AN INVESTIGATION INTO THE ATTITUDES OF STUDENTS AND TEACHERS TOWARDS FOODS AND NUTRITION SUBJECT AND STUDENTS ACHIEVEMENT IN IT

BY

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DECLARATION

"This thesis is my original work and has not been presented for a degree in any other University".

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"The thesis has been submitted for examination with my approval as a University Supervisor.

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DEDICATION

This thesis is dedicated to my parents as a token of appreciation for their support and tolerance of my academic inclinations.

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ABSTRACT

The primary purpose of this research study was to investigate the attitudes held by students and teachers towards Foods and Nutrition as a subject taught in schools and students' achievement in it.

The study was prompted by very little research which had been done in the area of Foods and Nutrition in this country.

Normally, the basic assumption held by many people is that in order for students to achieve higher in any subject, they should have positive or favourable attitudes towards that subject. Similarly, at the school level, majority of students may rate Foods and Nutrition as an easy subject and therefore not worth learning. This research therefore hoped to unmask all these doubts.

The study examined five main objectives namely:

1. Investigating the attitudes held by students towards the subject Foods and Nutrition.

2. Observing whether there are differences in attitudes towards Foods and Nutrition subject among students from various schools.

3. Testing whether there are differences in attitudes towards Foods and Nutrition among students from different classes.

4. Investigating the attitudes of Foods and Nutrition teachers towards that subject.

5. And finally, to investigate whether there is any relationship between the attitudes of students towards Foods and Nutrition and their performance in the subject.

The study therefore attempted to test these objectives and the findings were outcomes of two processes namely: Data collection and Data analysis.

The subjects of the study consisted of a total of 268 secondary school students (forms 3s and 4s) and 20 Foods and Nutrition teachers from eight girls secondary schools taking the subject in the Republic.

In each school, either under normal classroom conditions or students' own free time, constructed questionnaires

were administered personally by the researcher.

Statistical analysis used involved percentages, but the relationship between attitudes of students and their achievement in the subject were determined through computation of chi-square.

The findings of the study revealed the following:

1. That favourable attitudes are held by both students and teachers towards Foods and Nutrition subject.

2. That there is a significant difference in attitudes between students from varying schools and mainly between students from high cost and low cost schools.

3. That there is a significant difference in attitudes between students from varying classes.

4. Lastly, it was observed that attitudes have no bearing on performance, i.e. that there is no relationship between the attitudes of students and their performance in the subject.

In view of all these it was recommended that teachers should inculcate positive attitudes in the students if they are to achieve higher in the subject.

Similarly, there is a crucial need for students to be educated on the various opportunities that are opened to them once they have graduated from the Foods and Nutrition subject.

Lastly, it was recommended that further research is required to qualitatively and quantitatively determine which factors within the school environment are responsible for the differences in pupils' attitudes and performances in the subject. The results of the study therefore revealed areas needing further inquiry as are illustrated in the body of the thesis.

CHAPTER ONE

PROBLEM AND BACKGROUND

1.0 Introduction

From experience one can say that a major proportion of problems associated with the learning of Foods and Nutrition can be attributed to attitudinal factors. Evidently the problem is not unique to Kenya alone; but whereas in other countries various research studies have been conducted as a means of getting at a solution to the problem. In Kenya, according to records, relatively nothing has been done on attitudes concerning the learning and teaching of Foods and Nutrition and performance of students in that subject. All that has been done to it is sheer lip service.

Foods and Nutrition is one of the three Home Economics subjects taught in Kenyan girls secondary schools, the remaining two being Clothing and Textiles, and Home Management respectively. The three subject areas are sometimes referred to as Domestic Science, but the term generally accepted in Kenyan girls secondary schools is the above one, otherwise all these terminologies mean one and the same thing.

Home Science forms a very crucial role. It is concerned with the improvement of Home and Family living in a wide variety of ways, of which matters connected with Foods and Nutrition are among the most important.

"Home Economics" says Professor Leah Marangu, is concerned with the quality of family life-health, mental and social, in other words it is a way to enable families to achieve a good quality of life[1].

The objectives of Home Economics are redefined as the needs become apparent and continue to change. Basically the purpose of Home Economics in all its specific phases remains the same as stated by the founders of the American Home Economics Association (A.H.E.A.) in 1909,

> "...to improve the conditions of living in the Home, the institutional household, and the community"[2]

In this country in some of its activities, Home Economics and therefore Home Science works closely with Nutrition Education; in others it works with agricultural extention; and yet in others with simpler and even complex forms of food technology. Its association with Health Education is equally obvious. But in addition

to all these are the Foods and Nutrition activities in the home for which home science alone is responsible. Such nutrition activities include the selection and buying of foods, preparation of the meals, service of the meals, consumption, and finally food storage and preservation.

In view of all this, it is important that Home Economics be given recognition at school and societal levels. Although this subject area is concerned with families, it should not be thought of simply in terms of programmes for women only; at least some of its teachings should be given to boys at school, and to men at home. These notes are well articulated in the words of the Head of Home Economics Department, Kenyatta University College, Professor Leah T. Marangu. She is of the opinion that,

> "Home Economics should play an educative role in the country's development. It aims at improving family life not only in the field of nutrition but also in the alleviation of problems which result from poor interaction in a family. Hence family discipline should not be treated as women's domain since men are part of the family and have their part to play in it. They too have alot they can learn from Home Economics discipline"[3].

So far it seems that Home Science (Home Economics) and in this regard Foods and Nutrition which is the subject of this study, has received scant attention. In the past, the school population and the public at large have assumably remained unconvinced by the importance of Foods and Nutrition. Whether such perceptions have remained valid up-to date forms the core of this study.

World wide studies have shown in the past that few students are attracted to this area of discipline since it is seen as less important, less prestigious and as having no vocational future.

In the eyes of a man, it has been viewed as a "woman's subject" and to bright students it is regarded as a subject specifically for dull students. Many others rate it as an easy subject not worth learning in schools.

The current study is therefore out to unmask all these preconcieved ideas.

Perceptions concerning Foods and Nutrition have not only been limited to the four walls of the classroom, but even at more diversified levels. For instance, one of Alan Berg's enlightening papers on Nutrition states that:

> "When working at the development plans of most countries of the developing world, one seldom finds Nutrition getting more than a passing mention"[4].

