SEX-RELATED DIFFERENCES IN ATTITUDES OF PRIMARY SCHOOL CHILDREN AND TEACHERS TOWARDS SOME VOCATIONAL SUBJECTS IN SIAYA DISTRICT

BY

JOSEPH A. RABARI

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Rabari, Joseph A.
Sex-related difference in

1992
DECLARATION

This thesis is an original work of the author and has not been presented for a degree in any other University.

JOSEPH A. RABARI

This thesis has been submitted for examination with our approval as University supervisors.

PROF. JACK GREEN OKECH

Professor in Education, Department of Administration Planning and Curriculum Development, Kenyatta University.

DR. JOHN O. SHIUNDU

Senior Research Fellow, Bureau of Educational Research, Kenyatta University.
DEDICATION

TO MY WIFE, CHRISTINE
AND
DAUGHTER, CATHERINE
ACKNOWLEDGEMENT

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CONTENT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECLARATION</td>
<td>ii</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>iv</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>ix</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>x</td>
</tr>
</tbody>
</table>

## CHAPTERS

ONE: INTRODUCTION ........................................ 1

- Background ............................................. 1
- The problem ........................................... 10
- Null hypotheses ....................................... 12
- Purpose of the study ................................. 13
- Significance of the study ......................... 14
- Limitations and delimitations of the study ...... 17
- Definitions of key terms ............................. 19
- Theoretical framework ............................... 20
- Organization of the rest of the study .......... 22
- Summary .............................................. 23
<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWO: REVIEW OF RELATED LITERATURE</td>
<td>26</td>
</tr>
<tr>
<td>Introduction</td>
<td>26</td>
</tr>
<tr>
<td>A brief history of vocational curriculum</td>
<td>27</td>
</tr>
<tr>
<td>Literature on sex role and sex role attitudes</td>
<td>34</td>
</tr>
<tr>
<td>Attitudes towards vocational subjects</td>
<td>39</td>
</tr>
<tr>
<td>Summary</td>
<td>46</td>
</tr>
<tr>
<td>THREE: DESIGN AND METHODOLOGY</td>
<td>48</td>
</tr>
<tr>
<td>Introduction</td>
<td>48</td>
</tr>
<tr>
<td>Location of the study</td>
<td>48</td>
</tr>
<tr>
<td>Population and sample</td>
<td>50</td>
</tr>
<tr>
<td>Data collection instruments</td>
<td>52</td>
</tr>
<tr>
<td>Procedure for data collection</td>
<td>60</td>
</tr>
<tr>
<td>Data analysis</td>
<td>61</td>
</tr>
<tr>
<td>Summary</td>
<td>64</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>FOUR: RESEARCH FINDINGS</td>
<td>66</td>
</tr>
<tr>
<td>Introduction</td>
<td>66</td>
</tr>
<tr>
<td>Demographic information about pupils</td>
<td>66</td>
</tr>
<tr>
<td>Information on the pupils' project work</td>
<td>69</td>
</tr>
<tr>
<td>Demographic information about teachers</td>
<td>71</td>
</tr>
<tr>
<td>Differences in the attitude scores among pupils and teachers</td>
<td>75</td>
</tr>
<tr>
<td>FIVE: SUMMARY, DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS</td>
<td>99</td>
</tr>
<tr>
<td>Summary</td>
<td>99</td>
</tr>
<tr>
<td>Discussion of findings</td>
<td>102</td>
</tr>
<tr>
<td>Conclusion</td>
<td>108</td>
</tr>
<tr>
<td>Recommendations for action and further research</td>
<td>110</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>113</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>118</td>
</tr>
<tr>
<td>A Attitude Scale for Pupils</td>
<td>119</td>
</tr>
<tr>
<td>B Observation Schedule for Pupils' Project Work</td>
<td>122</td>
</tr>
<tr>
<td>C Attitude Scale for Teachers</td>
<td>124</td>
</tr>
<tr>
<td>D Questionnaire for Teachers</td>
<td>127</td>
</tr>
<tr>
<td>E Interview Schedule for Headteachers</td>
<td>131</td>
</tr>
</tbody>
</table>
LIST OF TABLES

1. AGE OF PUPILS BY CLASS AND SEX ......................... 67

2. ENROLMENT OF PUPILS IN SCHOOLS BY CLASS AND SEX ......................... 69

3. PUPILS' PROJECT WORK AND PRODUCTION OF ITEMS BY SEX ......................... 70

4. AGE AND LENGTH OF SERVICE FOR TEACHERS ......................... 72

5. ASSIGNMENT OF TEACHERS BY CLASS, SUBJECT AND SEX ......................... 73

6. DIFFERENCES IN THE MEAN ATTITUDE SCORES BETWEEN HOME SCIENCE, ART AND CRAFT AND BETWEEN BOYS AND GIRLS IN CLASS SIX ......................... 76

7. DIFFERENCES IN THE MEAN ATTITUDE SCORES BETWEEN HOME SCIENCE, ART AND CRAFT AND BETWEEN BOYS AND GIRLS IN CLASS SEVEN ......................... 80

8. DIFFERENCES IN THE MEAN ATTITUDE SCORES BETWEEN HOME SCIENCE, ART AND CRAFT AND BETWEEN BOYS AND GIRLS IN CLASS EIGHT ......................... 82

9. DIFFERENCES IN THE MEAN ATTITUDE SCORES ON HOME SCIENCE, ART AND CRAFT BETWEEN CLASS SIX AND SEVEN BOYS ......................... 85

10. DIFFERENCES IN THE MEAN ATTITUDE SCORES ON HOME SCIENCE, ART AND CRAFT BETWEEN CLASS SEVEN AND EIGHT BOYS ......................... 87

11. DIFFERENCES IN THE MEAN ATTITUDE SCORES ON HOME SCIENCE, ART AND CRAFT BETWEEN CLASS SIX AND SEVEN GIRLS ......................... 89

12. DIFFERENCES IN THE MEAN ATTITUDE SCORES ON HOME SCIENCE, ART AND CRAFT BETWEEN CLASS SEVEN AND EIGHT GIRLS ......................... 91

13. DIFFERENCES IN THE MEAN ATTITUDE SCORES BETWEEN HOME SCIENCE, ART AND CRAFT AND BETWEEN MEN AND WOMEN TEACHERS ......................... 94
ABSTRACT

This study set out to investigate sex-related differences in the attitudes of primary school children and teachers towards Home Science, Art and Craft subjects.

A total of 300 pupils comprising 147 girls and 153 boys participated in the study. These were randomly sampled from 10 schools in Siaya District, Kenya. Of this sample each of the classes six, seven and eight was equally represented by 100 pupils. The teachers' sample consisted of 49 teachers comprising 24 men and 25 women. A total of 10 headteachers were also interviewed.

The pupils responded to the Attitude Scale for Pupils while the teachers responded to the Attitude Scale for Teachers and the Questionnaire for Teachers, all of which were constructed by the investigator.

The mean attitude scores, as obtained with the attitude scales were statistically analysed using the t-test, to determine whether: (1) For mean attitude scores towards (a) Home Science and (b) Art and Craft there were significant differences between boys and girls. (2) For each sex category of pupils there were significant differences in the mean attitude scores.
between Home Science and Art and Craft. (3) The mean attitude scores of pupils differed across the classes. (4) For mean attitude scores on Home Science, Art and Craft there were significant differences between men and women teachers.

No significant differences in the attitude scores on the two vocational subjects were observed between boys and girls of class six or seven. Also, for each sex category in these classes, the mean attitude scores between Home Science and Art and Craft did not differ significantly. Further, there were no significant differences in the mean attitude scores on Home Science between class six, seven and eight boys.

For teachers, no significant difference in the mean attitude scores on Art and Craft was observed between men and women. Further, for each sex category of teachers, no significant differences were observed in the mean attitude scores between Home Science and Art and Craft.

Significant differences were observed in the mean attitude scores between boys and girls in class eight on (1) Home Science and (2) Art and Craft. Comparing the two sexes, girls scored higher on Home Science while
boys scored higher on Art and Craft. Boys of this class obtained a significantly higher mean attitude score on Art and Craft than on Home Science while girls scored higher on Home Science than on Art and Craft. For boys alone, significant differences in attitude scores on Art and Craft were observed, between (1) class six and seven and (2) class seven and eight. The scores progressively increased with class. Other significant differences in the attitude scores on the said subjects were observed between (1) class six and seven and (2) class seven and eight girls. For Home Science, their scores progressively increased with class. However, for Art and Craft there was an increase from class six to seven and a corresponding decrease from class seven to eight.

For teachers, a significant difference was observed in the mean attitude scores between men and women on Home Science only. This difference was in favour of women.
 CHAPTER ONE

INTRODUCTION

Background of the study

In 1985 Kenya embarked on a major curriculum innovation in the context of the 8-4-4 system of education. Under this system, primary and secondary education take eight and four years respectively while university education takes a minimum of four years. One of its remarkable features in response to the problem of unemployment of school leavers is the vocationalization of the school curriculum.

In the primary school curriculum, vocational subjects comprise home science, art and craft, music and agriculture. These subjects are intended to provide knowledge, skills and positive attitude towards the world of work. This is an attempt to meet the vocational needs of pupils for whom primary education is terminal and to lay a foundation for further education.

Home science covers child care, food, nutrition, first aid, care of the home, personal social development, clothing and textiles while art and craft, as a subject, comprises drawing, painting, puppetry, fabric and graphic design, collage, mosaic, sculpture, material culture, metalwork, woodwork and basic construction. It is hoped that mastery of these skills
will enable pupils to gain proficiency in preparing food items like porridge, mashed bananas, cakes and others. They will also be able to make articles such as children’s garments, table clothes, blouses, earrings, baskets, pots, stools and bricks (Republic of Kenya, 1984).

The subjects referred to above were offered in schools even before the introduction of the 8-4-4 system of education. However, the learning was marked by sex differentiation. Home science was entirely a girls’ subject while topics in art and craft were categorized and learnt according to sex (Republic of Kenya, 1975). In the new system, they are compulsory to both sexes. This has promoted them to an integral position in the vocationalized primary programme which, according to Okech and Hawes (1986):

is intended to equip learners with rudiments of scientific and practical knowledge of life skills necessary to cope with both work and society around them (p. 123).

However, in the provision of knowledge and skills to learners there are certain principles which various educators have adopted or modified in conformity with their educational philosophies. Tyler (1949) pointed out that learning experiences ought to be interesting and satisfying to the learner and that
school experiences should be related to activities outside the school. Dewey (1944), in defence of interest of the learner, argued that it leads to considering individual capabilities, needs and preferences.

Those theories of educational practice, advocating the learner-centredness diffused and had an impact on educational systems in many countries over the world (Evans, 1965). Kenya was not an exception. In fact the programmes that were implemented in the country such as the New Primary Approach (NPA), Science Education Programme for Africa (SEPA) and the African Social Studies Programme (ASSP) which is now known as African Social and Environmental Studies Programme (ASESP) incorporated those ideas on instructional technology which give the learner a central role in the progressivist legacy of classroom democracy. They indicated the Kenya's stand regarding educational philosophy and instruction. It was perhaps in recognition of the principle of learner-centredness that the Kenya art and craft curriculum developers asserted that "art and craft education in primary schools should be seen as an extension of the child's everyday activities" (Kenya Institute of Education, 1987, p17).
Evans (1965), however, observed that interest and attitudes overlap although they are not identical. Thus concern about interest of the learner should lead to considering his attitudes towards the subjects.

The concern about the attitudes of pupils is not only justified on philosophical grounds but they have been identified as an important factor influencing the achievement of educational objectives. Arvidson (1956) showed that attitude was a major factor determining the success of a child in education. This was supported by Garry (1965) who found that negative attitudes of pupils adversely affected their performance in a subject. Sifuna (1986), focusing on vocational education in schools, found that negative attitudes were a major constraint to introducing vocational subjects.

Further research has revealed that some of the pupils' attitudes are based on sex. Hurlock (1972) observed that by the age of six children were already aware of sex roles and had already formed sex-stereotyped attitudes towards various activities in the society. Such attitudes are carried into the school learning process.
Many writers on gender issues in relation to educational preferences such as Marland (1985), Sivard (1985) and Stenworth (1983) showed that given curriculum options, pupils were more inclined to select subjects that conform to their gender identity in the society. Girls opt for subjects that are related to feminine roles while boys choose male-dominated subjects such as mathematics and physical sciences.

These observations seem to apply to Kenyan school children as well. Eshiwani (1986) observed that even though all pupils in Kenyan primary schools were supposed to take woodwork, in some schools girls learned about it theoretically while boys had practical involvement. This could be a manifestation of sex-related attitudes.

A major adverse effect of sex-related attitudes is that they largely influence the career choices of pupils. Pupils have to sacrifice their individual potentials, which are not necessarily sex-determined, to take up the sex appropriate roles. According to Stenworth (1983) such attitudes affect success in the subjects and in turn irrevocably affect the possibility of future higher education, training and ultimate
careers. This was supported by Reed et al. (1977) who saw sex-related attitudes as a major stumbling block preventing boys and girls from achieving their fullest potential development.

