see agriculture as a high
priority field in the country. Another factor may be that since over 50% of the parents are in farming, the kids may be influenced by the life style within the communities they grew up in.

Apart from agriculture, the results showed that the career aspiration for boys and girls followed the traditional lines, i.e. boys aspired for technological career programs while the girls aspired for office and teaching programs. It should be noted here that this study expected to find changes towards greater enrollments in technical career programs. This expectation comes from the government's emphasis in technology education and in education for self-employment which resulted in the change to 8-4-4 education system. It shows however that this change has not occurred yet. Maybe there are factors that the government has not addressed yet in its campaign for change.

STUDENTS' PERCEPTION OF THEIR GENDER ROLE

When the questions addressing the issue of students perception of gender role were analyzed (Questions 7, 8, 15 and 16), it was clear that there was a positive relationship between the students career aspirations and what they saw as appropriate career aspirations for their gender roles. For example, 46.6% of all the students saw office jobs as best for girls and sure enough 34.3% of the girls in the study aspired for career programs in office work. Also 60.6% of all the
students saw technical careers as best for boys, and 39.8% of the boys in the study aspired for technical jobs.

Since studies have shown that there are no inherent biological factors that indicate that there is a gender difference in ability to perform in different jobs (MacCant, 1984; Mangano and Patterson, 1976; Gaskell and MacLaren, 1987), then somewhere during their upbringing, the student must have learned that there are types of careers and knowledge appropriate to each gender. When giving their reasons why they saw certain careers as appropriate for a particular gender, the students indicated that careers suitable for boys are the ones which require a lot of physical strength and high academic ability while commanding high pay at the same time. Careers suitable for the girls on the other hand were seen as those requiring less physical strength, less academic ability, and a lot of patience and mercy, while at the same time allowing them free time to bring up family.

Underlying these perceptions are certain assumptions that the students hold about the characteristics and abilities of a girl as opposed to those of a boy. For girls the underlying assumptions are that girls are either weak or do not like to get tired, that they are academically less capable, that they are very tolerant and merciful and that they will be required to bear children and play the major role of raising them. For boys, the assumptions are that they are strong both physically and academically and that money is their driving force. This
may not be surprising when one realizes that in a patriarchal society, the women are expected to do most of the domestic work even when they have a full time job (O'Brien 1987) and that the kinds of jobs they do in industry are mainly service jobs which are normally boring and are at subordinate levels where they are supposed to carry out orders given by their supervisors (mainly men). One has to have patience to keep these jobs and the students seem to have gotten the message. One aspect to note from Tables 4.6 and 4.7 in the results is that although only 8.4% of all the students say there are no jobs boys can do that girls cannot do. This percentage increases drastically to 26.2% when considering those who say that there are no jobs the girls can do that the boys cannot do. This confirms that girls, as workers, are seen as less capable compared to boys and 24.2% of the girls in the study seem to have accepted the notion (see Table 4.7).

**INFLUENCE OF THE EXPECTATIONS OF SIGNIFICANT OTHER**

The results of this study show that there is a 58% agreement between what boys choose and what they think their parents would have chosen for them. For girls this agreement is 57%. One can conclude therefore that there is no difference in parental effect between boys and girls. Also, the study shows a 50% agreement for boys and 44.6% for girls with what they perceive as their teachers' choices. Also here no serious difference was found. Other studies have concluded
that students learn from society what an acceptable career for them is, and they tend to conform with those expectations even though such conforming might go against one's abilities and interests (O'Brien, 1987). Also Tucker and Asser (1980) argued that "parents encouraged traditional roles with a variety of rewards and responded negatively to non-traditional decisions" (p. 53). Although data were not obtained on how the students came to believe why their parents and teachers would have liked them to enter traditional careers, it seems fair to assume that students took their cues from the roles they see their parents and teachers playing at home, at school, and at work. If most of the mothers they know are either secretaries to male managers, or nurses for male doctors or classroom teachers under male headmasters, it is possible for the students to believe that that is how things ought to be. Blaming them for choosing along gender lines would then be 'blaming the victims' because they did not make the rules the society seems to play by.