In the same tone, Food and Agriculture Organisation of the United States (FAO) observes in one report that,

> "Nutrition has not yet attained its full and proper place in the scale of priorities that guide the thinking of those who devise policies that govern our lives"[5].

The question here then is, why is this so? Why is it that Nutrition has not yet been recognised as it should be, as one of the key factors in development?

In view of the afore-mentioned factors it follows that Nutrition has not received its worth of recognition. This research study therefore hopes to reveal all these doubts, to find out whether Foods and Nutrition is what it has been thought to be, why such low acceptabilities exist in students and in teachers and lastly whether such perceptions have affected performance in the subject in any way.

1.1 Background to the Problem

It is needless to say that the importance of research studies on attitudes have so far been given a wider perspective in this country. However, interest in the present study was the direct outcome of:

1) The problems of the perceptions of Foods and Nutrition in the Kenyan girls secondary schools.

2) Effects of class and school on the different attitudes held by students toward Foods and Nutrition and

3) Lastly, performances of students in relation to their attitudes.

For many years, Nutrition Education both in the advanced and the developing nations has received minimal recognition; one major reason being that it is viewed as a woman's subject, and from experience anything that is associated with the woman's world has been thought of as 'inferior'.[6]

Foods and Nutrition has assumably received very low status, with majority feeling that it

involves nothing much but cooking which does not need to be learnt in schools. Emphasis must be made here that the subject forms a very important aspect of human life other than mere activities like cooking. Foods and Nutrition is of paramount importance in helping to raise the living standards and therefore a vital factor in the social and economic development of any nation.

Historically speaking, Home Economics under which falls Foods and Nutrition, came into existence more than a decade ago in response to the needs of the society. Because this subject area is concerned with those things that are basic to the society namely; people, families and homes, the importance of the subject becomes highly relevant.

The fact that the world is changing is rather obvious. We often hear about population explosion, mobility of families, industrial and scientific development, lenghthening of the life span, etc, etc. The contemporary Home Economics educators must view these changes in terms of life relatedness of Home Economics instruction to students not only in their lives of today but also their roles as home makers of tomorrow in which they will live in return to even more rapid changes than we are now experiencing.

This importance of the subject is brought to limelight by Benjamin (1962) when he observes that,

> "the most important subjects in the curricula are those which serve society...any curriculum which does not lead students to do the jobs the people need to be done is an inadequate one ...for it is not a curriculum of action but merely a game of academic marbles!"[7].

Such a view indeed gives Home Economics and Foods and Nutrition respectively, their due importance; the discipline, being practical in nature, no doubt becomes highly relevant in one's day to day living.

Conclusively, the factors mentioned above therefore led the researcher to conduct the present study, and the focus of this study will therefore be based on the attitudes and achievement of students in Foods and Nutrition.

1.2 Definition of Terms

a) Attitude

Refers in a general way to inclinations, presumed to be enduring, to react in a certain way in response to

certain kinds of situations. For instance, if a student is presumed to have negative attitude towards Foods and Nutrition, he/she is expected to show evidence of dislike, in his/her overt behaviour in connection with that subject, and interpret facts about that subject in a negative manner. Attitudes are not easy to measure but the measurement can only be made through observation of what a person says or does.

b) Positive or Favourable Attitude

Responses which support positive statements are regarded in this study as positive attitudes.

Negative or Unfavourable Attitude

Responses which support positive statements are regarded in this study as negative attitudes.

c) Food

Material consisting of carbohydrates, proteins, fats, vitamins and minerals that is taken or absorbed by the body of an organism in order to sustain growth, repair and all vital processes and to furnish energy for all activity of the organism.

e) Food and Agriculture Organisation (FAO)

A specialised agency of the United Nations, established in 1945 with the following objectives:

i) to contribute toward an expanding world economy by bettering conditions of rural life,

ii) to increase agricultural production and

iii) lastly, to raise the level of nutrition.

f) Home Economics

A study of home making and the relations of the home to the community.

This field of knowledge is concerned with strengthening family life through:

1. Education of the individual for family living.
2. Improvement of services and goods used by families.
3. Research to determine the changing needs of the individual and families as a means of satisfying these needs and
4. The improvement of community, national and world conditions favourable to family living.

Home economics was formerly limited to problems of food (Nutrition and Cookery), Clothing and Textiles, household equipment, and hygiene but today it includes money aspects of family relations, parental education, consumer education and institutional management.

In some countries this subject has been referred to as Home Science, Domestic Science, or Household Arts but nonetheless it all means one and the same thing.

g) Home Economist

A professional who deals not only with skills but with the science, philosophy and art of home and family life. A Home Economist can fill many varied positions in the academic and business field namely:

teaching, interior decoration, product development, fashion design; merchandising; equipment demonstration; extension work; institutional management of foods services in schools; colleges; hospitals; hostels; restaurants and clubs; research; community and health welfare work and dietetics.

Usually Home Economists are experts in one of the

following subject matter areas:-

Art,

Family Economics and Home Management,

Family Relations and Child Development,

Foods and Nutrition,

Housing and Household equipment,

Textiles and Clothing and

Institutional Management.

h) Kwashiokor

This is a protein deficiency disorder of children. It is prevalent in overpopulated parts of the world where the diet consists mainly of starchy vegetables, particularly in sections of Africa, Central and South America, and Southern Asia.

Such a diet although adequate in calories, is deficient in certain amino acids, the constituents of protein, vital for growth. The nursing infant gets the required amino acids from the mother's milk, but the weaned child who receives neither milk nor meat is likely to develop Kwashiokor. The most striking symptoms of the disease are discolouration of red hair and skin in Black African children, severe diarrhoea, mental apathy, and generally retarded development. The disease is treated by adding protein to the diet usually in the form of dried milk.

i) Malnutrition

Insufficiency of one or more nutritional elements necessary for health or well-being. Malnutrition is caused by lack of essential nutrients - usually proteins, minerals and vitamins. In some areas of the world, poor economy or such conditions as drought or overpopulation cause scarcity of certain food-stuffs and a certain portion of population is mal-nourished because essential elements are not available.

However, even when food is plentiful, malnutrition can result from poor eating habits.

j) Marasmus

Is extreme loss of weight and wasting away especially in the young because of malnutrition due chiefly to faulty assimilation and utilisation of food.

k) Nutrition Subject

A study of the materials that nourish an organism and of the manner in which the separate components are used for maintenance, repair, growth and production. Nutrition is achieved in various ways by different forms of life.