Sex-related attitudes, according to social scientists, are constructs acquired mainly through the socialization process. Biraimah (1985), Maccoby (1966) and Marland (1983) in discussing the school as a sexist promoter and amplifier, recognized it as a social institution creating and strengthening sex stereotyped attitudes. Sivard (1985) observed that in all cultures the way teachers treat the subjects in the curriculum and their reactions to pupils of both sexes can suppress or perpetuate sex bias. Observations by Stenworth (1983) showed that in mixed classes the style of teaching may incline pupils to believe that a subject is more appropriate for one sex than the other. In home science, for example, teachers impress upon girls the absolute necessity of learning efficient ways of shopping, cooking and mending clothes while encouraging boys to have a go on the understanding that they may occasionally have to perform simple household duties when the wife is sick or away. Thus pupils emerge from school with a heightened conviction that domestic tasks are roles of women and woodwork, the province of men.
The development of sex-related attitudes is not only confined within the school. The society is a sex-role learning model which provides a wide range of experiences that perpetuate sex bias in children. Parents may, as Scanzoni (1978) observed, scarcely be aware that they praise their children for behaviours which are identified with their sex and scorn them otherwise. This practice precipitates in children sex-stereotyped attitudes.

The rationale of art, craft and home science education has been briefly outlined. But the translation of the aspirations into practice has considerable and, perhaps, unbearable financial implications. In woodwork alone each primary school requires jack planes, sash clamps, vices, saws, nails, screws, timber and woodworkshop among others. The cost of such equipment and facilities looks enormous. Thus despite the government's allocation of 40% of annual budget to education, the public has been given a significant share in the responsibility of funding education, through fundraising, in the new cost-sharing strategy (Republic of Kenya, 1988).

Owing partially to the high costs involved, the implementation of the new curriculum has been so slow.
that by January 1990, five years after its launching, only 3,000 out of the required 13,000 home science workshops had been built (Nation Reporter, 1990). Other factors such as attitudes of the financiers could also be retarding the progress. But if the general public is to be relied upon for the funding of the educational programme then there is need to investigate their attitudes for they cannot voluntarily contribute to a programme that does not recognize or transmit the cultural or traditional values which they cherish. Teachers, as members of the society play an important role as financiers and, more importantly as classroom implementers of educational programme.

The importance of attitudes in the learning process is a widely discussed subject. But the actual situation in Kenyan schools has not been adequately investigated despite the many innovative reforms that the educational system has undergone. Ongeti (1986) carried out a study on the attitudes of standard eight pupils and teachers towards vocational subjects. The study revealed favourable attitudes but did not show whether these attitudes differed on the basis of sex. However, the studies cited above point to the possibility of teachers wasting time in teaching what boys and girls believe are irrelevant skills that are only appropriate to the
opposite sex. Home science in particular is one of the subjects in which sex segregation has been most pronounced in the history of vocational education (Kenya Colony and Protectorate, 1949). Right from its early beginnings in Kenya it has been understood to be appropriate for women only. Sheffield (1964) reported that domestic science (home science) was intended to prepare young women for their roles as future wives.

The problem

Sex-differentiation of roles in the society is a long tradition. Over the years, domestic duties have been considered to be appropriate to girls while activities such as carving, carpentry and house-building were considered appropriate to boys only. This role division has been seen as natural and accepted by the pupils themselves. Thus in Kenya, before 1985, home science was only taught to girls while topics in art and craft were categorized and learnt according to sex.

With the introduction of the 8-4-4 system of education and for the first time in the history of vocational education in the country, all subjects including home science, art and craft are now compulsory to both boys and girls in primary schools (Republic of Kenya, 1981). It follows that the school, which played
the role of perpetuating sex bias now has a revolutionary mission of desextyping vocational knowledge and skills and developing liberal attitudes among the pupils. These attitudes are in conflict with the social expectations of those pupils. More important is that attitudes towards school subjects largely influence the achievement and effectiveness of pupils and teachers respectively (Garry, 1965). Despite this, no evaluation has been done to determine the status of attitudes of pupils and teachers towards those vocational subjects that have a long history of sex differentiation.

Given the sex-stereotyping that characterized vocational subjects in the past, the phenomenon of sex-role division prevalent in the society and that attitudes greatly influence the achievement of educational objectives, it was worth investigating the sex-related attitudes of implementers and consumers of the new vocationalized curriculum. The present study set out to investigate sex-related attitudes of primary school pupils and teachers towards some vocational subjects in Siaya District, Kenya.

For the purpose of investigating the above problem the following questions were generated.
1. Do primary school children differ significantly on attitude scores towards vocational subjects?

2. Do teachers differ significantly on attitude scores towards vocational subjects?

From the above questions the following null hypotheses were formulated.

**Null hypotheses**

**H₀₁**: For mean attitude scores on Home Science, Art and Craft there is no significant difference between class six boys and girls.

**H₀₂**: For each sex category of pupils in class six, there is no significant difference in the mean attitude scores between Home Science and Art and Craft.

**H₀₃**: For mean attitude scores on Home Science, Art and Craft there is no significant difference between class seven boys and girls.

**H₀₄**: For each sex category of pupils in class seven there is no significant difference in the mean attitude scores between Home Science and Art and Craft.

**H₀₅**: For mean attitude scores on Home Science, Art and Craft there is no significant difference between class eight boys and girls.
Ho6: For each sex category of pupils in class eight there is no significant difference in the mean attitude scores between Home Science and Art and Craft.

Ho7: For mean attitude scores on Home Science, Art and Craft, there is no significant difference between class six, seven and eight boys.

Ho8: For mean attitude scores on Home Science, Art and Craft, there is no significant difference between class six, seven and eight girls.

Ho9: For mean attitude scores on Home Science, Art and Craft there is no significant difference between men and women teachers.

Ho10: For each sex category of teachers, there is no significant difference in the mean attitude scores between Home science and Art and Craft.

Purpose of the study

The purpose of this study was to investigate the attitudes towards home science, art and craft. Specifically the study was to investigate:

1. The differences in attitudes of primary school children towards some vocational subjects when they are categorized by sex.
taken to reduce them.

Even though teachers are members of the society, it would be unrealistic to assume that they too have sex-differentiated attitudes towards these subjects since they are a special class of people in whom favourable attitudes and deeper insight are supposed to have been developed before they inculcate them in pupils. On the other hand one cannot, on theoretical grounds, judge whether the training they have received overplays socio-cultural factors in attitude formation. The status of their attitudes remains unknown.

It is hoped that the findings of the present study will bring to the attention of vocational curriculum developers, teachers, inspectors, planners and administrators the status of attitudes of teachers when compared on the basis of sex. The educators may therefore take appropriate steps in response to sex differences in attitudes when identified.

There is inadequate information on the attitudes of pupils and teachers towards vocational subjects. Much of the available literature focuses on the roles and attitudes towards other subjects. However, the roles and attitudes towards the subjects related to those roles are sometimes quite divorced from each other, depending
on many factors such as free choice of subjects, facilities, national and individual pupil's objectives of learning each subject, just to mention a few. For example, a pupil who is learning science for the sake of knowledge or passing examination need not have positive attitudes towards engineering. Similarly, he may have favourable attitudes towards home science but not willing to perform kitchen duties.

This study is considered a unique contribution to the study of attitudes in education since it focuses on specific school subjects and a group of pupils who have learnt vocational subjects, regardless of sex, for their first six to eight years of education. It will reveal the status of attitudes of pupils when the subjects are made compulsory to both sexes. The data generated may be of interest to scholars who may want to carry out further or related studies.

The cost-sharing strategy introduced by the government gives the public a responsibility of meeting part of the cost of education by way of providing facilities and equipment. Teachers, as members of the public have a part to play in meeting this cost. It was therefore necessary to investigate their attitudes which
might influence their willingness to support the vocational programme. This would indicate whether further investigation needs to be carried out to determine the attitude of the public towards the learning of home science, art and craft regardless of sex.

Limitations and delimitations of the study

This study had certain limitations which ought to be put into consideration when generalizing the findings presented in Chapter Four.

1. Sex role and sex-role attitudes differ from one culture to another and may influence or be the basis of attitude towards school subjects. However, the study addressed only a small region of Kenya. Further, only a small sample was drawn from that region. The generalization of results must therefore be done with caution.

2. The very attempt to measure attitudes may cause the subjects to form attitudes that were previously non-existent. Besides, respondents can give those responses which they think the researcher expects or which would give them a
positive image. Teachers in particular, treat a researcher as an official from the Ministry of Education who has come on a fault-finding mission. Thus they tend to give only positive responses.

3. Some of the eligible teachers did not accept to participate in the study, arguing that their participation in previous studies had not benefitted them in any way. Also some of those who accepted to participate did not return their completed instruments. Hence the sample cannot be a good representation of all teachers. Rather, it is a sample of teachers who were willing to participate.

4. To enable the teachers complete the instruments in a free and relaxed manner they were given an ample time of one week. However, they may have taken unfair advantage of this time to discuss the instruments among themselves before responding to them. If this happened then the feelings indicated were not individual feelings.

Despite all these problems, however, some valuable data were obtained and these formed the basis for the development of chapters Four and Five.
Definition of key terms

The key terms used in this paper are defined as follows:

**Vocational Subjects** - Refers to those subjects in the primary school curriculum that are intended to introduce the pupils to various occupations. They provide basic vocational skills and positive attitudes towards the world of work and include Home Science, Art and Craft.

**Art and Craft** - This is one of the vocational subjects offered in the primary school curriculum. Art refers to the visual means of conveying a message and includes drawing, painting, and decorating. Craft refers to the various skills of changing materials from their original state into functional articles, for example, changing clay into water pot. Throughout the study they are treated as one subject. Thus the reported attitude scores refer to those scores obtained on Art and Craft combined.

**Home Science** - Refers to a vocational subject also offered in the Kenyan primary school curriculum. It is an area of study that concerns life in the family.
and seeks to help individuals to realize and try to solve family problems in the best way possible.

**Attitudes** - Refers to the sum total of a person's learned inclinations and prejudice or bias, preconceived notions, ideas, fears and convictions about any specified topic (Gene, 1970). Thus attitudes of pupils and teachers towards vocational subjects means all that they feel and think about the subjects.

**Sex based attitudes** - Refers to attitudes that are generally held by a particular sex but not the other.

**Sex-role** - Refers to those activities commonly understood to characterize a person of a given biological sex within a society. They are usually sex-typed as feminine or masculine and often referred to as sex-stereotyped activities.

**Theoretical framework**

Thorndike developed a theory of learning from the results of his experiments with animals in a problem box. These findings were generalized to human beings.

In the problem situation, which the learner wants to overcome, he tries a number of possible responses and whichever is rewarding is gradually stamped in. The
learner connects this response to problem solution and it is likely to be repeated when such a situation recurs, hence the theory of connectionism (Hilgard and Bower, 1974).

Thorndike identified three major variable elements of this theory, namely: readiness, exercise and effect.

Readiness is an accessory principle which characterizes the circumstances under which a learner tends to be satisfied or annoyed. Such circumstances include the ease or difficulty of carrying out the response task. Exercise refers to the strengthening of connections with practice and to the weakening of connections or forgetting when practice or use is discontinued. Effect refers to the weakening or strengthening of a connection as a result of its consequences. When a connection is accompanied or followed by a satisfying state of affairs the strength of connection is increased. Otherwise it is decreased.

Subsumed under the above elements is the construct, attitude. According to the theory, learning is guided by the attitude of the organism. Responses are determined in part by enduring adjustments characteristic of individuals raised in a given culture.
The attitudes determine not only what the person will do but what will satisfy or annoy him. An individual has his own standard regarding how well he should perform a given task and judges, reinforces or punishes his own performance accordingly.

This theory predicts that one's own standards, expectations and aspirations, which are acquired in the process of socialization would affect his learning. In a sex-differentiated society where boys identify with particular roles or school subjects different from those of girls, a pupil will not only have a tendency to choose subjects but also set his or her own standard of satisfactory performance. A boy who has negative attitudes towards home science would be more satisfied with a low score of, say, 30 percent than a girl who likes the subject. It means that learning can be affected by sex stereotyped attitudes.

Organization of the rest of the study

The rest of the study is organized in four chapters as outlined below.

Chapter Two contains a review of related literature as contained in earlier similar or related studies. It gives a theoretical foundation to the various aspects
of the study. Specifically, it presents a brief history of the vocational curriculum, citing the major changes and the high premium placed upon it in Kenya. Literature on sex-related attitudes and attitudes towards vocational subjects is also reviewed.

Chapter Three describes the design and methodology of the study. It describes the development of research tools, data collection methods, choice of samples, when and how the research was conducted.

Chapter Four presents the findings of this research.

Chapter Five discusses the findings and presents the conclusions and recommendations as per the results in Chapter Four. It begins with the summary of findings which are discussed leading to the conclusions. Then recommendations for action and further research based on those conclusions are outlined.

Summary

It has been shown that in an attempt to provide functional education to the youth, Kenya embarked on a major curriculum innovation aimed at providing practical and saleable life skills necessary for active
participation in the society and for self-reliance. Skills in home science, art and craft which had been categorized and learnt according to sex are now not only compulsory to all pupils but also examined. Studies are yet to be carried out to determine the status of implementation and the attitudes of pupils towards the disregard of sexual identity in providing such skills.

Recent observations have indicated that the learning of art and craft is sex-typed contrary to the expectations of the Ministry of Education. This could be a manifestation of sex differences in attitudes.

Before the new system of education was introduced home science was only taught to girls. Making it a compulsory subject left doubt as to whether the two sexes now accept it equally. This study attempted to investigate the sex-related attitudes of primary school children and teachers towards home science, art and craft.

The theoretical framework which is presented here shows why attitudes are a major concern in learning. Thorndike's theory of connectionism stipulates that learning is guided by the attitude of the organism.
raised in a given culture. The differences in attitudes between boys and girls towards vocational subjects or skills would lead to differential learning between the sexes. Further, attitudes not only affect the learning but influence the readiness to apply the knowledge and skills which have been acquired.
CHAPTER TWO
REVIEW OF RELATED LITERATURE

Introduction

Little research has been done on the sex difference in attitudes towards vocational subjects. But closely related areas such as sex-role attitudes and sex-differentiation in labour have been extensively researched. A major assumption in this chapter is that sex differentiation in roles are overt actions or behaviours which are partly a manifestation of sex-related attitudes. Sex-role attitudes are elements of sex-based attitudes and are commonly expressed through role preferences.