**INFLUENCE OF NON-INTERPERSONAL FACTORS**

The non-interpersonal factors considered in this study were academic ability, academic upward mobility, and job availability. As far as students' self-perception in academic ability is concerned, the girls saw themselves as good in Business Education and Languages while the boys saw themselves as good in Maths and Science subjects. Since there is little
biological evidence that academic ability in different fields is distributed along gender lines, a number of speculations can be provided as to the cause of the perception. One of the explanations may lie in the school staffing patterns. In Kenya, as in other parts of the world, school subjects are shared such that women mainly teach languages, secretarial (business) studies and social studies while men mainly teach maths and science subjects (see Kelly and Nolrlen 1982). By observing this pattern, students may get the message that some types of knowledge is legitimate for males while another type is for females. Also when the students compare the subjects the women are teaching and the types of jobs women are performing at work place, they see a clear match. Office jobs require languages and business studies while technical jobs require maths and sciences.

Since the students have shown that mainly they aspire to gender stereotyped jobs, they may see no need in putting effort in subjects that do not lead to those jobs. Why would a girl who knows or assumes that she will end up being either a secretary or a clerk spend a lot of time trying to master principles of physics? Her time might be better spent in practicing typing or studying sentence structure. It may be necessary to note that, although this study did not establish whether boys actually out perform girls in maths and science, other studies have shown that where the teachers and parents expectations were not gender biased, the academic results also
were not gender biased (see Brandon, 1981; Sharon and Sharon, 1986). Changing the students' perceptions of gender appropriate careers in Kenya therefore may need an effort to change the gender biases the teachers and the parents may hold in regard to appropriate careers. It should be noted that these biases are not only passed by discussion but also by interactions with students. Tucker and Asser (1980) suggested: "Roles are, however, constantly renegotiated. As individuals strive to meet their needs, they try out new behaviours to see if their role partners will accept those behaviours as appropriate. Therefore the potential for change is always there, tempered by role expectations which support the status quo" (p. 51).

The results in Table 4.16 show that there is a big difference between the influence of further studies on the boys (56%) and girls (43%) used in this study. It may be that the majority of female students do not aspire to further studies. They may be looking to obtaining a job and then settling down to raise a family. They may be seeing that their job of raising a family may not fit in very well with further studies timewise. Also, if the girls are thinking of marriage, they can see that besides raising a family they will be expected to do most of the domestic work. They will therefore be doing two jobs already and adding studies to these jobs may be too much for them to handle. Boys on the other hand seem to relate their career aspirations and their
chances for further studies more positively. Assuming that this relationship is intentional, one is made to think that boys either do not intend to marry soon or that even if they marry, they will still have time to further their studies during their working years. This is not surprising when one realizes that we still live in a society where the domestic work and the work of raising children is left to women while the men are supposed to earn enough money, outside the home, to support their wives and children. This requires the men to seize all possible opportunities to improve their earning potential.

Another reason why female students may not want to go for further studies relates to how they picture academically successful career women as opposed to socially successful women. Although this study did not test for the students' idea of a socially successful woman, other studies have indicated that this success is measured by marrying a successful man and raising a family within a patriarchal family, and playing supportive roles to the husband who is the head of the family (see Kelly 1982, O'Brien, 1987). Kelly and Nehlen (1982) when talking about successful career women, said "If they are single this may serve to remind all that women can choose to work for wages, but that choice involves forsaking marriage and children ... if women in authority are single and women in subordinate positions are not the messages may be even stronger" (p. 168). If then the students see a
successful career woman as being single or divorced, mainly childless and abrasive to men, they may not want to end up in that situation. An implication here is that marriage is not an association of equals but of a superior man to an inferior woman and unless the society changes this situation the women who want to marry and raise families will feel the pressure to limit their success to a level below their husbands. It is clear that the female plays the dominant role in child birth and early nurturing, however, there is no reason why family roles, including domestic work, cannot be shared by both men and women. Educators therefore should be careful not to lead the children to choosing careers according to traditional gender lines while they are aware that most of the secretarial and clerical jobs that girls traditionally aspire for are being taken over by computers and dictaphones.