Man requires food substances to supply the components necessary to build tissues, to repair tissues as they wear out, to keep the body in good working condition and to supply fuel and energy.

These food substances fall chiefly into three major groups: proteins, carbohydrates and vitamins.

l) Nutritionists

Are professional people whose training involves a wide range of public health nutrition, physiology, agriculture and other sciences.

m) Undernutrition

A condition of deficient body nutrition resulting from an inadequate intake of food or from failure to assimilate or utilise food elements.

n) Undernourished

Supplied with insufficient nourishment or less than the minimum quality of foods essential for sound health and growth.

1.3 Importance of the Study

Attitudes toward the learning and teaching of foods and Nutrition have been chosen for investigation because of its central importance to the Kenyan society.

The prevalence of malnutrition in many parts of this country is largely due in part to the lack of knowledge about proper nutritional practices.

Any programme therefore hoping to improve nutrition practices must have as an essential element the development of sound nutrition education.

The significance of this study is thus to provide information that would lead to possible modification for:

1. More effective nutrition programme as a basis for developing favourable attitudes toward Food and Nutrition instruction in the secondary school system.

2. Provide additional base for establishing the logical argument that favourable attitudes toward Food and Nutrition play an important role in contribution to better understanding of and performance in the subject.

1.4 Basic Assumptions

This study is based on the following assumptions:

1. That achievement in schools is a joint function of both the student and the teacher.

2. Nutrition is a practical subject. If therefore it can be assumed that schools in general have poor Foods and Nutrition teaching facilities, then it can probably be assumed that both Foods and Nutrition teachers and students in general might have developed negative attitudes toward the subject.

3. If it can be assumed that students have negative attitude toward Foods and Nutrition, then it can also be assumed that achievement in the subject will subsequently be poor.

4. If it can be assumed that Foods and Nutrition is an easy subject, then it can also be assumed that teachers will prefer to teach it to less bright students only.

5. Another assumption is that the subjects expressed their sincere feelings to the questionnaire items.

6. That the study has provided answers to both the research questions and the hypotheses.

On the basis of these, the above objectives were tested.

1.5 Objectives

In this study the following were the major objectives:

1. There is no difference in attitudes of students from different schools toward Foods and Nutrition subject.

2. There is no difference in attitudes toward Foods and Nutrition subject between students from different classes.

3. There is no difference in attitude toward Foods and Nutrition subject between teachers and students.

4. There is no relationship between attitudes and performance of secondary school students toward Food and Nutrition subject.

1.6 Purpose of the Study

The study sought to find out the following aspects of Foods and Nutrition Education in secondary schools:

1. What attitudes, positive or negative, are held by secondary school students and teachers toward various aspects of Foods and Nutrition.

2. Nutrition teachers'and students' attitude regarding the following aspects:

   a) Usefulness or importance of Foods and Nutrition.
   b) General working conditions for Foods and Nutrition.
   c) Students' interest in Foods and Nutrition.
   d) Teachers' interest in Foods and Nutrition.
   e) Foods and Nutrition teaching facilities.
   f) Methods of teaching Foods and Nutrition.

3. Whether attitudes are influenced by certain qualities of the students such as:
   (a) age (b) class and lastly (c) school.

4. The study hopes to mirror on such influences, if any, on Foods and Nutrition achievement, as

this may help toward a better understanding of the subject.

5. Provide findings which can be utilised by the educational planners and teachers in improving the general perception and achievement in Foods and Nutrition.

1.7 Limitations

Like any other study, this study was subject to a number of limitations.

It therefore follows that for a fair assessment of results to be made, the following limitations should be clearly borne in mind.

1. First and foremost, the study was limited in scope by the sample taken for the number of Kenyan secondary school students and teachers. All schools taking the subject could not be incorporated into the study.

2. To understand the study better it was assumed that the problems students encounter with Foods and Nutrition are better understood if early factors are investigated into. It is

also possible that problems with Foods and Nutrition learning can be explained by non-schooling factors such as socio-economic status of parents. These could not be given thorough attention due to lack of time.

3. Very little related literature was available. The researcher therefore found it extremely difficult to exploit the secondary data as thoroughly as she would have preferred. But rather gave more attention to the primary data.

4. The study attempted to investigate the attitudes of secondary school students and teachers toward Foods and Nutrition. However, it was found complex to investigate attitudes because the relationship of stated attitudes to action is generally uncertain even under the most deceptive free situations.

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

Although literature on students' and teachers' attitudes is voluminous, the specific problem of this study has received scant attention. Very little literature directly related to this study was available.

However, the study on attitudes has been carried out extensively in both the science and arts subjects and therefore much of the related literature was derived from the extensively studied science subjects such as mathematics, since there was very little literature directly related to Foods and Nutrition per se.

On a broad basis, the outline of this chapter involves the following:

(1) Literature related to attitudes.

(2) Literature related to the relationship between attitudes and achievement.

(3) Literature related to the determinants of schooling performance.

(4) Literature related to attitudes toward other subjects.

(5) Literature related to teacher attitudes, characteristics and behaviour.

(6) Literature related to attitudes and training in experienced teachers.

(7) Literature related to the importance of Foods and Nutrition.

(8) Lastly literature related to attitudes towards Home Economics.

2.1 Literature Related to Attitudes

Current researches on attitude have been conducted mainly under social psychology. Such studies have suggested that most of the people are likely to acquire many of their attitudes in the homes in which they are brought up.

Parental attitudes such as those towards certain foods, religion or a political organisation may be taken over by the children and made their own, and this is one way in which parental influence is exerted on their children.

Parents do affect children's attitude and performance in three ways:

(1) by parental expectation of his child's achievement,

(2) by parental encouragement,

(3) and lastly by parents' own attitudes (Poffenberger and Norton 1959).

Allport (1954) suggested that majority of

attitudes held by a person are acquired by talking with his family and friends.

Siegel and Siegel (1957) claimed that an individual's membership groups have an important influence on values and attitudes of that individual.

Other studies have also found out that one possible social determinant of attitude towards a subject taught in schools is the attitude of one's peers. Shappiro's (1961) findings indicate that peer attitudes in schools may indeed be influential especially in the case of girls.

Similarly, although many attitudes are acquired during childhood as a result of home influences, a lot more is acquired in later school life. Hence by involving students with teachers, the school plays an important part in lessening the emotional dependence on the family.