In the previous chapter attitudes were considered as learned predispositions. However, learning is a continuous process taking place in school, home and the community at large, all of which are interdependent in many aspects such as cultural values. Based on this, one sees cultural sex-stereotyped attitudes as likely to be learned and internalized by pupils from the society. Arising from this assumption is the need to examine the cultural attitudes prevalent in the society. This is a
way of verifying the contention that some of these attitudes are sex-stereotyped. Further, it was pointed out that the past vocational curriculum and its practice were characterized by sex segregation. This claim can best be examined in the light of historical facts related to the said curriculum. In this chapter, therefore, an attempt is made to review the available literature on the history of vocational curriculum, cultural sex stereotyped attitudes, and the attitudes of pupils towards this curriculum.

A brief history of vocational curriculum

Through the ages man has depended on work with hand to earn his daily living. Owing to heavy reliance on manual labour, vocational subjects have been a concern for relevant education from ancient times. Bowen (1972) reported that the ancient Greeks considered art and craft as invaluable in enabling workmen to function as artisans, designers, craftsmen and so on.

The renewed emphasis on handcrafts, which can be said to have largely influenced and shaped the present formal vocational courses originated in England during the late 19th century as a protest against poor
craftsmanship through the art and craft movement. The movement placed emphasis on the aesthetic and creative side of the work. Roy (1965) reported that this movement, exerting its influence on the other parts of the world, led to the emergence of more comprehensive art and craft courses covering drawing, modelling, carving, leatherwork and metal tooling in the American elementary public schools.

Unlike art and craft, little is known about the early history of home science as a school subject, partly because it was seen as a feminine subject and since education of girls was introduced much later. Roy (1965) traced its origin in the American public schools to the early 19th century when women were first permitted to attend school. The author reported that needlework was introduced in primary and grammar grades in the years 1820 and 1835 respectively. By mid 19th century, courses were being offered in general housewifery, cooking, housekeeping, sewing and dressmaking to girls. Later the course was expanded to include care of children and the sick, domestic chemistry and laundry work.

Like in other parts of the world cheap manual labour was the mainstay of the economy in Africa.
Learning of manual skills not only took place in the home but was categorized and provided according to sex. A survey carried out in Africa indicated that girls learned to cook and to farm while boys learned to build houses and hunt (UNO 1967). In Kenya, before the coming of the missionaries, home science-related activities were taught to girls by their mothers at home through demonstration. Anderson (1970) noted that in the formal education system, home science-related subjects were introduced in Kenya in the year 1904 when Miss Watson started laundry classes for girls at Kikuyu. Eight years later, Marion Stevenson and Miss Mollar introduced home science to girls in Tumutumu and Ng’iya girls’ school respectively.

The urge to provide vocational skills was later strengthened by the Phelp Stoke Commission. The report recommended and emphasised that a substantial part of the day, at least 200 minutes per week, be devoted to native handicrafts: weaving; leather work, basket making, pottery and mat making as important school activities. Further, the commission recognized and encouraged training in domestic activities as naturally pertaining to girls and women (Lewis, 1965)
The importance of vocational education has been recognized for a long time. The call for a vocational bias to education as a preparation for economic development permeates the history of education in Kenya. Examining the scope and content of African education, a commission chaired by Beecher noted the inadequacy in the provision of practical skills and emphasized the need to reorganize the programme to prepare potential participants for the colony's economic development (Kenya Colony and Protectorate, 1949).

After independence, the Kenya Education Commission re-emphasized handcrafts in the primary school curriculum for the development of Africans themselves (Republic of Kenya, 1964). The commission advocated for the construction of workshops for woodwork or metalwork or craftsroom for the practice of fine art as compulsory school subjects. What was new in the recommendation was not the advocacy of training of hand and eye per se but the renewed emphasis and the outlining of a more favourable rationale which made such training to be seen in a more favourable perspective. Art and craft were not to be seen as a preparation to serve the colonial masters or a course for the less academically capable but as an integral part of general education providing
the basic vocational knowledge, skills, attitudes and a form of muscular preparation that is not easily acquired later if neglected during childhood. Serious instructional programmes were therefore started in these subjects with primary six and seven art and craft taking two 35-minute teaching periods per week. However, domestic science as it was then called, remained a girls' subject while no guidelines were given concerning the sex-appropriateness of skills offered in art and craft. This allowed pupils and teachers room to be guided by individual preferences or refer to the sex-role patterns within their communities in choosing the skills that were relevant to each sex. Thus it was common to find boys doing woodcarving while girls engaged in pot-making and basket weaving. The Bessey report encouraged this sex-differentiated learning when it advised that the craft for class six and seven boys be made different from those of girls (Republic of Kenya, 1972).

The vocational curriculum in schools, however, faced a lot of problems. Sifuna (1986) carried out a review of vocational education in primary schools in Tanzania and Kenya. He observed that attitudes of pupils were a major constraint to introducing vocational subjects. In Kenya, these subjects were not examined in
the Certificate of Primary Education examinations. Partly for this reason they became neglected as more time was devoted to the teaching of subjects that were covered in the certificate examinations.

This situation led to a mass production of school leavers with inadequate vocational skills. It prompted the International Labour Office to call for an increase in the proportion of the curriculum devoted to vocational subjects. The last two years of primary phase was to receive a heavy dose of vocational skills to introduce terminal pupils to the world of work (ILO, 1972). Despite this call the subjects continued to receive marginal attention in practice in the face of the competitive and examination-oriented education.

To make them assume their rightful place in the school programme, and following the recommendations by Mackay, vocational subjects were made compulsory in learning and examinations (Republic of Kenya, 1981). Thus for the first time in the history of vocational education in Kenya all primary school pupils, regardless of sex, are now learning the same skills including home science. In addition, a total of seven 35-minute periods are now devoted to art and craft alone while home science is allocated four similar periods a week in each of the upper two classes.
Given the current shortage of qualified teachers, the government encourages local craftsmen to assist the teachers. Further, more teachers are being trained in vocational subjects as they are now compulsory in teachers' training colleges. This reflects the growing realization and the continuing emphasis of vocational education.

The literature on the history of vocational education shows that vocational subjects continue to receive growing emphasis in schools. Besides, they have a long history of sex differentiation. Home science, in particular, was only taught to girls and it was understood to be a feminine subject. This sex-differentiated learning continued without any recorded resistance presumably because it conformed to the life system of the society where the roles and role attitudes were sex-stereotyped.

In Kenya these subjects are now taught to all primary school children irrespective of sex. However, it is not known whether boys and girls now equally accept them as their subjects.

**Literature on sex-role and sex-role attitudes**

Apparently no single theory adequately explains the observed sex differences in attitudes towards roles. The difficulty of offering a universal explanation of
such observations lies in the dynamics of social system and non-uniformity of physical environments. Thus Yorburg (1974) proposed a theory of sex-role attitudes for each type of society, namely, non-literate agricultural and industrial societies. The writer recognized that the early man lived by gathering and hunting - a strenuous job that involved long distance chase of big, fast, daring and elusive animals and argued that it was the nature of such tasks that were the basis of assigning different chores and privileges to men and women. This in turn provided a model for the formation of sex-based attitudes towards the roles.

Broude (1982) showed that in ancient Rome, most artists were men and the sex-based attitudes towards labour were deeply entrenched even when reality daily violated it. Further, imagery offered little evidence for the existence of women metalworkers. Women stayed at home to care for their particular domain including hairdressing, nursing, food preparation and work with clay. It was rare to find men and women doing exactly the same work in undeniably the same circumstances. Alpers (1977) noted that these different approaches to art and nature underwent sexual stereotyping and in Italy, for example, painting was scorned as an art for women.
According to Garrard (1980) the assignment of sex roles in history has created fundamental differences between the sexes in their perception, experience and expectations of the world. Some of the differences may lack logical foundations; nevertheless they have been carried into the creative process where they have sometimes left their tracks.

Jefferson (1973) observed that, in Africa there is often a sharp dividing line between the crafts practiced by men and those practiced by women. In most regions men are responsible for house-building, tool-making and carving while women do spinning, pottery and weaving. She contended that even though there was a gradual change of attitudes towards the sharing of roles resulting from the feminists' challenge of legality, authenticity and morality of assuming sexual behavioural differences, some activities still remain exclusively feminine or masculine. This is supported by Anker and Hein (1986).

Scanzoni (1978), basing his argument on previous literature, suggested that sex role constructs were by no means fixed in any functional sense. Rather, they were conceptions of the desirable and undesirable roles. This supports the observation by Mead (1950) that the assignment of sex roles in one of the New Guinea tribes was the reverse of the sex role pattern in modern
Scientific study of sex-role attitudes have been undertaken by a number of people. Scheresky (1978) attempted to explore sex stereotypic views that children hold of occupational roles and determine differences in such attitudes among ages, between boys and girls, between one-parent and two-parent families, between children whose mother may or may not be employed outside the home and in relation to the child's placement in the family. The study sample consisted of 300 children randomly sampled from Central Iowa and at the following ages: six, eight and ten. These were drawn from urban and suburban locations. It was found that children perceive occupations as the role of one sex or the other according to traditional stereotypes. However, mother's employment, one or two-parent families, sibling order and location had no influence on their perception.

The development of sex stereotyped attitudes begins early in childhood. Hurlock (1972) observed that at an early age children discover that certain lines of work are considered appropriate for men, others for women and that in the development of vocational interest and attitudes many children are influenced by cultural stereotypes.
role attitudes largely influence vocational choices by pupils. This is likely to influence attitudes towards vocational subjects. Further, the fact that the role division pattern differs from one culture to another suggests that there is little or no biological basis for the phenomenon.

In situations where education and school subjects are seen by pupils purely as a preparation for future role as adults and where there are strong sex-role attitudes there would be a tendency to favour and learn only those subjects that lead to sex appropriate roles. This assumption is arrived at by simple logic. However, these extreme cases are hypothetical. In reality one expects and finds objectives of education incorporating preparation for vocation, mental, social and physical development and a preparation for further education, among others. Thus sex-role attitudes would influence attitudes towards subjects only to the extent that vocational preparation is rated as an objective of education. This rating is not only unknown but undefinable. A more useful investigation of the status of vocational subjects would be to study the attitudes towards the said subjects and not just the vocation they prepare pupils for.
There is inadequate information on the pupils’ attitudes towards home science, art and craft. Even less is the literature on sex differences in attitudes towards these subjects. However, the available scarce literature suggests that there are unfavourable attitudes and these continue to adversely affect the implementation of vocational curriculum in Kenya. Studies by Bosire (1984), Kinai (1988) and Mse (1986) all reflect undesirable state of affairs concerning the attitudes of pupils and teachers towards these vocational subjects.

Bosire (1984) studied factors that negatively affect art education in Getembe and Keumbu divisions of Gusii District. He found that headteachers, teachers and pupils held low opinion of art subject. The art was made to assume low status among other subjects in the primary schools. This considerably affected its learning.

Mse (1986) carried out a study of factors that affect the teaching and learning of primary school art, craft and agriculture in Hamisi Division of Kakamega District, Kenya. He found that 64 per cent of pupils felt their parents did not encourage them to study art and craft. This indicates that the low opinion of the
subjects is also held by parents.

Kinai (1988) investigated the factors that influence pupils' performance in Home Science in the SOS special school in Nairobi. Her sample consisted of fifty-one destitutes and orphaned children, some of whom were described as very mentally retarded and emotionally disturbed. She found that there was lack of interest in the subject. The consistency of these observations reflect the low status of the vocational subjects in the curriculum.

Eshiwani (1986) did a survey in some primary schools in Kenya to determine the relation between school mathematics and work. He observed that in some schools boys did woodwork practically while girls were merely passive observers. This particular observation is presumably a reflection of sex stereotyped attitudes towards woodwork, which were held by teachers or pupils.

The phenomenon of sex-stereotyped attitudes and sex differentiation in the learning process are, however, not unique to Kenya. The existence of role prejudice in every country has limited men and women to certain roles and life patterns in the society. This is carried into the school learning process (Organization for Economic Cooperation and Development, 1979). In Britain, the Plowden Report which laid guidelines for primary schools
presumed that boys and girls would do the same subjects. However, reports on the practice of London primary schools showed that the official curriculum was much more sex stereotyped than the Plowden Report advised with girls doing cooking while boys do woodwork and metalwork (Plowden, 1967).

By allowing sex-differentiated learning the school is not only transmitting the cultural sex stereotypes but it is promoting them. Marland (1983) in discussing the school as a sexist promoter and amplifier showed that much of its influence on pupils in creating and strengthening of sex stereotyped attitudes belongs to deep layers of hidden curriculum and were quite obscure. He appreciates the difficulty of influencing this curriculum since it is not a planned, articulated and ostensible part of the school. Further, sex stereotyped attitudes are a problem facing education in many countries including the USA, Canada, Australia, New Zealand and European countries. Most craft areas are still recognized as feminine or masculine as shown in the table below, which gives the 1978 enrolment data for Certificate of Secondary Education in West Yorkshire and Lindsey.
ENROLMENT FIGURES IN WEST YORKSHIRE AND LINDSEY: GCE, 1978

<table>
<thead>
<tr>
<th>Subject</th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Science and related subjects</td>
<td>4122(82%)</td>
<td>899(18%)</td>
</tr>
<tr>
<td>Needlework and related subjects</td>
<td>3570(99.74%)</td>
<td>9(0.26%)</td>
</tr>
<tr>
<td>Technical drawing and related subjects</td>
<td>76(2.5%)</td>
<td>2,936(97.5%)</td>
</tr>
<tr>
<td>Woodwork</td>
<td>182(3.3%)</td>
<td>5,301(96.7%)</td>
</tr>
<tr>
<td>Metalwork and related subjects</td>
<td>16(1%)</td>
<td>1,649(99%)</td>
</tr>
</tbody>
</table>

Source: Marland, M; 1983.