**SOURCES AND AVAILABILITY OF CAREER INFORMATION**

The results of this study showed that there was very little career discussion between the students surveyed and their parents (see Table 4.23). This has both a positive and a negative side. Some studies have argued that parents encourage students to pursue traditional careers and reward students for pursuing them while they discouraged any non-traditional choices (Tucker and Asser 1980). The findings suggest that the students had limited serious career discussions with their parents. This could be interpreted to
indicate that the career teachers should have a better chance to guide these students to choosing appropriate careers, according to their ability, interest and aptitude rather than gender. On the negative side, one could argue that since the parents are normally the primary socializing agents, they could be very effectively used by the school system in getting the students to make appropriate choices. This would only be possible, however, if there was a good program in place, involving discussions between parents, career teachers and students. The aim would mainly be exchange of information about the student's school performance, interests at home and at school, and aptitude towards different careers. The parents and the teachers therefore would be giving the student similar messages on careers. This would be similar to the type of involvement by some parents in their children's education in England (see Mortimore and Mortimore 1984) only that instead of addressing educational achievement it would be addressing career preparation.

The problem with the above suggestion is that the results show that there was very little career guidance in the schools surveyed also. In fact some of the students seemed to believe that there were no career teachers in their school. This seems to support the claims made by Kilonzo (1983) who claimed that career teachers only work with form 4 students, (helping them to fill career forms) and give no guidance to forms 1 to 3. It may not be fair to blame the teachers because the
education system is so set up that career teachers, where they are available, are also full time classroom teachers. They are expected to carry out guidance and counselling on their own time. This is a situation which needs immediate attention if the government's intention to change student's career aspirations (to accept education for self-employment and education in relation to job market) is expected to work. Counsellors should be relieved of their teaching load and given time within the timetable to give both career and psychological related guidance to students at all levels in the school.

Besides giving the career teachers time, it is important to make sure that the career teachers themselves are not gender biased and that they have the appropriate current career information at their disposal. This suggests inservice courses from time to time and workshops provided, possibly at teacher training colleges like K.T.T.C. and Kenyatta University, where they can obtain and share relevant career information and develop appropriate guidance techniques and strategies. Also, a Kenyan based career guidance magazine should be established where new research information on shifting career opportunities can be published and circulated to career teachers in the field.
The results obtained from this study suggest that the image of technical education in the minds of the students, both female and male, is not a glossy one. Only 39.8% of boys and 2.9% of the girls seem to have their aspirations in this field, in spite of the government campaign. The same situation is reflected by the students' perception of their parents and teachers expectations. Given the fact that the students indicate that the chances for further studies and job availability are more in these jobs one wonders why the majority of students do not choose these jobs. It may be possible that technical education is still considered as having a lower status than straight academic programs even where the straight academics are likely to lead to jobs with lower financial rewards. On the girls' point of view, technical education is seen as requiring a lot of physical strength even though nowadays machines and advanced technology are available which makes brute strength unnecessary in performing in any of these jobs. This indicates that the government message may not be getting through to the students. This is emphasized by the results of question 18 which shows that the students did not know what some of the major careers involved, e.g. 55.0% of the girls do not know what a mechanical technician does, while on the other hand 46.6% of the boys do not know what a secretary does. The results showed that 70% of the boys and 45% of the girls mainly got
their career information from their peers and books, both of which are very unreliable sources and often are highly gender biased (O'Brien, 1987).

CONCLUSION

One of the conclusions reached by this study is that the career aspirations of girls and of boys are equally influenced by parent expectations and teacher expectations. However, boys' aspirations seem to be more influenced by availability of further studies than is the case for the girls. Another conclusion is that extensive guidance and counselling for students, and counsellor training for teachers would be more effective in bringing about change in career aspirations. An implication drawn from these conclusions is that in order to achieve some degree of gender equity reverse discrimination, in form of awards and scholarships, may be necessary. The goal of such action would be to provide incentives and eventually role models for girls to pursue technical education. Other countries have tried using legislation to get girls to train for nontraditional careers without any success. It is the stance of this study that without addressing the factors that sustain the gender differences change will not occur. Some of the factors are seen in the interpersonal relationships between males and females which give students hidden messages that the position of woman is that of serving men. The relationships in their homes are
also such that in most instances, the women do all the house
work to the satisfaction of their husband. At place of work
also, most women are expected to be in subordinate positions,
mainly in service jobs, irrespective of whether they have the
abilities and aptitude which should enable them to attain
higher positions.