One study of 12,000 children from second grade through eighth grade concluded that,

> "The school apparently plays the largest part in teaching attitudes, conceptions and beliefs.. While it may be argued that the family contributes much to the socialisation that goes into the basic loyalty of the country, the school gives content, information and concepts which expand and elaborate these early feelings of attachment."[1]

Lastly, attitudinal variables have been studies in two capacities:

(1) as determinants of achievement in any subject, and

(2) as effective objectives of any learning (Neale, 1969).

2.2 Literature Related to the Relationship Between Attitudes and Achievements

Obviously the assessment of attitude toward Foods and Nutrition would be of less concern if attitudes were not thought to affect achievement in some way.

Assuming that attitudes do affect performance, Bernstein (1964) maintained that if certain feelings are experienced for a long period of time, they will lead to a particular self image of the pupils ..... a self image which will influence his expectation of future performance, with consequent effects on actual performance.

Data collected by Kempler (1962), and bearing on this assumption, suggest that self confidence is of paramount importance in the learning of any subject. A similar analysis of the relationships among attitudes, expectations and performance was made by Alpert et al, (1963), who view level of expectation and performance as a kind of self-perpetuating circle affecting a

child's self-concept; attitudes and anxiety, he feels they are closely related to this concept. Clark (1961) in the same view has stressed that the difference between the poorest and the best student becomes progressively greater in as far as the relationship between attitudes and achievement is concerned.

The relationship of attitudes (which are integrally related to expectations), to performance appears to be especially important in a subject as mathematics (Brown and Abell, 1965). But this does not rule out other subject areas.

Summarising the results of a survey of 270 seventh grade boys and girls, Alpert et al (1963) reported significant correlations between performance in mathematics and measures of attitudes and anxiety towards that subject. Degnan (1967) compared the attitude of general anxiety levels of twenty two eigth grade students and found out that achievers were generally more anxious than under achievers. Equally important is the notion that when the same students were asked to list their major subjects in order of preference, the achievers gave mathematics a significantly higher ranking than the under achievers. These findings therefore demonstrate that anxiety may act as a facilitating factor in achievement not only in mathematics but also in any other subject.

Antonnen (1967) found out that achievement was greater in students whose attitudes remained favourable or had become favourable since elementary school.

Similarly it has been observed in many studies associated with the subject areas that the general ability to learn is associated with the liking of a subject, hence attitude towards a subject is significantly related to a measure of ability in that subject and this is because measures of specific ability and specific achievement in a given area are closely associated, and achievement affects attitude and vice-versa.

Eshiwani (1983) points out that the attitude hypothesis suggests that students who are positively motivated work harder than those who are negatively motivated and this helps them achieve higher. He further points out that low achievement observed among girls in science and mathematics could be explained partly on the basis of their attitudes towards these two subjects.

2.3 Literature Related to Determinants of Schooling Performance

There is substantive body of literature on determinants of school performance and achievement.

Within this literature heavy emphasis has been given to social and economic factors in the family and to the quality of schooling.

Researches exploring why some children learn more in school than others have revealed important issues for educational planners in many countries of the developing world.

The following are some of the factors that have been known to affect performance:

1. School characteristics.
2. Teacher characteristics.
3. Student traits (Simmons 1981)

1. School Characteristics

(a) Class size. The optimal number of students per class is an important issue as a result of its cost effects. In 9 out of 14 studies testing the effects of class size on student achievement, larger class was found to affect performance. However, increasing class size has been known to cause negative reactions by some teachers and as a result lower the scores.

(b) Textbooks. Ten studies in Thailand looked at the relationship between the availability of textbooks and student achievement and seven demonstrated

a positive relationship. It is also possible that at times textbooks may not be well designed to teach what students are being tested on.

Various studies have equally demonstrated that textbooks are only used for rote learning and are insufficient for achieving high levels of skills, for instance, making judgements and inferences.

(c) Homework. Homework may be a proxy for the length of time a student spends studying, careful supervision by the teacher and teacher motivation; hence studies have demonstrated that students who have homework tend to do better on achievement tests. But if children have no books, then homework might not be too effective.

2.3.1 Teacher Characteristics

(a) Teacher Training: Many studies on teacher certification have been concluded in Latin America, Asia and Africa. Of these, in 13 studies, the presence of certified teacher in classroom significantly affected the scores, hence it is possible to suggest that methods and duration of teacher training and upgrading should be reviewed with caution as a way to increase student achievement.

(b) Teacher experience: Experience of teachers was reviewed by 19 studies in as far as it affects students' performance. In seven cases significant results were obtained. However, it has also been found out that more experience might correspond with less willingness to use new methods and approaches in education. All in all, more research is still needed by educational planners in these areas for concrete decision-making.

2.3.2 Student Traits

(a) Socio-Economic Status of Parents: Socio-economic status is the variable most frequently used in determining student traits. It is measured in several ways, for instance, by occupational scales and by educational levels. One study in Ecuador, showed that it is a significant predictor of student traits.

(b) Malnutrition, body weight and height have also been found to be significant predictors of students' characteristics. Eleven studies looked at the relationship between malnutrition and students' performances and eight demonstrated positive relationship. These findings provide strong support for experiments to raise health

levels as a form of educational investment. Nutrition and health are highly correlated with socio-economic status.

2.4 Literature Related to Attitudes Towards Other Subjects

It has been observed that majority of students don't learn Foods and Nutrition as a result of their attitudes towards it. The researcher's concern here was therefore two-fold:

(1) What causes such negative attitudes?

(2) What can be done to make them more positive?

Some years ago Dyer et al, (1956) formed a committee to study problems in mathematics education and asked these same questions, and their main conclusion was that more information was needed in order to give adequate answers..... information about biological inheritance and home background of the student, attitudes and training of teachers, the content, organisation, goals and adaptability of the curriculum.

Lamin (1977) in a study of factors associated with mathematics performance

expressed attitude related factors as being of profound importance. Previous research by Eshiwani (1974), Sheikh (1977) and Kibanza (1982) observed that girls tend to have negative attitudes toward mathematics and this tends to affect their performance.

Attitudinal variables have received considerable attention from many educational researchers.

Neale's (1969) review on a study of mathematics bears out this distraction:

> "First certain attitudes towards or beliefs about mathematics are thought to be important objectives of instruction. Second, positive attitudes toward mathematics play an important role in causing students to learn mathematics."[2]

Attitudes toward a subject can therefore hinder the learning of that subject, hence students should have favourable attitudes towards those subjects in which they intend to achieve higher.