In some countries the female enrolment in domestic science is even higher. A Survey of six counties including Kenya found that enrolment in home economics was 100 per cent female (UNESCO, 1982).

Sivard (1985) noted that sexism still stands as a strong influential force in vocational subject choices. Given curriculum options pupils select subjects that conform to their cultural image in the society and not necessarily to their potential ability.

Hurlock (1967) attempted to explain why vocational subject choices are influenced by sex stereotyped attitudes of students. He argued that when a girl identifies herself with the traditional female role and tries to conform to the socially approved attitudes and
behaviour patterns of the ideal woman she will win the approval of the society. However, to do this she must devote her study time to the subjects that prepare her for that role. Similarly boys have to devote their time to the subjects that prepare them for masculine roles.

Hurlock (1972) observed that boys regard many school subjects as feminine and inappropriate to them. They feel that social studies, languages, literature and art will be of little value to them. However, girls see them as valuable but question the need for mathematics and science.

Utrup (1982) investigated the sex stereotyped attitudes of the visually impaired students at the Michigan Rehabilitation Centre towards cookery. He observed that men looked upon cooking training as a degrading experience and as an attempt to convince them that when they lost their vision they also lost their masculinity.

Onyango (1985) investigated factors that influenced male students to study home economics. The sample was drawn from Kenyatta University College. One of the factors he identified was the attitude and this was found to be favourable among students. Later, Sigot (1987) did an evaluation of secondary school home science curriculum in Kenya and found that majority of
the students had positive attitudes towards home science. These studies indicate that men can possibly have favourable attitudes towards home science. Sex differences, if they exist, may be a matter of degree. However, it should be noted that they focussed on students who had selected home science as their subject and were therefore expected to hold favourable attitudes towards them or pretend to do so. Besides, Sigot's report does not state the sex composition of her sample. Perhaps they were all girls. Significant sex differences in attitudes are therefore not ruled out.

The reports cited here show that vocational subjects have a low status. Further, in practice, the vocational subjects learnt by pupils are usually determined by the sex of the learner. However most of these studies were carried out in situations where these subjects were offered as curriculum options. Hence they do not show the status of attitudes when the subjects are mandatory. The studies in Kenya, which are reported here, were undertaken around the time when vocational subjects were made compulsory. Perhaps this compulsion needed more time for it to have a significant influence on attitudes. Hence these studies only show the status of attitudes six years ago and, even though it may not have changed much today, these studies are not a reliable indicator of the present status.
The sex differentiated learning reported by Eshiwani (1986) only gives a rough idea of sex differences in attitudes of pupils. However, this observation could be due to the action of the school as a sexist promoter and not necessarily sex-stereotyped attitudes. It is not known whether girls' non-participation in practical woodwork lessons was a question of opportunity or attitudes.

Summary

The foregoing literature review demonstrates that the phenomenon of sex segregation in the day-to-day activities has thrived through the ages and across societies even though in many cases there is no logical foundation for it.

Through the socialization process the younger generations undergo sex differentiated learning of life skills and develop sex stereotyped attitudes towards such skills. These attitudes are carried into the school learning process where they are further promoted and amplified. As a result, children only have favourable attitudes towards those subjects that conform to their gender identity in the society. Hence girls opt for skills like needlework and cookery while boys favour metalwork and woodwork, among others.
In Kenya, vocational education had always carried with it the element of sex differentiation right from its early beginnings at the turn of the century. Home science in particular was only taught to girls while topics in art and craft were categorized and learnt according to sex. Following the introduction of the 8-4-4 system of education these subjects are now learnt by all primary school children regardless of sex. Nevertheless various studies have shown that the subjects not only have a low status but are still faced with the problem of sex differentiation in learning.
CHAPTER THREE

DESIGN AND METHODOLOGY

Introduction

This chapter discusses the design and methodology used in the study. It covers a description of location of the study, population, sampling techniques, data collection instruments, procedure for data collection and analysis. It also describes how the attitude scales were developed and used for the purpose of measuring attitudes.

Location of the study

This study was conducted in Siaya District of Kenya. The District occupies the north-western region of Nyanza Province. It is bordered by the following districts: Busia to the north, Kakamega to the north-east and Kisumu to the east. Over its southern border with Homa Bay lies the Kavirondo Gulf of Lake Victoria.

The main ethnic community occupying the district is the Luo hence the Luo Language, "Dholuo" is dominant. However there are people from other parts of Kenya who have been attracted to the growing administrative and
commercial centres such as Yala, Ugunja, Ukwala, Bondo and Usenge.

The major economic activities are agriculture and fishing, particularly for people living along the shore of Lake Victoria.

Siaya District was selected for study for a number of reasons. This study focuses on sex differences in attitudes which, presumably originate from the sex division of roles in the society. In rural communities, children do not only observe the division but also participate in many sex-stereotyped activities. These activities include carving, weaving, pottery, building of shelter and others. Therefore, sex differences in attitudes are likely to be significant. From a careful examination of the life-style of the people in this district, they were believed to be a fairly good example of a rural community. Also, given the short time allowed for the study it was necessary to choose a familiar area so that no time would be spent on familiarization tour. Siaya District was therefore chosen because it was familiar to the researcher. This was an important factor in effective administration of research.
Population and sample

The study focused on primary school pupils and teachers who were teaching Home Science, Art and Craft. Ideally all pupils and teachers for these subjects in the district should have been included. However, due to the short time and limited funds only a small sample could be drawn from the total population. Thus, for convenience, the sample of pupils was only drawn from classes six, seven and eight in ten schools. The choice of these classes was based on the fact that vocational subjects receive special emphasis in the upper primary classes since they are geared towards the needs of the majority of pupils for whom primary education is terminal. This is in addition to the important contribution of vocational subjects to general education. Also these classes had had the longest exposure to home science, art and craft education in primary school. Because of such exposure and relatively mature age the pupils were expected to have formed more stable attitudes towards the subjects. Further, Since the variation of attitudes across classes was to be investigated, there was need to involve pupils from different classes but with comparable communication skills so that they could take a common attitude scale.
Even though the selection of sample was narrowed down so as to include only three classes the number of pupils was still too large for this simple and short-timed survey. Thus a decision was taken to involve only three hundred pupils from ten schools. These schools were randomly sampled from the five-hundred and forty primary schools in Siaya District. This sample consisted of one hundred pupils from each class. Of this number, each school was equally represented by ten pupils.

To obtain the ten pupils, five boys and five girls were separately selected from class six. The selections were random. The same was done in classes seven and eight. However, in classes where the enrolment of girls was less than five, more boys were selected so that a total of ten pupils was achieved. This gave a total of thirty pupils per school. This selection procedure was followed in ten schools so that a sample of three hundred pupils comprising 147 girls and 153 boys was obtained. The fact that, in some classes, the enrolment of girls was less than five accounts for the difference in number of boys and girls.

All the home science, art and craft teachers for classes six, seven and eight in the ten sampled primary
subjects. A decision was therefore taken to develop an instrument based on a five-point Summative Rating Scale developed by Likert (1937). Oppenheim (1966) found this scale as suitable for use in second language. Since the instruments were to be constructed in a second language, this scale was considered suitable. The five-point scale was adopted to achieve high sensitivity to sex differences in attitudes.

The scale consisted of two sections. The first section consisted of items concerning home science and the other, art and craft. Each section comprised ten items designed to reveal the attitudes of boys and girls. Thus the whole scale consisted of twenty items.

In developing the instrument the procedure developed by Youngman (1979) was followed. Ten teachers of home science, art and craft were interviewed on the feelings of pupils towards those subjects. From this interview a total of thirty statements which the pupils had said or were likely to make were obtained. The trial scale, consisting of thirty items, was given to thirty pupils who were randomly sampled from two schools within the same geographical area of the research. These included twelve pupils in class six,
ten pupils in class seven and eight pupils in class eight. In each class equal number of girls and boys were taken.

This was a purposeful selection. Class six was given the highest representation since any difficulty in understanding the items would be most experienced here. However, all the three classes were involved since their responses would be a useful guide in eliminating unsuitable items.

The pupils were asked to indicate their individual feelings in response to each item but put an 'X' against items they did not understand. It was felt that the use of pupils responses to validate the instruments could be successful only if the pupils were honest. Therefore, as a rough indicator of the honesty of the pupils the personal demographic information they provided were compared against those indicated in the official school record. Their scores on equivalent items were also compared. A pupil was judged dishonest if the demographic information he or she provided did not tally with the school record or if his scores on equivalent items were not comparable. The attitude scales completed by such pupils were first eliminated.
Then the procedure used by Osman (1970) was adopted to eliminate unsuitable items. All the items that had an 'X'-frequency of two or more and those with frequencies of 'U' (undecided) responses above the average frequency of such responses were eliminated. The items on which boys and girls obtained equal mean scores were also eliminated. The procedure used by Kelly (1939) was used to extract high-scoring and low-scoring groups of items. These procedures reduced the number of items to twenty-one suitable items. However, one item was dropped so as to have equal distribution between the two sections. The remaining twenty items were presented to professionals in the field of education who established their validity.

To determine its reliability the scale was given to sixty class six, seven and eight pupils in two other schools. Each class was represented by twenty pupils ten of whom were girls. Then the scale was divided on an odd-even number basis. The Pearson Product Moment Correlation (PPMC) was computed using the scores obtained by all the pupils. This correlation was found to be .867

Using the Spearman-Brown Prophecy formula (Gay, 1981):

\[
\frac{2r(\text{split half})}{1+r(\text{split half})} = \text{SB}
\]
where \( r_{SB} \) is the reliability coefficient was used to determine the reliability of the instrument. From this computation the reliability was found to be .929.

Observation schedule for pupils' project work

The observation schedule was constructed as a guide to examining the articles made by pupils as project work in home science, art and craft. The major assumption here was that sex differences in attitudes of pupils could be manifested through their project work particularly if they were free to choose such projects for themselves. The quality and proportion of the number of an article made by each sex category of pupils would be related to their attitudes towards that article. These articles included drawings, paintings, coat hangers, pots, baskets, stools, wood carvings and garments among others. By checking the names of pupils on the articles it was possible to classify them according to the sex of producers. This helped in identifying whether one sex produced more and better quality of an article. This could be an indication of sex differences in attitudes towards various home science art and craft projects.

The validity of this instrument was established with the assistance of teachers for the two subjects.
under investigation. First, the purpose of the instrument was explained to them. Then their comments and suggestion were invited and these were used to improve the instrument.

Attitude scale for teachers

This instrument was also based on the five-point Summative Rating Scale described earlier. It consisted of two sections concerning home science, art and craft. Each section comprised ten items designed to reflect the attitudes of teachers.

The procedure developed by Youngman (1979) and mentioned earlier was used to develop the instrument. Initially six teachers of home science, art and craft, comprising three women teachers and three men teachers were requested to write down their opinions concerning the sex appropriateness of the subjects under investigation. A total of fourteen statements were obtained in this exercise. These were accepted and restated to improve their clarity and appropriateness as attitude items. Eleven additional items were then constructed to give a total of twenty-five items which formed the body of the trial attitude scale.

The trial scale was given to twelve teachers of home science, art and craft five of whom were women.
teachers. Then the items on which men and women had equal mean scores were eliminated. Items were also eliminated if they had a 'U'-(undecided) frequency greater than the mean frequency of such responses. This procedure ended up with ten suitable items on each section.

When the scale was divided on an odd-even number basis, and using the scores for teachers, the Pearson Product Moment Correlation between odd and even numbered items was found to be .322. The reliability coefficient computed from the Spearman-Brown Prophecy formula was .487. This correlation was moderate. The validity of this instrument was established by the investigator's University supervisors who had done research related to this study using similar instruments.

Questionnaire for teachers

The teacher respondents were presented with open-ended questionnaires on which they had the opportunity to express and explain their feelings, observations and suggestions concerning the sex appropriateness of the subjects under investigation. This instrument was considered invaluable as it was hoped to generate information that could supplement the findings of the two attitude scales. It enabled the researcher to see whether there was consistency in responses on the attitude scales and those expressed freely on an open-
ended version.

To validate the questionnaire, a few primary school teachers were asked to comment on the relevance, coverage and their understanding of each item, having understood the purpose of the instrument. Their suggestions were used to improve the questionnaire.

Interview schedule for headteachers

This instrument was constructed to generate information on the assignment of teachers to home science, art and craft. It was intended to show whether there was sex bias in the assignment of teachers and to seek explanation of sex biasing. Information was also sought on the enrolment, by sex, in classes six, seven and eight.

During its development, the draft interview schedule was given to a few headteachers who were asked to give their comments on the suitability, adequacy and their understanding of the interview items. Then the instrument was restructured based on the feedback.

Procedure for data collection

The headteachers of sample schools, all of whom happened to be men, were first contacted through correspondence to make appointments for the intended
visits to conduct research. These visits took place between May and June, 1991. This period fell in Second Term of the school year.

For each school visited the headteacher was first met for the purpose of introduction and briefing him on the study. Then all the home science, art and craft teachers for classes six, seven and eight were called to the meeting. The purpose of the study was explained to them. They were shown how to complete the questionnaire and the attitude scale for teachers. All of them agreed to do this within four days and to deposit them with their headteachers upon completion.