RECOMMENDATIONS

Guidance and Counselling

Career teachers trained and provided with the latest
literature should be posted in each secondary school. These
teachers should have their teaching load minimized if not
removed altogether. Inservice courses should be developed for
existing counsellors to bring them up to date with new
knowledge about guidance and counselling as well as shifts in
demands in the career market. These courses should include
work on the nature of gender biases in career counselling. In
addition they should provide information and methods of
exploring the students' academic abilities, interests and
aptitude in relation to the advice they give students about
prospective careers. Furthermore, a guidance and counselling
journal, which is specific to Kenya should be started so that
counselors and educators can share their ideas. This journal,
as well as workshops and seminars might be sponsored by
Providing Role Models

The issue of role models must be taken seriously. At secondary school level, more female mathematics and science teachers would help to demonstrate to the school girls that mathematics and science are not the private domains of men. This initiative must however be accompanied by opening places in the technological based careers for females even if it means introducing reverse discrimination such that rewards like special scholarships are given to females who are willing to train in these careers. Another initiative might take the form of promising female students that if they trained in these careers they would be assured of jobs. This may require some type of legislation for industry to follow given guidelines on gender balance. It may also require the government to use the industrial training levy to train more females for these industries. To encourage more females to enter into mathematics, science, and technical teaching careers it may require directives from the Ministry of Education for colleges like K.T.T.C., K.S.T.C., Kenyatta University and the diploma teachers colleges to enrol a certain gender ratio of students (similar to the directives on regional ratios). The staffing of schools also should be such that positions of authority are distributed equitably between the sexes. If the girls see that there are equitable ratios of female headmasters, deputy heads, and education officers
for example, they will get the message that all positions are open to them if they work hard enough.

The drawback in this strategy is the fact that if the females see themselves as having a primary responsibility, in the future, of bringing up children single handedly, they may still not want or even be able to get into a demanding career. This situation can be addressed by making students aware that there are alternatives to the patriarchal family structure, particularly regarding the issue of child care and nurturing. Such an awareness might be done through guidance and counseling, through home economics studies or through social studies. It can be done by role playing and simulated family organizations where the students are shown that it is a reasonable strategy and a good experience for both husband and wife to share domestic work at home while both of them work outside the home for wages. The intent of such an awareness program would be to illustrate that this arrangement would improve the family's standard of living as well as strengthening the bond between the family members. It is likely also to show the girls that they don't have to choose between career success and having a family; they can have both if appropriate arrangement are made between them and their future spouses to share domestic work when they are both working for wages.
SUGGESTIONS FOR FURTHER RESEARCH

The Kenyan Education system has changed to an 8-4-4 system with the aim of providing all students with a more practical type of education. It is important to assist students to change their career aspirations and to gear their education towards programs that prepare them for the more available technology based careers. Further research therefore is required to find out the factor that keep students, especially females, away from choosing to train for these technical jobs. The areas seen by the researcher as requiring further research to deal with these issues are as outlined below:

1. A study should be initiated to document the staffing patterns in the school system to show the gender ratios at all levels, i.e., Education Officers, principals of middle colleges, high school head masters, primary school head masters and classroom teachers. Also this study should establish the ratios of female to male teachers for different subjects.

2. Analysis of the illustrations in commonly used textbooks to see whether they still depict females as domestic workers, teachers, secretaries and nurses, thus giving the students hidden messages that these are the only careers for women.

3. A study should document the gender ratios of teacher trainees preparing to teach Mathematics, Science and
technical subjects (for instance, at K.T.T.C., K.S.T.C. and the diploma teachers colleges) to identify existing trends, and provide baseline data for future interventions.

4. Teacher/student interactions in mixed schools should be examined to determine whether teachers interact more or in different ways with boys than with girls.

5. a) A study should be carried out to determine whether academic achievement in different subjects for students in mixed schools vs. single sex school is different for females versus males.

   b) There is a gender difference in career aspirations and actual career choices of students in mixed school vs. single sex schools. Such a study would assist educators to find out if single sex school socialize students differently from mixed schools.

6. A study to explore appropriate methods of educating parents to assist students in making appropriate career choices and to bring about more interactions between parents and schools for the purpose of assisting students in making wise career choices.

CONCLUDING COMMENTS

The researcher sees that one of the major underlying issues in this area of establishing a more gender equitable technical education is how to break the patriarchal hegemony
existing in the society today. Such a change can only come about with a well established agenda. Those seeking these changes will have to identify who their allies are in society, especially those in positions of power, because any successful campaign for change will require action taken not only at educational institution levels but also in the workplace, in community organizations (for educating parents and other members of society), in various political forums and in different government ministries. The whole educational and legislative campaign in this regard should be geared towards getting all students to realize that their success in any career is determined by their abilities, interests and aptitudes rather than by gender.