2.5 Literature Related to Teacher Attitudes, Characteristics and Behaviour

It is generally held that teacher attitude and effectiveness in a particular subject are important determinants of student's attitude and performance in that subject. Several studies

have been conducted on teacher attitudes, a few of which by Charles, Curans, Walter [illegible] and George Sterns. All these studies have shown that teacher attitudes are important factors in the learning process. In his studies Stern (1976) concludes that,

> "The basic assumption underlying all these studies is that teacher attitudes are significant for student learning."3

Finocchiaro makes the same point when he observes that,

> "There can be no doubt that the teacher is the most important person.... the important variable in the instructional process."4

The teacher's attitude towards a subject, his attitude towards the method of instruction, the materials he uses, and his attitude towards his students are, to a large extent, determined by the nature of his/her academic and professional preparation, especially his/her training in that subject.

Various studies on teacher attitudes have pointed out that favourable attitudes are significant for student learning, therefore it is important to examine what attitudes teachers are likely to have towards students' motivation, students' errors, and attitudes towards slow

learners.

Importance of teacher-learner interaction is further brought out clearly by Brooks (1960) when he pointed out that:

> "The behaviour pattern that is the goal of learning is so intimately dependent upon teacher-learner interaction that the role the teacher plays is so crucial."[5]

It is therefore not only important that such an interaction should exist, but that it should be a healthy one, conducive to the learning of Foods and Nutrition.

For successful learning of Foods and Nutrition, students need more than a conducive atmosphere, they need to be motivated as well. The teacher should know that each student has come to his/her class with diversified interests which may affect his motivation for learning. All these interests must be treated differently by the teacher. Nida (1975) on this asserts that "motivation is one of the most important factors involved in a person's learning."

Motivation as such determines how much a student will learn and when he/she will learn it. The teacher's use of this factor in teaching depends on his attitude towards what contribution he thinks it can make to learning.

In a similar study Torrance et al, (1966)

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studied teacher attitudes with the result that teacher effectiveness had a positive effect on students' attitudes towards the subject, the teachers and the overall school climate.

It is equally true that students who do not do well in a subject may develop negative attitudes towards that subject and blame their teachers for their failures even when their teachers have been hardworking and competent.

A case in point is a study by Aiken and Dreger (1961) whose findings illustrate that college men who disliked mathematics as contrasted to those who liked mathematics stated that their previous teachers had been "more impatient and hostile." On the other hand college women who disliked the subject in contrast to those who liked it tended to view their previous teachers as "more impatient, not caring, grim, brutal, dull, severely lacking in knowledge of the subject and not knowing anything about how to teach the subject."

Researches in United States of America on teacher attitudes in the field of science have found out that the attitudes of a teacher towards science does affect the attitude and performance of the pupils and the following investigators make this claim: Belt (1959); Greenbalt (1962); Yeoh (1973) and Christiansen (1974).

All these evidences suggest that the efficiency, style and personality of the teacher can in a variety of ways influence students' attitude towards a subject.

Lastly, there is evidence of the effects of different characteristics of teachers on the attitudes of their pupils. There is a great deal of evidence, for instance, to suggest that the "competence" of the teacher is a most important factor in the student's attitude and achievement in a subject and in this regard Prof. Odhiambo has emphasised that teachers need to be devoted in their careers, and such a characteristic, he feels, is lacking in majority of the Kenyan teachers.

2.6 Literature Related to Attitudes Towards Trained Teachers

In order to assess the relationship of the amount of teachers' training and experience to their attitudes and understanding, Brown (1961) compared measures of attitudes and achievement in experienced and inexperienced teachers. His findings were that the experienced teachers had more positive attitude and better understanding of the basic concepts than inexperienced teachers. The assumption here is that experience is very

crucial in the better understanding of the subject. Brandwein (1951) on the other hand cited well trained teachers as one of the main factors affecting interest in science.

Connection between rote memory and meaningful study has also been studied under this context. Wilson (1961) concluded that the primary cause of negative attitudes towards a subject is "drill beyond fundamental processes." Clark (1961) on this issue suggested that,

> "Children are often confused with situations which few adults tolerate. Day in day out there is repetition of meaningful expressions, terms and symbols."[6]

The result of these is that eventually students come to dislike a subject due to lack of proper understanding of that subject.

Conclusively, although it is certainly unfair to judge teachers too strongly as creators of negative student attitudes towards a subject, the results of many researches suggest that the teacher, perhaps even more than the parents, is an important determinant of students'attitudes. These findings are clearly concluded by Banks (1964) when he noted that,

> "An unhealthy attitude..... may result from a number of causes. Parental attitude may be responsible for a child's behaviour..... Attitude of his peers will have their effects upon the child's attitude. But by far the most significant

> contributing factor is the attitude of the teacher. The teacher who feels insecure, who dreads and dislikes the subject, for whom it is rote manipulation, devoid of understanding, cannot avoid transmitting her/his feelings to the children... On the other hand the teacher who has confidence, understanding, interest, and enthusiasm..... has a long way towards ensuring success."[7]

Hence, in conclusion it can be pointed out that the teacher's personality and competence can help a great deal in improving the students' attitude towards a subject.

2.7 Literature Related to the Importance of Foods and Nutrition

Foods and nutrition remains to be a very important issue both at national and global contexts. In this regard, lack of proper nutritional practices have been known in a number of cases to be highly disastrous. For instance much of malnutrition and disease that continually hinder the development of a nation has been caused mainly by ignorance of a population.

Absence or weakness of policies and programmes to foster the best use of available food supplies for the purpose of improving nutrition, forms another important cause of malnutrition.

It has equally been observed in poor and rich countries alike, that governments and individuals continually make decisions that affect the nutritional status with little or no knowledge of the nutritional consequences.

There is abundant evidence that large numbers of human beings suffer from malnutrition. Estimates by FAO and the World Bank suggest that around 500 million and possibly as many as a billion do not receive sufficient food. Most of these people live in the developing countries.

It has been observed that human beings suffer from several kinds of malnutrition. They can be harmed by eating too little food, or too much food, or by the wrong balance of particular elements in their diet. These types of malnutrition are found basically in all countries, but undernourishment is particularly widespread in poor countries while other kinds of malnutrition are prominent in rich countries like the United States of America.