Then an interview was held with the headteacher. The interview was guided by the Interview Schedule for Headteacher. This was followed by observing pupils' project work in home science, art and craft and, subsequently, the Attitude Scale for Pupils was administered by the researcher. The completed instrument was collected after thirty minutes. This duration was enough for pupils to respond to the instrument.

On the fifth day the schools were revisited for the purpose of collecting the completed instruments for teachers.
Data analysis

The simpler method developed by Gene (1970) in which numerical values 1, 2, 3, 4 and 5 are assigned to possible responses SD, D, U, A and SD respectively on the five-point sigma scale was used on the attitude scales for scoring the pupils' and teachers' responses. For negative statements, the assignment of numerical values to checking points were reversed so that the points SD and SA corresponded to the value 5 and 1 respectively.

The score for each subject was determined by finding the sum of numerical values of the positions (points) he or she checked. The average scores for boys and girls were then computed separately. The same was done for teachers. For each class and sex category of respondents two means were considered, namely: mean attitude scores on home science, art and craft taken separately.

To determine whether there were significant differences in the mean attitude scores between boys and girls towards the subjects under investigation, the equation of t-test for independent samples (separate variance) was used, taking the level of significance as .05 on a two-tailed test. The equation may be expressed thus (Gay, 1981):
\[ t = \frac{M_G - M_B}{\sqrt{\frac{S_G^2}{N_G - 1} + \frac{S_B^2}{N_B - 1}}} \]

where

\( M_G \) = mean attitude score for girls

\( M_B \) = mean attitude score for boys

\( S_G^2 \) = variance of girls' attitude scores

\( S_B^2 \) = variance of boys' attitude scores

\( N_G \) = number of boys in the category considered

\( N_B \) = number of girls in the category considered.

To determine whether there were significant differences in the mean attitude scores between men and women teachers on selected vocational subjects the equation of t-test for independence samples (pooled variance) was used, taking significant level as .05 on a two-tailed test. The equation used was (Gay, 1981):

\[ t = \frac{M_M - M_F}{\sqrt{\frac{\sum X_M^2 - (\sum X_M)^2}{N_M} + \frac{\sum X_F^2 - (\sum X_F)^2}{N_F}}} \left[ \frac{N_M + N_F}{N_M N_F (N_M + N_F - 2)} \right] \]

where:

\( M_M \) = mean attitude scores for men teachers

\( M_F \) = mean attitude scores for women teachers
For analysing the differences in the mean attitude scores of same category of samples on different subjects the equation of t-test for dependent means was used. The equation may be expressed thus (Gay, 1981):

\[ t = \frac{\sum D}{\sqrt{\frac{N \sum D^2 - (\sum D)^2}{N-1}}} \]

where

- \( D \) = difference between each individual's scores on the two subjects
- \( N \) = number of pupils or teachers in that sample.

Summary

The purpose of this chapter was to describe the design and methodology employed in this study. This was done through the description of samples and sampling technique, data collection instruments, procedure for data collection and analysis.

The sample of pupils consisted of 300 pupils randomly sampled from ten schools. These schools were randomly selected from 540 primary schools in Siaya District. Of the sample, each of the classes six, seven
and eight was equally represented by 100 pupils. In each school random selection of pupils was done in each class such that where possible five boys and five girls were selected. However, in some classes the enrolment of girls was less than five and more boys were selected so that the total of 300 pupils could be achieved. Using this procedure a total of 153 boys and 147 girls were selected to participate.

The sample of teachers consisted of all teachers for class six, seven and eight who were teaching home science or art and craft in at least one of the classes. This gave a total of 60 teachers who were effectively reduced to 49. The composition of the effective sample was 25 women and 24 men. In addition all the ten headteachers of sample schools were interviewed.

The instruments used in this study included attitude scales for pupils and teachers both of which were based on the five-point Summative Rating scale. Their reliabilities were determined by the researcher while validity was established with the assistance of the research supervisor. The scale was administered by the investigator. The other instruments included observation schedule, questionnaire for teachers and the interview schedule for headteachers. The data obtained were reported in means and standard deviations.
CHAPTER FOUR

RESEARCH FINDINGS

Introduction

This chapter is divided into five major sections for the purpose of presenting the findings of this research. The first section presents the results obtained following the analysis of the demographic data about pupils while the second section deals with the information about their project work in Home Science, Art and Craft. This is followed by the demographic information about teachers. The fourth and last sections are devoted to the results of the tests of hypotheses about pupils and teachers respectively.

Demographic information about pupils

Table 1 shows the ages of pupils who participated in the study. The Table shows that in each class the ages of boys and girls were comparable.
TABLE 1
AGE OF PUPILS BY CLASS AND SEX

<table>
<thead>
<tr>
<th>CLASS</th>
<th>BOYS</th>
<th>GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>MEAN</td>
</tr>
<tr>
<td>SIX</td>
<td>50</td>
<td>13.00</td>
</tr>
<tr>
<td>SEVEN</td>
<td>51</td>
<td>14.26</td>
</tr>
<tr>
<td>EIGHT</td>
<td>52</td>
<td>15.16</td>
</tr>
</tbody>
</table>

Except for class eight, boys were slightly older than girls in each class. The small differences ranged from .08 in class six to .36 years in class seven. On the average, class eight boys were .46 years older than their female classmates.

There were also small variations in the spread of pupils' ages not only from one class to another but also between sexes. With respect to age, class eight girls were the most homogeneous with a mean age of 14.70 years and a standard deviation of 1.042. For girls, this homogeneity decreased down the classes so that
class six girls were the most heterogeneous with a mean age of 12.92 years and a standard deviation of 1.429. Boys of class seven were observed to be the most heterogeneous with respect to age, having a mean age of 14.26 years with a standard deviation of 1.625. In classes six and eight the spreads were virtually the same, as the standard deviation values were 1.187 and 1.188 respectively. However, given their small magnitudes, these age differences may not have significantly contributed to the differences in attitudes.

The distribution of pupils by class and sex is shown in Table 2. It is observed that the proportion of male category of pupils was higher than for girls. The highest imbalance was observed in class seven where boys constituted 57.8 percent of the class. In classes six and eight, boys constituted 54.4 and 54.5 percent respectively. For all the three classes, taken together, girls represented only 40.6 percent of all the pupils.
TABLE 2

ENROLMENT OF PUPILS IN SCHOOLS BY CLASS AND SEX

<table>
<thead>
<tr>
<th>CLASS</th>
<th>BOYS</th>
<th></th>
<th>GIRLS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>SIX</td>
<td>234</td>
<td>54.4</td>
<td>119</td>
<td>46.0</td>
</tr>
<tr>
<td>SEVEN</td>
<td>307</td>
<td>57.8</td>
<td>224</td>
<td>42.2</td>
</tr>
<tr>
<td>EIGHT</td>
<td>175</td>
<td>54.5</td>
<td>146</td>
<td>45.5</td>
</tr>
</tbody>
</table>

Information on the pupils' project work

Owing to high costs involved, most pupils do project work in mixed groups of four to six. However, in the projects which are usually seen as masculine, for example, carpentry and woodcarving, girls are passive observers while boys play an active role. In some schools, where pupils make their own choice of project and work independently all woodcarvings were produced by boys while all the knitted articles were made by girls.

Table 3 shows the articles produced by pupils as their project work in Home Science, Art and Craft. These articles are categorized according to the sex of producers and specific areas of the subjects in which they fall.
TABLE 3

PUPILS' PROJECT WORK AND PRODUCTION OF ITEMS BY SEX

<table>
<thead>
<tr>
<th>PROJECT WORK</th>
<th>BOYS</th>
<th>GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NUMBER OF ITEMS</td>
<td>%</td>
</tr>
<tr>
<td>CARVING</td>
<td>96</td>
<td>72.1</td>
</tr>
<tr>
<td>ART</td>
<td>63</td>
<td>82.1</td>
</tr>
<tr>
<td>CARPENTRY</td>
<td>48</td>
<td>69.6</td>
</tr>
<tr>
<td>CROCHETING</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>EMBROIDERY</td>
<td>46</td>
<td>32.4</td>
</tr>
<tr>
<td>SEWING</td>
<td>28</td>
<td>37.8</td>
</tr>
<tr>
<td>BASKETRY</td>
<td>18</td>
<td>25.0</td>
</tr>
<tr>
<td>POTTERY</td>
<td>8</td>
<td>22.2</td>
</tr>
</tbody>
</table>

About 18 percent of the articles in Art were made by girls. The same trend was observed in carving and carpentry, where the proportions of articles made by girls were less than 31 percent.

In homecraft the trend was quite different. The proportions of articles made by girls in crocheting, embroidery, sewing, basketry and pottery ranged from 62.2, to 100 percent. These percentages were observed in sewing and crocheting respectively. The articles
included crochets, embroideries, garments, pots, clay cups, table mats and baskets. In view of the demographic data presented in Table 2, enrolment alone cannot account for these differences. Besides, even the low percentage of articles made by boys in pottery, basketry, sewing and embroidery were of lower quality as compared to those made by girls. On the other hand the articles made by girls in carving, art and carpentry were inferior to those made by boys.

Demographic information about teachers

Table 4 shows the mean age and length of service for teachers when categorized by sex. The mean ages of men and women teachers differed appreciably. Men teachers had a mean age of 32.20 years with a standard deviation of 7.69 while women had a mean age of 28.30 years with a standard deviation of 6.68. Hence on the average, men teachers were about 3.90 years older than women. This difference was also reflected in the length of teaching service, with men and women teachers having taught for 7.80 and 7.23 years respectively. Thus men had taught for .60 years longer than women.
TABLE 4

AGE AND LENGTH OF SERVICE FOR TEACHERS

<table>
<thead>
<tr>
<th>VARIABLE (YEARS)</th>
<th>MEN (N=24)</th>
<th>WOMEN (N=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN</td>
<td>SD</td>
</tr>
<tr>
<td>AGE</td>
<td>32.20</td>
<td>7.69</td>
</tr>
<tr>
<td>LENGTH OF SERVICE</td>
<td>7.80</td>
<td>6.25</td>
</tr>
</tbody>
</table>

However, these differences did not correspond to each other. This may be attributed to the fact that men joined the teaching service at an older age, some of them having undertaken the Advanced Level studies or avoided the service only to accept it as a last resort.

The assignment of teachers to vocational subjects is shown in Table 5. Even though all trained teachers were given equal training to teach all primary school subjects, regardless of sex, there were differences in the assignment of these teachers. The teaching of Home Science and Art and Craft was dominated by women and men teachers respectively.
TABLE 5
ASSIGNMENT OF TEACHERS BY CLASS, SUBJECT AND SEX

<table>
<thead>
<tr>
<th>CLASS</th>
<th>HOME SCIENCE</th>
<th>ART AND CRAFT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEN</td>
<td>WOMEN</td>
</tr>
<tr>
<td>SIX</td>
<td>5</td>
<td>38.5</td>
</tr>
<tr>
<td>N</td>
<td>6</td>
<td>75.0</td>
</tr>
<tr>
<td>SEVEN</td>
<td>3</td>
<td>25.0</td>
</tr>
<tr>
<td>N</td>
<td>8</td>
<td>88.9</td>
</tr>
<tr>
<td>EIGHT</td>
<td>2</td>
<td>20.0</td>
</tr>
<tr>
<td>N</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>28.6</td>
</tr>
<tr>
<td>N</td>
<td>24</td>
<td>88.9</td>
</tr>
</tbody>
</table>

For all the three classes under investigation men constituted only 28.6 percent of Home Science teachers as compared to 71.4 percent which is the percentage of women teachers for the same subject. On the other hand, men teachers represented 88.9 percent of Art and Craft teachers while women teachers for this subject constituted only 11.1 percent. The distribution of teachers on these subjects also indicates that all men teachers who were teaching Home Science were also teaching Art and Craft. For women, all the teachers who taught Art and Craft also taught Home Science.
The male proportion of Home Science teachers ranged from 20.0 percent in class eight to 38.5 percent in class six. However in Art and Craft, men teachers accounted for 75.0 and 88.9 percent of all teachers in classes six and seven respectively. This proportion was highest in class eight where all the teachers for this subject were men. The data reveal that as we move from class six to eight the teaching of Home Science becomes dominated by women while Art and Craft becomes dominated by men teachers.

Interview with the headteachers showed that the assignment of teachers was voluntary and based on the interest of the teachers in those subjects. However, most of the men teachers were quite uncomfortable with Home Science while women teachers favoured Home Science teaching more than Art and Craft teaching. Further, each teacher, irrespective of sex, taught a wide range of subjects across many classes.

When asked which topics they enjoy teaching in Home Science, men teachers listed clothing and textile, health education, first aid, hygiene, fabric making and care. Women teachers of the same subject enjoy care of the home, laundry work, good grooming, needlework, mothercraft, dressing for occasions, child birth, child care, common diseases in children and cookery. Only home
management is commonly enjoyed by men and women teachers. It seems that some areas in Home Science are seen as more feminine than others.

Differences in the attitude scores among pupils and teachers

This section is devoted to the results of the test of the hypotheses. The results are presented in Tables 6 through 13. Tables 6 through 12 list the mean attitude scores of pupils on Home Science, Art and Craft while the mean attitude scores of teachers are presented in Table 13. The t-ratios between the mean attitude scores of two samples were computed to test the hypotheses Ho1 through Ho10.

Each hypothesis is restated. Then the means, standard deviations and the observed t-ratios between the means of the scores are presented. Where significant, these t-ratios are marked with asterisks.

Differences in the attitude scores among pupils

Ho1: For mean attitude scores on Home Science, Art and Craft there is no significant difference between class six boys and girls.