Also, the importance of research and obtaining information on what other countries with similar problems are doing should not be underestimated. For example, Britain has established The Equal Opportunities Commission, Technical and Vocational Education Initiative (TVEI), and Girls and Technical Education (GATE) to carry out studies and formulate strategies to deal with gender equity issues. Many American states have also come up with programs to address these issues. For example, New Jersey has established Project HEAR, Minnesota has Project BORN FREE while California has Project EVE. All these organizations have the aim of reducing the effects of the sex biased messages that the school children receive through various forms of socialization. These programs illustrate how seriously other countries of the world
are taking this issue. We in Kenya should also 'read the writing on the wall' and prepare our students for change because we do not live in isolation. Whatever is happening to the rest of the world will undoubtedly happen to us.
BIBLIOGRAPHY


APPENDIX A

ASSESSMENT OF STUDENTS' PERCEPTIONS OF THE FACTORS AFFECTING THEIR CHOICE OF POST SECONDARY EDUCATION PROGRAMS

STUDENTS' QUESTIONNAIRE

PURPOSE

The questions contained in this questionnaire are purely for research purposes and have no effect or consequence in your present or future educational aspirations. You will notice that your name is not asked for, so you need not identify yourself. ANY INFORMATION YOU GIVE WILL BE KEPT IN STRICT CONFIDENCE.

Thanks in advance for your assistance.

HOW TO RESPOND

1. For the general information section please write your response in the space provided.

2. For the career questions the instructions are given in the questions and, in most cases a space is provided for you to give a brief explanation as to why you chose a particular response. Please be brief and to the point.
GENERAL INFORMATION

Name of Your School

Your Class ____________________________ (Form 1, 2, 3, 4 etc.)

Gender: (a) Male (b) Female (circle one)

Date of Birth: Day _____ Month ________ Year _______

Father's Occupation: ____________________________

Mother's Occupation: ____________________________

Number of brothers and sisters: ______

Number of brothers and sisters working: ______

Number of brothers and sisters in school: ______

Number of brothers and sisters out of school and not working: ______
CAREER QUESTIONS

1. If you were to select a training program for yourself without consulting anybody, which of the following would you choose? (tick one of the boxes provided)

(a) secretarial training
(b) clerical training
(c) teacher training
(d) mechanical technician training
(e) electrical training
(f) agricultural officer training
(g) other (name) _____________________________

Please explain why: ____________________________________________
______________________________________________________________
______________________________________________________________
______________________________________________________________
2. If I do not go to university, I think my parents would like me to: (tick one of the boxes provided)

(a) train as a clerical officer
(b) train as a mechanical technician
(c) train as a secretary
(d) train as an agricultural officer
(e) train as a teacher
(f) train as a builder
(g) go straight to look for a job
(h) other (name)

Please explain why you think so:


3. I have discussed my career aspirations with my parents:

(tick one of the boxes provided)

(a) more than once
(b) once
(c) never
4. If I do not go to university, I think my career teacher would like me to: (tick one of the boxes provided)

(a) train as a clerical officer
(b) train as a mechanical technician
(c) train as an agricultural officer
(d) train as a teacher
(e) train as a builder
(f) other (name)

Please explain why you think so
5. I have discussed my career choice with my career teacher: (tick one of the boxes provided)
   (a) more than once
   (b) once
   (c) never

6. If I train as a technician, industry is: (tick one of the boxes provided)
   (a) likely to employ me without reservation
   (b) likely to employ me with reservations
   (c) not likely to employ me

   Please explain why you think so
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

7. Please write down what you think are the best three careers for girls
   1.
   2.
   3.

   Explain why you think so _____________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
8. Please write down what you think are the best three careers for boys:
   1.
   2.
   3.
   Explain why you think so:____________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

9. Technical jobs are: (tick one of the boxes provided)
   (a) very interesting [ ]
   (b) interesting enough [ ]
   (c) very dull [ ]

10. Technical jobs require: (tick one of the boxes provided)
    (a) more physical strength than I have [ ]
    (b) physical strength that would leave me very tired [ ]
    (c) physical strength that I can handle with no problem at all [ ]
    Explain why you think so:____________________________________
    ____________________________________________________________
    ____________________________________________________________
    ____________________________________________________________
11. It would be easiest for me to get a job if I trained as a: (tick one of the boxes provided)

(a) a clerical officer
(b) a mechanical technician
(c) a secretary
(d) an agricultural officer
(e) a teacher
(f) a builder
(g) other (name)

12. My chances for further studies would be good if I trained as: (tick one of the boxes provided)

(a) a clerical officer
(b) a mechanical technician
(c) a secretary
(d) an agricultural officer
(e) a teacher
(f) a builder
(g) other (name)

13. In general a technical program is: (tick one of the boxes provided)

(a) above my academic ability
(b) at my academic ability
(c) below my academic ability
14. Please rank the following subjects in terms of your academic ability in them: (Select and rank your best 4 where 1 stands for best and 4 the least.)