Malnutrition causes millions of premature deaths each year. It is a contributing factor to diseases in many parts of the world ranging from Kwashiokor in Africa to some forms of cancer in the United States of America. In some societies 40 per cent of the children

die before they reach the age of five mostly from nutrition related causes. A substantial amount of the survivors suffer handicaps of learning, behaviour, and work capacity as a result of inadequate diets and recurring illness.

One of the important effects of malnutrition is a reduction in the child's responsiveness to stimulation and the emergence of various degrees of aparthy. A pathetic behaviour can in return reduce the value of a child as a stimulus and diminish the adult's responsiveness to him. This in turn contributes to reduced adult-child interaction. If this occurs it can have consequences for stimulation for learning, for malnutrition, and for interpersonal relations, the end result being significant backwardness in performance on later more complex tasks.

It has been observed that children who are malnourished in infancy, or who belong to families where food is not abundant, tend to develop anxiety about food. It is understandable that if a child is worried about what or when he will eat next time, his attention and motivation for learning will be reduced, limiting his potentialities for profiting from the school experience. Even if a child has a good mental equipment, if his motivation is low, he will not learn

early what the school expects of him, and he may be for ever handicapped.

On this issue, The World Bank President, McNamara (1971) agreed that the problem of malnutrition can be solved at "comparatively little cost." He felt that the problem is "principally one of organisation, of distribution of food, and of knowledge."[8]

Concepts regarding the nutritional state of people in the developed countries are currently being revised. Millions of Americans are for instance overweight to a degree that interferes with their health and longevity. Other health disorders in that country are thought to result from the nature of American foods which are highly chemicalised.

As such links between nutrition and diet, diseases, learning disabilities, certain forms of cancer and mental illness are creating concern in government and scientific circles about the damage being done by malnutrition and about the limitations of nutrition knowledge.

One of the FAO research papers observes that:

> "To eliminate widespread malnutrition, the developing countries must double food production by the end of the century, provide poor people with adequate access to food supplies, and learn to provide a healthier diet for all their people through intensive educational strategies. These are difficult but attainable goals."[9]

Malnutrition can permanently affect both mental and physical development of an individual. Since the 1930's a number of countries have shown some interest in the importance of Foods and Nutrition and a number of nutritional surveys have been conducted since then to discover the dangers of poor nutrition. Loeward (1980) in one of his studies suggests that,

> "It is possible to some extent to measure effects of nutrition on the mental and physical development of children and consequently on their educational performance."[10]

More recent researches have shown that somewhat older children namely between 5 - 10 years are also seriously harmed when food intake is insufficient or when the food is of very low nutritional quality. As such school children cannot benefit from schooling if hunger, nutritional disease and chronic illness are their daily companions.

On this Loeward (1980) points out that:

> "Although opinion has been divided as to whether primary school children are nutritionally vulnerable, there is no question that they need sufficient food intake to benefit from schooling."[11]

In this essence, the government invests heavily on the education of its people. Such a heavy investment of scarce economic resources can only be protected through a healthy manpower hence there is a crucial need for sound nutrition education to the entire

community.

Following the importance of Foods and Nutrition, it is often claimed that malnutrition affects the psychological development of a child and prevents him from attaining his/her maximum potential. A large amount of research has been done to substantiate this claim by: Cravioto and Robles (1965); Winick (1969); Hertzig et al (1972) and Hoorweg (1976).

These studies claim that the effect on psychological development could occur in two different ways:

(i) It could affect brain maturation directly, especially during the brain's maximum growth. (The human brain grows very fast during foetal life and the first few years of life. In a three year old child for instance the brain weight has already reached 80% of its final weight, the body weight only 20%. It is not only the brain weight which changes so rapidly in early life but also its maturation). Since the brain is the organ of the mind, this early critical period of brain growth is significant for the whole of the childs future. There is circumstantial evidence that not only the structure but the fuctional capacity of the brain including what is known as intelligence - will suffer indefinitely because of the same unfavourable influences from the

surroundings at an early age. However, in discussing intelligence, the analysis of causes and effects becomes much more complex and this will not be given serious attention in this study. Scientists, with this knowledge are therefore no longer surprised that severe malnutrition in early life, before birth and after birth, may have far reaching effects on the brain and its functions.

> "These effects are not reversible later even if one is placed on a good and well balanced diet."[12]

Instead they persist throughout life.

(ii) It could affect intellectual development through reduced stimulation and activity as briefly mentioned in (i).

A study by Hoorweg (1970) in Uganda on malnourished children showed that there is general impairment of the intellectual abilities (in previously severely and chronically malnourished children) with reasoning abilities mostly affected, memory and rote learning intermediately affected and language ability least affected.

There is equally evidence that nutrition deficiencies in young children may damage the central nervous system and impair intellectual, psychological and neuromuscular capacities. Platt, Pampiglione

and Stewart (1965) produced pathological changes in the central nervous system of pigs by feeding them on protein calorie deficient diets. Note: (it must be pointed out here that such a study was confined to the animal level. There has been a tendency to apply animal findings to the human. However, it must be noted that if findings of the animal studies are used as a basis for further human study then the results would be most acceptable or else to apply the conclusions of subhuman research to human action is a dangerous over-simplification).

Similarly, Coursin (1965) in a review of studies of the effects of undernutrition of the central nervous system of children reports the findings of Cravioto, Stoch and Smythe (1963) that in many children who had suffered from severe kwashiokor or marasmus, there may be permanent impairment of normal maturation of the brain. It appeared that in these children, the functional capacities of the brain were not fully restored even after the dietary treatment over a long period of time. Coursin therefore concludes that although these deficiencies may not produce serious mental retardation at times, the damage may limit the individual's ability to realise his maximum potential.

One study by UNICEF states that,

> "A close relationship has been found between the children's intellectual development and the type of home they come from."[13]

These studies indicate that

> "Both the home stimulation and good nutrition are important for the intellectual growth, and that both continue to exert a powerful influence on the development throughout livelihood."[14]

Relatively good home circumstances help to repair the damage caused by malnutrition in infancy at least within certain narrow limits though the effects of malnutrition may still be evident in later livelihood.

Hence it can be noted that:

> "Taken as a whole, evidence points to the great importance of brain growth of intra-uterine life and the first two years of childhood. However the whole period of childhood is significant for development, and both nutrition and education contribute to the growing intelligence of the child."[15]

These facts therefore make it clear that encouragement of improved consumption vis-a-vis knowledge of Foods and Nutrition must be part and parcel of educational programmes in this country.