The data presented in Table 6 show the means, standard deviations and t-ratios of the attitude scores of class six children. An examination of the Table revealed that there was not much variation between the
two sex categories in their liking for Home Science or Art and Craft.

TABLE 6

DIFFERENCES IN THE MEAN ATTITUDE SCORES BETWEEN HOME SCIENCE, ART AND CRAFT AND BETWEEN BOYS AND GIRLS IN CLASS SIX

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>BOYS (N=50)</th>
<th>GIRLS (N=50)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN</td>
<td>SD</td>
</tr>
<tr>
<td>HOME SCIENCE</td>
<td>37.6</td>
<td>7.268</td>
</tr>
<tr>
<td>ART AND CRAFT</td>
<td>35.0</td>
<td>8.164</td>
</tr>
<tr>
<td>t-RATIO</td>
<td>1.463</td>
<td>0.009</td>
</tr>
</tbody>
</table>

In Home Science, girls obtained a mean score of 35.2 with a standard deviation of 6.760, as compared to boys' mean score of 37.6 with a standard deviation of 7.268. The difference was smaller in Art and Craft where boys and girls obtained mean scores of 35.0 and 35.4 with standard deviations of 8.164 and 6.361 respectively.

A t-test for independent samples was used to determine whether there was a significant difference in the Home Science mean attitude scores between boys and girls. The obtained $t=1.693$, $df=98$, was not significant at .05 level on a two-tailed test. It was therefore concluded that there was no significant
difference in the Home Science mean attitude scores between class six boys and girls. Hence the first part of hypothesis H01 was not rejected.

At the same time a t-test for independent samples was performed to determine whether there was a significant difference in the Art and Craft mean attitude scores between boys and girls. The calculated $t = .183$, $df = 98$ was not significant at .05 level on a two-tailed test. Therefore it was concluded that there was no significant difference in the Art and Craft mean attitude scores between class six boys and girls. Accordingly the second part of the hypothesis H01 was also accepted.

H02: For each sex category of pupils in class six there is no significant difference in the mean attitude scores between Home Science and Art and Craft.

Further analysis was carried out on the male pupils' attitude scores on Home Science, Art and Craft. The t-test for dependent samples was calculated to test whether there was a significant difference in the mean attitude scores between Home Science and Art and Craft among male pupils. The obtained t-ratio ($t = 1.463$, $df = 49$) was not significant at .05 level on a two-tailed test. Hence it was concluded that there was no significant difference in the Home Science and Art and Craft mean attitude scores among boys. This part of
the hypothesis Ho was therefore accepted. This 2
information is contained in Table 6.

The t-test for dependent samples was also used to
determine whether there was a significant difference in
the Home Science and Art and Craft mean attitude scores
among girls. Again, the obtained t-ratio (t=.009 df=49)
was not significant at .05 level of confidence on a
two-tailed test. It was therefore concluded that the
female pupils’ mean attitude score on Home Science was
not significantly different from Art and Craft.
Following this observation the second part of the
hypothesis was accepted. These results are also shown
in Table 6.

Ho3: For mean attitude scores on Home Science,
Art and Craft there is no significant
difference between class seven boys and
girls.

Table 7 shows the means, standard deviations and
the t-ratios of the attitude scores of class seven pupils. Boys obtained a mean score of 38.5 in Home
Science as compared to 39.2 which was the corresponding
mean score for girls. The standard deviations
associated with these mean scores were 7.844 and 8.151
respectively. In Art and Craft boys obtained a mean
attitude score of 39.6 with a standard deviation of
7.579 while girls had a mean score of 40.1 with a deviation of 7.345. These data reflect slight variations in attitude scores not only between boys and girls but also between the two subjects when each sex is treated independently. However, these differences may be due to chance.

### TABLE 7

DIFFERENCES IN THE MEAN ATTITUDE SCORES BETWEEN HOME SCIENCE, ART AND CRAFT AND BETWEEN BOYS AND GIRLS IN CLASS SEVEN

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>BOYS (N=51)</th>
<th>GIRLS (N=49)</th>
<th>t-RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN</td>
<td>SD</td>
<td>MEAN</td>
</tr>
<tr>
<td>HOME SCIENCE</td>
<td>38.5</td>
<td>7.844</td>
<td>39.2</td>
</tr>
<tr>
<td>ART AND CRAFT</td>
<td>39.6</td>
<td>7.579</td>
<td>40.1</td>
</tr>
<tr>
<td>t-RATIO</td>
<td>.333</td>
<td>.037</td>
<td></td>
</tr>
</tbody>
</table>

To test the significance of differences between boys and girls a t-test for independent samples was used. The calculated $t = .433$, $df = 98$ at .05 level revealed that there was no significant difference in mean Home Science attitude scores between class seven boys and girls. From this result it was concluded that there was no significant difference in Home Science mean attitude scores between class seven boys and girls. Hence with respect to Home Science subject the hypothesis $H_0$ was not rejected.
this result it was concluded that there was significant difference in Home Science mean attitude scores between class seven boys and girls. Hence with respect to Home Science subject the hypothesis Ho was not rejected.

Similar analysis, using t-test for independent samples, was done to determine whether there was a significant difference in Art and Craft mean attitude scores between class seven boys and girls. The calculated t=.332, df=98 was not significant at .05 level on a two-tailed test. Therefore it was concluded that class seven boys and girls did not obtain significantly different Art and Craft mean attitude scores. Hence with reference to Art and Craft the hypothesis Ho was accepted. This information is shown in Table 7.

Further analysis was done to determine whether, for each sex category, there was a significant difference in the mean attitude scores between Home Science and Art and Craft. This analysis employed the t-test for dependent samples. For boys, the observed t=.333, df=50 at .05 level of confidence was not significant. Therefore it was concluded that the male class seven pupils' Home Science mean attitude score did not differ
significantly from their score on Art and Craft. Thus with respect to the male category of pupils the hypothesis Ho was not rejected. Similarly, for girls, the obtained t =.037, df=48 at .05 level was not significant. From this observation it was concluded that there was no significant difference in mean attitude scores between Home Science and Art and Craft among girls. Hence the hypothesis was rejected. This information is shown in Table 7.

Ho5: For mean attitude scores on Home Science, Art and Craft there is no significant difference between class eight boys and girls.

Table 8 shows the means, and standard deviations of the attitude scores of class eight pupils. These scores were obtained on Home Science, Art and Craft.

| TABLE 8 |
| DIFFERENCES IN THE MEAN ATTITUDE SCORES BETWEEN HOME SCIENCE, ART AND CRAFT AND BETWEEN BOYS AND GIRLS IN CLASS EIGHT |

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>BOYS (N=52)</th>
<th>GIRLS (N=48)</th>
<th>t-RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN</td>
<td>SD</td>
<td>MEAN</td>
</tr>
<tr>
<td>HOME SCIENCE</td>
<td>39.6</td>
<td>9.907</td>
<td>44.2</td>
</tr>
<tr>
<td>ART AND CRAFT</td>
<td>42.9</td>
<td>6.495</td>
<td>36.6</td>
</tr>
<tr>
<td>t-RATIO</td>
<td>2.260*</td>
<td></td>
<td>5.082***</td>
</tr>
</tbody>
</table>

*p>.05  **p>.01  ***p>.001
An examination of the data reveals that there were variations in attitude scores between boys and girls on the two vocational subjects. In Home Science, boys and girls obtained mean scores of 39.6 and 44.2 with standard deviations of 9.907 and 4.960 respectively. Hence as compared to boys, girls scored higher on Home Science. On the other hand boys' mean score of 42.9 with standard deviation of 6.495 on Art and Craft was higher than the girls' mean attitude score of 36.6 with a standard deviation of 9.276 on the same subject.

To determine whether the observed differences in mean attitude scores between boys and girls were significant, the t-test for independent samples was used. For mean Home Science attitude scores, the calculated \( t = 2.917 \), \( df = 98 \) was significant at .01 level of confidence, on a two-tailed test. It was therefore concluded that there was a significant difference in Home Science mean attitude scores between boys and girls. Hence with respect to Home Science subject the hypothesis \( H_0 \) was rejected.

At the same time analysis of the mean Art and Craft attitude scores revealed a t-ratio of 3.865, \( df = 98 \) which was significant at .001 level on a two-tailed test. From this result it was concluded that there was a significant difference in mean Art and Craft attitude scores between class eight boys and girls. Therefore
This part of the hypothesis Ho was also rejected. These findings are shown in Table 8.

**H06:** For each sex category in class eight there is no significant difference in the mean attitude scores between Home Science and Art and Craft.

Other variations were observed in the mean attitude scores between Home Science and Art and Craft. Boys obtained a higher mean attitude score on Art and Craft than on Home Science. For girls, the mean attitude score was higher on Home Science than on Art and Craft. An analysis using the t-test for dependent samples was carried out to determine whether there was a significant difference in mean attitude scores between Home Science and Art and Craft among boys. The obtained $t=2.260$, $df=51$ was significant at $.05$ level on a two-tailed test. Hence it was concluded that the male pupils' mean attitude score on Home Science was significantly different from their score on Art and Craft. At the same time a t-test of dependent samples was performed to determine whether there was a significant difference in mean attitude scores between Home Science and Art and Craft among girls. The calculated $t=5.082$, $df=47$ was significant at $.001$ level on a two-tailed test. The conclusion drawn was that class eight girls' mean attitude score in Home Science was significantly different from Art and Craft. Therefore the hypothesis Ho was rejected. These findings are shown in Table 8.
Ho7: For mean attitude scores on Home Science, Art and Craft, there is no significant difference between class six, seven and eight boys.

The means and standard deviations of the attitude scores of boys of classes six and seven are presented in Table 9. The table also shows the t-ratios computed from those mean attitude scores.

**TABLE 9**

DIFFERENCES IN THE MEAN ATTITUDE SCORES ON HOME SCIENCE, ART AND CRAFT BETWEEN CLASS SIX AND SEVEN BOYS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>CLASS SIX (N=50)</th>
<th>CLASS SEVEN (N=51)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN</td>
<td>SD</td>
</tr>
<tr>
<td>HOME SCIENCE</td>
<td>37.6</td>
<td>7.268</td>
</tr>
<tr>
<td>ART AND CRAFT</td>
<td>35.0</td>
<td>8.164</td>
</tr>
</tbody>
</table>

** p>.01

An examination of the mean scores reveals some variations between class six and seven boys. In Home Science, class seven boys obtained a mean attitude score of 38.5 with a standard deviation of 7.844. This was slightly higher than the corresponding mean attitude score of class six boys which was 37.6 with a standard deviation of 7.268. In Art and Craft, the mean attitude scores for class six and seven boys were 35.0 and 39.6 with standard deviation of 8.164 and 7.579 respectively.
Therefore, in Art and Craft there was a larger difference in the mean attitude scores in favour of class seven.

To determine whether there was a significant difference in the mean attitude scores on Home Science between class six and seven boys a t-test for independent samples was used. However, the obtained $t = .589$, $df=99$ was not significant at .05 level on a two-tailed test. This showed that there was no significant difference in the mean Home Science attitude scores between class six and seven boys. Hence this part of the hypothesis $H_07$ was not rejected.

The same t-test for independent samples was applied to determine whether Art and Craft mean attitude scores for boys of these classes were significantly different. The analysis yielded a $t$-ratio of 2.891, $df=99$ which was significant at .01 level on a two-tailed test. This observation revealed that there was a significant difference in the Art and Craft mean attitude scores between class six and seven boys. Hence with reference to these classes the null hypothesis $H_07$ was rejected. This information is shown in Table 9.

An analysis of differences between classes seven and eight was also carried out. The corresponding mean attitude scores, standard deviations and the t-ratios
computed from those means are presented in Table 10.

**TABLE 10**

DIFFERENCES IN THE MEAN ATTITUDE SCORES ON HOME SCIENCE, ART AND CRAFT BETWEEN CLASS SEVEN AND EIGHT BOYS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>CLASS SEVEN (N=51)</th>
<th>CLASS EIGHT (N=52)</th>
<th>MEAN</th>
<th>SD</th>
<th>MEAN</th>
<th>SD</th>
<th>t-RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOME SCIENCE</td>
<td></td>
<td></td>
<td>38.5</td>
<td>7.844</td>
<td>39.6</td>
<td>9.907</td>
<td>.585</td>
</tr>
<tr>
<td>ART AND CRAFT</td>
<td></td>
<td></td>
<td>39.6</td>
<td>7.579</td>
<td>42.9</td>
<td>6.495</td>
<td>2.314*</td>
</tr>
</tbody>
</table>

* p > .05

As shown in the Table, class eight boys obtained a mean score of 39.6 on Home Science while class seven boys' mean score on that subject was 38.5. In Art and Craft, the mean attitude scores of class seven and eight boys were 39.6 and 42.9 respectively. It is observed that class eight boys obtained a slightly higher mean attitude score on Home Science than did class seven boys. A similar variation is also observed in Art and Craft.

A t-test for independent samples was used to determine whether there was a significant difference in Home Science mean attitude scores between class seven and eight boys. However, the calculated t=.585, df=101 was not significant at .05 level on a two-tailed test.
Therefore it was concluded that there was no significant difference in Home Science mean attitude scores between boys of class seven and eight. Hence this part of the hypothesis $H_0^7$ was accepted. This test for independent samples was also carried out to determine whether there was a significant difference in Art and Craft mean attitude scores between class seven and eight boys. In this case the observed $t=2.314$, $df=101$ was significant at .05 level on a two-tailed test. From this observation it was concluded that there was a significant difference in Art and Craft mean attitude scores between class seven and eight boys. Hence, with reference to Art and Craft subject the null hypothesis $H_0^7$ was rejected. These data are presented in Table 10.