(a) Business Studies  |  
(b) English            |  
(c) Geography          |  
(d) History            |  
(e) Maths              |  
(f) Science            |  
(g) Swahili            |  
(h) Technology         |  

15. I believe that there are jobs that boys can handle better than girls:

   yes |  
   no  |  

If yes, give an example ____________________________

and give reasons for believing so __________________

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

If no please give reasons ____________________________

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
16. I believe that there are jobs that girls can handle better than boys:

yes □
no □

If yes, give an example __________________________
and give reasons for believing so __________________________

If no please give reasons __________________________

17. The most important factor when choosing my career is:

(tick one of boxes provided)

(a) advice from my teachers □
(b) advice from my parents □
(c) my own feelings about the job □
(d) my academic ability □
(e) whether the job is traditionally for a boy or a girl □
(f) other (name) __________________________
18. Please explain briefly what you think the following people do:

(a) mechanical technician

(b) electrical technician

(c) secretary

(d) clerical officer

(e) accounts person

(f) mason

(g) typist
19. I received most of the information about what different jobs involve from: (tick one of the boxes provided)

(a) my parents  
(b) my peers (friends)  
(c) my teachers  
(d) books  
(e) other (name)______________________________

Explain how you got the information________________________

________________________________________________________

________________________________________________________

________________________________________________________

________________________________________________________
APPENDIX B

ASSESSMENT OF STUDENTS' PERCEPTIONS OF THE FACTORS AFFECTING THEIR CHOICE OF POST SECONDARY EDUCATION PROGRAMS

BACKGROUND INFORMATION QUESTIONNAIRE

PURPOSE
The purpose of this questionnaire is to examine the ratios of male and female students in different post secondary education programs. The information obtained will be used as background information in research which examines the students' perception of the factors affecting their post secondary education program choices.

HOW TO RESPOND
A table is provided in the questionnaire. For each of the programs given, there are spaces marked M for males and F for females. These spaces are repeated for the first year, second year and third year of the program. Please write the number of male and the number of female students in each year of the program in the appropriate space.
**BACKGROUND INFORMATION QUESTIONS**

**INSTRUCTIONS**

I am conducting a research on career choices of both male and female students. In order to assess the situation in respect to enrolment in various courses, I need information from post-secondary technical institutions. I am therefore requesting you to provide me with the following information. The information obtained here will be the backbone of the study, so your assistance in this regard will be highly appreciated. Thanks in advance.

Name of College: __________________________

**NUMBER OF MALE AND FEMALE STUDENTS ENROLLED IN THE COURSE AS OF MARCH 1, 1988**

<table>
<thead>
<tr>
<th>COURSES OFFERED</th>
<th>FIRST YEAR</th>
<th>SECOND YEAR</th>
<th>THIRD YEAR</th>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>M = Male</td>
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<td></td>
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</tr>
<tr>
<td>F = Female</td>
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<td></td>
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<td>1 Accounting</td>
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<tr>
<td>(ACNC, CPA, etc)</td>
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<td></td>
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<td>2 Agricultural</td>
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<td>Engineering</td>
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<td>3 Building</td>
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<tr>
<td>(Plumbing, Carpentry, Masonry)</td>
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<td>4 Electrical and Electronics</td>
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<td>5 Home Economics</td>
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<tr>
<td>(Clothing, Catering, Banking, etc.)</td>
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<tr>
<td>6 Mechanical</td>
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<td></td>
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<tr>
<td>(Fitting, Fabrication, etc.)</td>
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<td></td>
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<tr>
<td>7 Power Mechanics</td>
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<td></td>
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<tr>
<td>(Automotive, Diesel, Const. Planter)</td>
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<tr>
<td>8 Secretarial</td>
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<td>(Typist, Stenographer, etc.)</td>
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