In highlighting the importance of Foods and Nutrition, good nutritional practices henceforth become the basis of good, mental, physical health and growth.

Evidence from the study of malnutrition, poverty and education by Calloway (1970) conducted in West Virginia showed that:

> "Money is not the answer to the correction of malnutrition but education is necessary."[16]

Hence by teaching students more about the subject and giving them information to take home to their parents, teachers can help improve family meal patterns thus wiping out malnutrition entirely. Conclusively, people learn by being taught and therefore when teachers and parents are given the opportunity to learn and to teach students, they can increase the students' knowledge and understanding of the subject.

There is hence an urgent need for thorough nutrition education and nutrition related fields if the social and economic standards of a country are to be upgraded.

> "Good food and nutrition are at once a result of economic progress and a contributor to economic development."[17]

To conclude, it can be stated that malnutrition is a developmental risk factor in the national and in the formal educational process. In infants and children, it is a potent contributor to school wastage.

2.8 Literature Related to Attitudes Towards Home Economics

Home economics commonly known in Kenyan secondary schools as Home Science is of paramount importance in

helping to raise the community's living standards and is thus a vital factor on social and economic development of a nation. (Azikiwe, 1965). In one of her studies, Kirkland (1965) observed that Home Economics education has a critical role to play in the developing countries of the world.

Most of these developing countries are apparently still unconvinced by the importance of this subject area, and to this Kaniuka (1962) reported that "the public is largely unconvinced by the importance of this subject."

In most countries the study of Home Economics does not appeal to many. Yet as one might expect, in a developing nation that is struggling to industrialise and raise the standard of living, knowledge of Home Economics can have a direct and immediate application on the lives of the people. However despite this fact, most developing countries are inclined to consider Home Economics and hence Foods and Nutrition, as a kind of ad hoc emergency compaign in the same category as adult literacy and mass education. It is therefore for such approaches that Home Economics in general has remained unrecognised by many.

Observations in recent literature as well as in writings dated as far back as 1930s show that most

students fail to select Home Economics subject because their parents regard the work as "inferior and degrading," and others because it has no immediate vocational value.

However, such an issue has been proved wrong by Spafford (1940) when he observed the following in as far as career aspirations in Home Economics is concerned:

> "Students in Home Economics should come to know themselves better - their assets and liabilities for employment - as well as the job demands of many different occupations. The field has much to offer in increasing the general employability and job satisfaction of all young people. Many types of occupations grow out of Home Economics, some of a semi-skilled type, others of a highly professional nature."[18]

Generally speaking, it seems that much of the public is unaware of the opportunities opened to them in the field of Home Economics. Many still consider it to be primarily concerned with the teaching of "cooking and sewing". (Failing, 1957).

Scott (1949) states that many people within and without the profession view Home Economics teaching in schools and colleges as a special subject primarily for young women and a few brave young men! This statement seems to be documented by studies showing that 99.9% of Home Economics college graduates are women. (McGrath, 1968; Schab, 1966).

Similarly on another note, many studies have shown that Home Economics courses as compared to other courses lack prestige, glamour, and academic respectability. Such a situation can only be improved if administrators and teachers could be helped to see that Home Economics is more than 'stitching and cooking'.

Results of a study in Milwaukee University by Lauscher (1967) showed five especially relevant facts, that:

(1) Home Economics draws a vast majority of its enrolment from the average and below average groups of students.

(2) When girls go to secondary schools and colleges respectively, they do not select a Home Economics curriculum.

(3) A large majority of girls who plan some kind of technical training or who go directly to marriage do select Home Economics.

(4) The outstanding reasons given by girls for the selection of Home Economics were:

- "I am interested in these areas of learning."
- "I am not going to college and believe that these courses are valuable to me in my future role as a home-maker."

(5) The outstanding reasons given by girls for not selecting Home Economics were:

- "I am going to college and there is no room

in my programme to select subjects in this area."

- "I can learn the same things at home."

Such a study tells much on the attitudes of majority towards the subject.

In another related study by Stinnet, et al (1971), the greatest proportion of respondents namely, 67% felt that Home Economics is a profession primarily for women. This finding supports Scott's statement that majority still view the subject as a woman's profession. This suggests to the entire nation that in publicity efforts and in the classroom, there is a need for greater emphasis on the opportunities available to men and the contributions which they can make to the Home Economics profession.

Geyer (1967) suggests that one major step that Home Economists need to take in order to achieve their professional goal is to communicate their roles and contributions. Among some of the more important avenues for interpreting Home Economics to a large community are:

(1) participation into local, national and international programmes.

(2) mass media and public relations in a national scope.

Therefore a Home Economics teacher needs to exert much effort in promoting a more accurate and possible image of the subject through greater use of public relations and the mass media. Such publicity apparently

needs to be focused particularly on the high school students because it is here that much of these attitudes are developed and can be projected into the future underdevelopment of a nation.

In conclusion, it must be pointed out here that the purpose of referring to literature review was to give a guideline to tackling the research problems raised in this study.

The literature helped the researcher to gather information relevant to the study thus leading to conclusion.

In the current research it was thought relevant to analyse attitudes of students and the relationship of these attitudes to performances. Alpert et al, (1963) in one of their studies used an attitude scale to measure attitudes of students and the chi-square method to determine the relationship between the attitudes and performances of students.

It was therefore thought that the same procedure could be followed by the current researcher to study the relationship between the attitudes of students and their performance, in the subject.

Similarly since malnutrition is one of the determinants of poor nutritional practices, the researcher used this issue in highlighting the importance of Foods and Nutrition to raise to the public the crucial

need of Nutrition Education and its importance in the school curriculum.

On the other hand Stern's (1976) studies on teacher attitudes, characteristics and behaviour encouraged the researcher to investigate teachers' attitudes towards Foods and Nutrition subject.

The study of attitudes was equally thought to be relevant as a result of its central importance in the learning of any subject. Hence the design, procedure, and style that follow in the next chapter had a bearing on the literature used in this chapter.

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CHAPTER THREE

METHODOLOGY

3.0 Introduction

A major purpose of this study (already stated in Chapter 1) is to find out what attitudes, negative or positive, are held by secondary school students and teachers towards the subject Foods and Nutrition and students' achievement in the subject.