$H_0^8$: For mean attitude scores on Home Science, Art and Craft, there is no significant difference between class six, seven and eight girls.

As was done earlier for boys, the means and standard deviations of the attitude scores of girls on Home Science, Art and Craft were computed. The scores obtained by girls of class six and seven are presented in Table 11. The $t$-ratios calculated from these scores are also shown in the table.
TABLE 11
DIFFERENCES IN THE MEAN ATTITUDE SCORES ON HOME SCIENCE, ART AND CRAFT BETWEEN CLASS SIX AND SEVEN GIRLS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>CLASS SIX (N=50)</th>
<th>CLASS SEVEN (N=49)</th>
<th>t-RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOME SCIENCE</td>
<td>35.2</td>
<td>6.760</td>
<td>39.2</td>
</tr>
<tr>
<td>ART AND CRAFT</td>
<td>35.4</td>
<td>6.361</td>
<td>40.1</td>
</tr>
</tbody>
</table>

** p>.01
*** p>.001

Variations are observed in the mean attitude scores not only in Home Science but also in Art and Craft. In Home Science, class six girls obtained a mean attitude score of 35.2 with a standard deviation of 6.760 while girls of class seven scored a mean of 39.2 with a standard deviation of 8.151. But the Art and Craft mean scores were slightly higher for each class. Whereas class six had a mean score of 35.4 with a standard deviation of 6.361, class seven had a mean score and standard deviation of 40.1 and 7.345 respectively. Hence, in each subject the higher mean attitude score was obtained by class seven girls.

Further analysis, using a t-test for independent samples, was carried out to determine whether Home Science mean attitude scores of class six and seven
girls were significantly different. The obtained $t=2.628$, $df=97$ was significant at .01 level on a two-tailed test. It was therefore concluded that there was a significant difference in Home Science mean attitude scores between the two classes. Thus as concerns classes six and seven the hypothesis Ho8 was rejected.

At the same time the t-test for independent samples was performed to determine whether there was a significant difference in Art and Craft mean attitude scores between the two classes. In this analysis the observed $t=3.366$, $df=97$ was significant at .001 level on a two-tailed test. The conclusion drawn was that there was a significant difference in Art and Craft mean attitude scores between class six and seven girls. This information is shown in Table 11.

Table 12 shows the means, standard deviations and the observed t-ratios of the Home Science, Art and Craft attitude scores for class seven and eight girls. The scores are grouped according to class and subject.
TABLE 12
DIFFERENCES IN THE MEAN ATTITUDE SCORES ON HOME SCIENCE, ART AND CRAFT BETWEEN CLASS SEVEN AND EIGHT GIRLS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>CLASS SEVEN (N=49)</th>
<th>CLASS EIGHT (N=48)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN</td>
<td>SD</td>
</tr>
<tr>
<td>HOME SCIENCE</td>
<td>39.2</td>
<td>8.151</td>
</tr>
<tr>
<td>ART AND CRAFT</td>
<td>40.1</td>
<td>7.345</td>
</tr>
</tbody>
</table>

* p>.05      *** p >.001

In Home Science, class seven girls obtained a mean score of 39.2 with a standard deviation of 8.151 while class eight girls had a mean score of 44.2 with a standard deviation of 4.960. However, in Art and Craft the higher mean score of 40.1 with a standard deviation of 7.345 was scored by class seven girls as compared to 36.6 and 9.276 which were the mean and standard deviation of class eight girls respectively.

Hence the mean attitude score on Home Science was higher for class eight than it was for class seven. On the other hand the mean attitude score on Art and Craft was higher for class seven than it was for class eight. To test whether these differences were significant a t-test for independent samples was applied. For Home Science mean attitude scores the calculated t=3.620, df=95 was significant at .001 level. Therefore it was
concluded that there was a significant difference in Home Science mean attitude scores between class seven and eight girls. Hence with regard to Home Science subject the null hypothesis $H_0$ was rejected.

Further analysis was done to determine whether there was a significant difference in Art and Craft mean attitude scores between class seven and eight girls. This analysis yielded a $t$-ratio of $-2.036$, $df=95$ which was significant at $.05$ level on a two-tailed test. In this case class seven girls obtained a significantly higher mean attitude score than class eight. From this result it was concluded that there was a significant difference in Art and Craft mean attitude scores between class seven and eight girls. Hence this part of the hypothesis, $H_0$ was also rejected. These $t$-ratios are shown in Table 12.

The mean attitude score of girls on Home Science increased steadily from class six to eight. This is an indication that the attitudes of girls towards the subject become more positive up the class. For Art and Craft, a different trend was observed. Even though the mean attitude score of girls in class seven was significantly higher than in class six, there was a sharp (significant) fall as one progressed from class seven to eight.
Differences in the attitude scores among teachers

H09: For mean attitude scores on Home Science, Art and Craft there is no significant difference between men and women teachers.

Table 13 shows the means and standard deviations of teachers' attitude scores in Home Science, Art and Craft. The calculated t-ratios for the mean scores are also presented. These data are grouped according to subjects and sex of the teachers.

TABLE 13
DIFFERENCES IN THE MEAN ATTITUDE SCORES BETWEEN HOME SCIENCE, ART AND CRAFT AND BETWEEN MEN AND WOMEN TEACHERS

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>MEN TEACHERS (N=24)</th>
<th>WOMEN TEACHERS (N=25)</th>
<th>t-RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN</td>
<td>MEAN</td>
<td></td>
</tr>
<tr>
<td>HOME SCIENCE</td>
<td>39.6</td>
<td>42.8</td>
<td>2.652*</td>
</tr>
<tr>
<td>ART AND CRAFT</td>
<td>41.2</td>
<td>41.6</td>
<td>.243</td>
</tr>
<tr>
<td>t-RATIO</td>
<td>1.032</td>
<td>.841</td>
<td></td>
</tr>
</tbody>
</table>

* p>.05

The Table shows that there were some variations in the mean attitude scores of teachers. In Home Science women teachers obtained a higher mean score of 42.8 as compared to the men's mean score of 39.6. The difference was smaller in Art and Craft where the mean
scores for men and women were 41.2 and 41.6 respectively.

A statistical analysis, using a t-test for independent samples, was carried out to determine whether there was a significant difference in Home Science mean attitude scores between men and women teachers. The observed $t = 2.652$, df=47 was significant at .05 level on a two-tailed test. From this observation it was concluded that there was a significant difference in Home Science mean attitude scores between men and women teachers. Hence, with respect to Home Science subject the null hypothesis $H_0$ was rejected.

At the same time the t-test for independent samples was performed to determine whether there was a significant difference in Art and Craft mean attitude scores between the two sex categories of teachers. However, the calculated $t = .243$, df=47 was not significant at .05 level on a two-tailed test. It was therefore concluded that there was no significant difference in Art and Craft mean attitude scores between men and women teachers. Hence this part of the hypothesis was not rejected. This information is contained in Table 13.
Ho10 For each sex category of teachers there is no significant difference in the mean attitude scores between Home Science and Art and Craft.

Some variations were also observed in the mean attitude scores between the subjects. For men teachers, the score was higher on Art and Craft than on Home Science while for women teachers the higher mean score was obtained on Home Science. To test whether there was a significant difference in the mean attitude scores between Home Science and Art and Craft among men teachers a t-test for dependent samples was used. However, the calculated t=1.032, df=23 was not significant at .05 level on a two tailed-test. Therefore it was concluded that there was no significant difference in mean attitude scores between Home Science and Art and Craft among men teachers. Hence this part of hypothesis Ho10 was not rejected.

Further analysis, using the t-test for dependent samples, was carried out to determine whether there was a significant difference in mean attitude scores between Home Science and Art and Craft among women teachers. But the obtained t=.841, df=24 was not significant at .05 level on a two-tailed test. It was therefore concluded that, for women teachers, there was no significant difference in mean attitude scores between Home Science and Art and Craft. Hence this part of
hypothesis Ho10 was accepted. This information is contained in Table 13.

Summary

The data on the pupils’ project work which are presented in this chapter have given an indication of sex related differences in the attitudes of pupils and teachers. Observation of the project work of pupils has shown that boys have a tendency to make articles which are different from those of girls and vice versa. Most of the projects done by boys and girls fall under Art and Craft and Home Science respectively.

The assignment of teachers, which is believed to be mainly influenced by interest in the subject, was observed to be sex-related. The teaching of Art and Craft and Home Science was dominated by men and women teachers respectively.

From the test of the hypotheses of the study, significant differences in the mean attitude scores were established among class eight pupils when categorized by sex on Home Science and also Art and Craft. Also, each sex category of pupils in class eight obtained significantly different mean attitude scores on the two subjects. However, no significant differences were observed in the other classes.
Other significant differences in the mean attitude scores were observed among class six, seven and eight boys on Art and Craft but not Home Science, while for girls, the differences were significant in both of the subjects.

For teachers, significant sex-related differences in attitude scores were observed on Home Science but not Art and Craft. However, for each sex category of teachers no significant differences were established in the mean attitude scores between Home Science and Art and Craft.
CHAPTER FIVE

SUMMARY, DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

Summary

This study set out to investigate the attitudes of the primary school children and teachers towards Home Science, Art and Craft. The specific objective was to investigate the difference in the attitudes of children and teachers towards these subjects when: 1. The pupils are categorized by sex 2. The pupils are categorized by class and 3. The teachers are categorized by sex.

The review of literature related to the present study covered the history of vocational curriculum, the literature on the sex-role attitudes, and the attitudes towards vocational subjects. This review showed that not only are sex-role and sex stereotyped attitudes held by school children but the vocational curriculum has always been sex differentiated. However, the studies provided little information on the sex differences in the attitudes of school children and teachers towards vocational subjects.
The study employed a contrasted-groups design, in which no difference between the groups was instigated by any type of experimental treatment. The sample of pupils consisted of three hundred pupils randomly sampled from Siaya District. Each of the classes six, seven and eight was equally represented by one hundred pupils. The sample of teachers consisted of forty nine Home Science, Art and Craft teachers in the sample schools. The data collection, which took three weeks, was done between May and June 1991 through the following instruments: Attitude Scale for Pupils, Observation Schedule for Pupils' Project Work, Attitude Scale for Teachers, Questionnaire for Teachers and the Interview Schedule for Headteachers, all of which were constructed by the investigator. The data collected were reported in means, standard deviations and percentages.

Using the data obtained from the attitude scales the hypotheses of the study were tested. This analysis employed the t-test for dependent and independent samples, taking the minimum level of significance as \( p \leq 0.05 \).

Significant differences in the mean attitude scores on Home Science, Art and Craft were observed between
class eight boys and girls. Compared to girls, boys of that class scored a significantly higher mean attitude score on Art and Craft than on Home Science. Further, boys of that class obtained a higher mean score on Art and Craft than on Home Science while girls scored higher on Home Science than on Art and Craft.

No significant differences were observed in the other classes. However, an important observation is that for all classes and sex categories the attitudes towards both subjects were generally positive.

Other significant differences in the mean attitude scores on Home Science, Art and Craft were observed among the girls when they were categorized by class. The higher the class the higher were the attitude scores towards the subjects. The exception was between class seven and eight where the attitude scores on Art and Craft became less positive up the class. For boys, the higher the class the higher were the mean attitude scores on Art and Craft. However, no significant differences in their scores on Home Science were observed.

An examination of the project work by pupils revealed that most of the articles made by boys and
girls fall under Art and Craft and Home Science respectively.

The assignment of teachers to the two vocational subjects was largely influenced by sex. The teaching of Home Science, Art and Craft was dominated by women and men teachers respectively. Despite this differentiation, the t-test revealed that there was a significant sex-related difference in the attitude scores on Home Science but not Art and Craft.

Compared to men, women teachers obtained a significantly higher attitude score on Home Science. However, for each sex category of teachers, there were no significant differences in the attitude scores between Home Science and Art and Craft. Besides, the general attitude of teachers towards the two subjects was favourable.

Discussion of findings

The tests of hypotheses carried out in Chapter Four have revealed some significant sex related differences in attitudes among primary school children and teachers. These findings are in close agreement with the results of previous studies. Etaugh et.al. (1981) examined the
development of sex biases in middle childhood and adolescent in the American Elementary and Junior High Schools. The findings indicated that the sex stereotyped attitudes became stronger with increasing age and grade. The present study has also revealed that the attitudes of pupils towards vocational subjects become more sex stereotyped up the class. This is because significant sex differences in the attitudes are observed in class eight but not seven or six.

Ongeti (1986) examined the attitudes of primary school children and teachers towards vocational subjects. One of his major findings was that the attitudes of children and teachers towards the vocational subjects were generally positive. This finding is consonant with the present observation.

The finding, of this study, that there exist sex differences in attitudes of pupils is also consistent with the results of several previous studies. Marland (1983) found that students hold sex-stereotyped attitudes towards most vocational areas. Domestic Science and Needlecraft, in particular, are favoured by girls while Technical Drawing, Woodwork, Metalwork and related subjects are favoured by boys. This was
reflected through their choice of subjects where curriculum options were given. The observation is further supported by the finding of the world survey that the enrolment in home economics was 100 percent female (UNESCO, 1982). One major assumption in citing these reports is that attitude was the main factor that influenced the students' vocational choices.

Various naturalists have defended the division of roles by sex and attempted to explain the observed sex differences in attitudes on the basis of biological differences. Their theory of sex roles is modelled on the empirical observations of anatomical, hormonal and genetical differences. Hutt (1972) suggested that such division has a rigidly fixed biological basis and that an attempt to change it cannot succeed without risks for the well-being of those concerned. However, some findings of the present study cannot be explained on the basis of biological differences. For example, the observation that projects in Art are dominated by boys cannot be attributed to muscular strength since they are well within the work capacity of girls. Furthermore, girls exercise similar patience, accuracy and skills in embroidery that boys require to do Art. It appears that some sex differences in roles and attitudes are learnt
rather than biologically determined. Hence it is possible to change them through suitable curricular programmes.

It is recognized that vocational education is not only provided for the purpose of vocational skills but also the development of mind and character and increasing alertness of every sense. The skills acquired in these subjects can be a useful aid to the learning of other subjects. In fact, one of the specific objectives of learning Art and Craft in Kenyan primary schools is to provide pupils with skills, knowledge and attitudes that would facilitate the learning of other subjects (Kenya Institute of Education, 1987). It also enhances learning by providing an opportunity for pupils to practice the skills acquired in the other subjects. For example, skills in measurement and computation, which are taught in mathematics lessons, may find useful application in carpentry, metalwork and basic construction. Upon a successful use of these skills the pupil may be motivated to learn them further. Through such links, the attitudes towards vocational subjects may be carried into the other subjects with which they are related.
Those related subjects are likely to be affected by the observed sex differences in attitudes towards Art and Craft.

Except for Science subject, the skills provided in Home Science, such as first aid, child care, care of the home, food and nutrition seem to prepare pupils for biological and health sciences better than any other subject in the primary school curriculum. Viewed in the light of these presumed relationships the observed sex differences in attitudes of primary school children toward Home Science, Art and Craft may be a major contributor to sex differences in high school subjects. Hence the primary school can play a major role in reducing children's sex stereotypic conceptions.

The sex-related distribution of teachers and their significant sex-differences in the attitude scores on Home Science show how strongly the subject is still identified with women. An examination of the school syllabus reveals that nearly all the topics taught in Home Science are those which have always been identified with women. Even in the schools, the subject used to be taught to girls only and the teachers who participated in this study went through this sex differentiated learning. These factors may have largely contributed to the observed sex-related differences in their attitudes.
Even though some people hold the belief that Art and Craft is appropriate to men only, this has not been reflected in the attitude scores of teachers. This may be attributed to the fact that Art and Craft include a good number of crafts and activities commonly seen as feminine and those considered masculine. Since this study only investigated the block attitude towards Art and Craft as a subject rather than specific skills or activities, no sex differences could be observed. This seems to contradict the observation that the teaching of Art and Craft is dominated by men. However, these otherwise conflicting observations may be harmonized on the ground that the subjects taught are only a rough and unreliable indicator of the attitudes of the teachers towards those subjects. In fact, by considering the distribution of teachers on these subjects, other factors, some of which may not be related to attitudes, come into play. These include training, sex composition of the teaching staff and the willingness of teachers among others.

From the observation that the teaching of Art and Craft is dominated by men despite there being no significant sex-related difference in the attitudes towards the subject and that Art and Craft includes a mixture of skills and activities commonly seen as feminine and masculine, it appears that men are
relatively more willing to teach those subjects or topics that are not identified with their gender. This is further supported by the fact that a substantial number of men teach Home Science despite their lower attitude score towards the subject as compared to women.

Conclusion

Although sex stereotyped attitudes are developed early in childhood this study has revealed that for Home Science, Art and Craft such attitudes become important only from class eight. This is an indication that even though sex differences in the attitudes towards roles are observable from early childhood, school subjects are not seen by young children as a means or preparation for these roles. But as they grow into adults their attitudes become more sex-stereotyped as they prepare to take up adult roles in the society.

Compared to girls, boys have stronger positive attitudes towards Art and Craft but are less positive towards Home Science. Further, the learning of these subjects is sex-differentiated in as far as the project work is concerned. The projects in Home Science and Art and Craft are dominated by girls and boys respectively.

The attitudes of boys towards Art and Craft become more positive up the class while their attitudes towards
Home Science are maintained at a low positive level. For girls, the attitudes towards Home Science become more positive up the class. However, in Art and Craft there is generally no change in attitudes. Therefore although Home Science, Art and Craft are compulsory in primary schools, boys and girls do not equally regard the subjects as appropriate for them.

For teachers, sex differences in attitudes exist in Home Science but not Art and Craft. Home Science is favoured more by women than men teachers. Further, the teaching of Home Science, Art and Craft continue to be dominated by women and men teachers respectively. This distribution of teachers is by itself a learning model from which pupils associate school subjects with sex and their sex stereotyped views of those subjects are further strengthened.

Recommendations for action

1. There should be instituted a curriculum intervention programme to expand the role perceptions of pupils. This may be achieved through a social studies unit in which pupils can be taught how roles artificially changed over time and how people can choose and define roles for themselves. The programme may be most appropriate in the upper primary classes, preferably from class seven.
2. For each pupil the project work should include a good number of those activities socially recognized as feminine and those commonly seen as masculine. These should be assessed and given equal weighting.

3. Since teachers are equally trained to teach Home Science, Art and Craft, they should be encouraged to teach the subjects regardless of their sex so that pupils may not identify any subject with a particular sex.

Recommendations for further research

1. This study has revealed some sex-related differences in attitudes among pupils and teachers. However, the attitudes of teachers are a concern for educators only as far as they affect the pupils. The correlation between the pupils' and teachers attitudes reported in the previous studies could have been possibly instigated by the underlying sociocultural attitudes. Hence a change in the attitudes of the teachers need not influence those of the pupils. Therefore studies need to be done to determine whether the attitudes of teachers influence pupils' attitudes towards vocational subjects in general and Home Science, Art and Craft in particular. These would show whether the
attitudes of teachers need to be changed if school children are to develop favourable attitudes towards those subjects.

2. Since the sex-related differences among the pupils revealed in this study were observed in a situation where virtually all Home Science teachers were women while Art and Craft teaching was dominated by men, further research should show whether boys taught Home Science by men teachers or girls taught Art and Craft by women teachers would have more favourable attitudes towards these subjects.

3. Even though various studies have shown that the attitudes of pupils are related to their achievement, this depends on the school subjects considered. Now that sex related differences in attitudes have been observed, there is need to investigate whether there is any relationship between the attitude and achievement scores on Home Science, Art and Craft.

4. A study similar to this, but with a larger sample drawn from a larger area should be carried out in controlled conditions. This will eliminate the numerous intervening variables that were not controlled in this study and hence enable generalization of results.
APPENDICES
BIBLIOGRAPHY


Kelly, T.L. The selection of upper and lower groups for the validation of test items. *Journal of Educational Psychology*, 1939, 30, 17-24.


Onyango, A.J. Factors that influence the acceptability to study home economics among male students at


Appendix A

ATTITUDE SCALE FOR PUPILS

(i) Indicate your sex and age at the positions labelled SEX and AGE.

Sex

Age

(ii) Below are statements which have been made by some pupils. You will find that you agree with some statements and disagree with others. For each statement, show your feeling by circling:

SA if you strongly agree {Strongly Agree}
A if you only slightly agree {Agree}
U if you neither agree nor disagree {Undecided}
D if you slightly disagree {Disagree}
SD if you strongly disagree {Strongly Disagree}
with the statement.
1. Home science is a subject I always enjoy very much.
2. I have good feelings towards home science.
3. I really feel uncomfortable in home science class.
4. If allowed to choose subjects, home science would not be among my choices.
5. I feel at ease in home science.
6. I am happier in home science classes than in any other class.
7. Home Science is not a relevant subject for me.
8. I think it is a wise decision to teach me home science.
9. When doing homework in home science I just feel as if I am being forced.
10. My mind goes blank and I am unable to think clearly in home science.
11. Art and Craft is a subject I always enjoy very much.
12. I have good feelings towards art and craft.
13. During art and craft classes I really feel uncomfortable.
14. I would be very happy if I am allowed to drop art and craft.
15. I feel at ease in Art and Craft.
16. In art and craft classes I feel happier than in any other class.
17. Art and craft is not relevant to me.

18. I am never serious with art and craft. I feel I am being forced to do it.

19. The decision for me to learn art and craft is a good one.

20. My mind goes blank and I am sometimes unable to think clearly in art and craft lessons.
## Observation Schedule for Pupils' Project Work

<table>
<thead>
<tr>
<th>Articles</th>
<th>BOYS</th>
<th>GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity and</td>
<td>Quality tally</td>
</tr>
<tr>
<td>Quantity</td>
<td>tally</td>
<td>tally</td>
</tr>
<tr>
<td>Quality</td>
<td>tally</td>
<td>tally</td>
</tr>
<tr>
<td>L H L H</td>
<td>L H L H</td>
<td>L H L H</td>
</tr>
<tr>
<td>L H L H</td>
<td>L H L H</td>
<td>L H L H</td>
</tr>
<tr>
<td>L H L H</td>
<td>L H L H</td>
<td>L H L H</td>
</tr>
</tbody>
</table>

**Legend:**

- **L** = LOW QUALITY
- **H** = HIGH QUALITY
<table>
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<tr>
<th>ARTICLES</th>
<th>coat hangers; table mats</th>
<th>drawings</th>
<th>paintings</th>
<th>mountings</th>
<th>Others</th>
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</thead>
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<td>L</td>
<td>H</td>
<td>L</td>
<td>H</td>
<td>L</td>
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<td>L</td>
<td>H</td>
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</tbody>
</table>

**BOYS**

- Quantity and Quality tally

**GIRLS**

- Quantity and Quality tally

\[
\begin{align*}
L &= \text{LOW QUALITY} \\
H &= \text{HIGH QUALITY}
\end{align*}
\]
Appendix C

ATTITUDE SCALE FOR TEACHERS

(i) Indicate your sex and whether you teach art and craft or home science at the positions shown.

Sex

SUBJECTS TAUGHT: Home Science ( ); Art and Craft ( )
Put a tick ( ) where applicable.

(ii) Below is presented a list of statements. You will find that you agree with some statements and disagree with others. For each statement you will indicate your feelings by circling:

SA if you Strongly Agree
A if you Slightly Agree
U if you are Undecided
D if you Slightly Disagree and
SD if you Strongly Disagree with it.
1. Home Science is a good subject and it should continue to be taught to pupils.

2. There is no point in having home science in schools. After all it can be learnt at home.

3. Home science is not a subject worth spending on.

4. Home science should have been stressed in schools from the early days.

5. I see, in home science, no good preparation for pupils to help themselves.

6. Home science should be given more special attention than any other subject.

7. Pupils should be encouraged to learn home science skills even beyond primary level.

8. If I were to go to school and choose subjects home science would not be my choice.

9. If home science is there to stay, it should not be part of normal class work.

10. As for me I would like to see that home science subject is a success.

11. Art and Craft is a good subject and it should continue to be taught in schools.

12. Art and craft mainly requires work with hand and it is unnecessary to send pupils to schools to learn how to use hands.
13. Art and craft should have been emphasized in schools from long time back.

14. It is not justified to invest on art and craft education.

15. Art and craft should be given most emphasis above other subjects.

16. If art and craft as a subject has to be learnt it should not take part of class hours.

17. I do not think that art and craft prepares pupils to help themselves to any extent.

18. Pupils should be encouraged to learn art and craft even beyond primary level.

19. If I were to go back to school and choose subjects, art and craft would not be my choice.

20. I would like to see that art and craft education is successful.
Appendix D

QUESTIONNAIRE FOR TEACHERS

Instruction: Please answer all the questions in part A. In part B you should answer only those questions on the subject you teach in class 6, 7 or 8.

PART A: DEMOGRAPHIC INFORMATION

1. What is your sex? (a) Male (b) Female
   (Put a tick against the appropriate one)

2. What is your age?

3. How long have you been teaching?

4. What is the professional certificate you hold?
   e.g. P2, P1, S1 etc.

5. What is the highest academic grade you reached? e.g.
   Form II, III, IV etc

6. In which classes do you teach home science?

7. In which classes do you teach (a) Art?
(b) Craft? ____________________________

8. Which other subjects do you teach?

(indicate the classes in which you teach them)

________________________________________

________________________________________

________________________________________

9. Are there subjects you are not trained to teach?

____________________ If so, list them.

________________________________________

________________________________________

PART B: VOCATIONAL SUBJECTS

1. In preparing lessons, name the topics which you find difficult to handle

in: (In class 6, 7 and 8)

(a) home science ____________________________

________________________________________

________________________________________

________________________________________
2. State what the problems are:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. Which topics in art and craft or home science do you enjoy teaching (in class 6, 7 or 8)

(a) Home science?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
4. Who chooses the project work for pupils in home science, art and craft (you are the teachers or pupils themselves)?

From your observations are there topics in home science or art and craft that are favoured by pupils on the basis of sex? If so list them.

<table>
<thead>
<tr>
<th>favoured by girls</th>
<th>favoured by boys</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

5. In your opinion are there topics in Home Science, art and craft that should be taught to girls only or boys only? If so list them.
<table>
<thead>
<tr>
<th>girls only</th>
<th>boys only</th>
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</thead>
<tbody>
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</table>

Give reasons:
Appendix E

INTERVIEW SCHEDULE FOR HEADTEACHERS

1. **Pupils Enrolment**

<table>
<thead>
<tr>
<th>Class</th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>-</td>
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</tr>
</tbody>
</table>

2. **Staffing**

Number of men teachers ____________________________

Number of women teachers ____________________________

Number of men teachers of Art and Craft for classes 6, 7 or 8 ________

Number of men teachers of Home Science for classes 6, 7 or 8 ________

Number of women teachers of Art and Craft for classes 6, 7 or 8 ________

Number of women teachers of Home Science for classes 6, 7 or 8 ________
3. What are the factors that govern the administration and staff in assigning teachers to home science, art and craft teaching?