As will be noted in the meantime, an original design of the study was to have a target population of all students in the secondary schools taking Foods and Nutrition, but subsequent modification was made as a result of too much time and money that would have been involved in such an endeavour.

3.1 Research Instruments

3.1.1 Development of the Questionnaire

In an attempt to investigate the relationship of some student-teacher characteristics and Foods and Nutrition performance in the Kenyan girls secondary schools, the establishment of a set of data from which the required discussions, inferences and analysis could be made constituted the basic problem

of this study.

While data on Foods and Nutrition performance were provided by the Kenya National Examination Council (KNEC) records, information on other characteristics was not available and therefore was collected by means of a written student and teacher questionnaire which was developed along the following lines:

(1) Design

(2) Procedure

The design stage involved making decisions in regard to the characteristics of the instrument. For instance, different variables representing student-teacher characteristics had to be identified. Decision had to be made as to how the questionnaire was going to be used. The need for an oral interview did not arise as a result of the fact that too much time could have been involved, more so when it is considered that the target population was quite high. Similarly, it was not going to be possible to interview one student at a time as this could have highly interfered with their lessons; an issue that the school administration could not allow. The researcher therefore had to design an appropriate tool which could be used without any constraints. Hence, with a questionnaire, opinion of a larger population could be detected.

The format of the questionnaire was to be in line with the information being sought as specified by the variable in question, and henceforth both direct and specific questions were developed, unlike difficult and ambiguous ones which could have made the questionnare difficult to comprehend. The questions were to be designed in a manner which called for the kind of response the researcher expected. Such responses were to tally with the attitude scale of Strongly Agree; Agree; Undecided; Disagree; and lastly Strongly Disagree. To encourage students, items requiring simple and easy responses were therefore to be developed. The development of the questionnaire then followed on the basis of these specifications.

However, in spite of the careful planning which was given to the construction of the questionnaire, it was nevertheless subjected to a pilot try-out. This was done so that the researcher could detect such factors as time taken to answer the questionnaires, errors that could have been overlooked, and the types of responses that would finally constitute the study. The researcher therefore found it necessary to choose a small representation of the sample and administer it. The pilot testing was performed on twenty Form Four students from one of the eight schools that were subjected to the study. The reason why Form Four students were used for testing was

as a result of their mental maturity, background expe-riences in the subject, age, and clearer career aspira-tions.

The pilot questionnaire was self-administered, for the purpose of saving time and moreover to ensure maximum response. Similarly, it would have been difficult for the teacher to explain to the students certain issues which could have been deemed as unclear more so when it is taken into consideration that these were not the teachers' ideas but the researcher's. Questions could have been misunderstood or even misinter-preted; it was therefore realised that, for better results, the researcher avail herself for the administration of the questionnaire.

A questionnaire of this nature was not new to students; thus it made it easier in creating necessary trust and cordiality.

A number of issues emerged from the study which necessitated changes for the final draft. The student questionnaire had to be rephrased as a result of some misunderstanding indicated by the responses provided. Questions 1, 4, 10, 19, 21, 24, 25, 31, 32, were rephrased while questions 6, 13, 27, and 29 were omitted as they were unclear and vague. Out of 39 original

questions, 35 questions were used in the final study. (A revised questionnaire is in Appendix B).

3.2 Final Testing

3.2.1 The Sample

The schools selected in the sample were those that take the subject Foods and Nutrition at K.C.E. level. The population was randomly selected from rural, urban and semi-urban settings and this was to show a fair representation of the population under study. A cross-section of the school population was therefore tested. The sample consisted of 135 Form Three students, 133 Form Four students and 20 Foods and Nutrition teachers. In all 288 questionnaires were administered. Teachers were involved in the study as a result of the fact that, it was assumed that their attitudes could, to some extent, influence those of students and therefore the researcher hoped to determine how true this could be.

Teachers' questionnaire was designed into two categories; part one of the questionnaire consisted of attitude questions while part two consisted of questions requiring short answers. Responses from part two of the questionnaire were to be used in supplementing the findings from the attitude scale in part one.

3.2.2 Administration of the Questionnaire

After it was thought that the questionnaire was good enough to elicit the desired information in regard to the student - teacher responses, the next step was to give it to the target population. But before this was done the researcher made appointments with the respective schools, some of which turned her down as it was third term; a time normally when majority of schools are busy getting ready for the end of year examinations.

However, when eventually the questionnaire was administered the results were encouraging as students showed willingness to cooperate. Some of the teachers, due to increased work load and pressure of examinations, could not fill in the questionnaires on time but this was regarded as insignificant for half the number managed to return the questionnaires. Students' questionnaires were answered within a period of thirty to forty minutes of the students' free time of either lunch break, prep time or after school sessions.

In the end, out of 320 copies of the questionnaire, a total of 288 was returned. The reason being that some of the students had absented themselves from the school on the day the questionnaires were being administered. All in all, this was considered an

astonishing achievement survey hence the 32 unrecovered questionnaires were considered insignificant. All the questionnaires returned were properly answered and this showed that the instructions were clear thus all the questionnaires returned were used for analysis.

Data on students' performance in Foods and Nutrition were taken from the Kenya National Examination Council (KNEC) and not from specially constructed tests as could have been expected. This was so because the researcher wanted standardised records and it was going to be extremely difficult to give self-constructed tests as it was assumed that students could be at different levels of learning and hence some students could have performed better than others on the basis of such factors therefore creating an unrealistic situation. The researcher therefore had to wait for Form Fours to sit a standardised examination namely, Kenya Advanced Certificate of Education (K.A.C.E.) from where the results of the performances were derived.

3.2.3 Description of the Final Questionnaire

A five-point scale of attitude measurement was used in the study in line with the Likert Method. A five-point scale was condensed into three points. The first

two points of the scale, i.e. Strongly Agree and Agree were integrated into one point, i.e. Agree- Undecided became the second point. Disagree and Strongly Disagree were taken as the third point of Disagree. The Likert Scale was therefore condensed into three points of "Agree", Undecided" and "Disagree". Subjects agreeing with positive items were regarded as expressing positive attitudes while those agreeing with negative items were regarded as having expressed negative attitudes.

3.2.4 Scoring

The next step was to score the questionnaires. In order to be accurate computation of data for this study was done both manually and by an electronic computer (IBM 370) and 'the SPSS' System was used. The attitudes towards a particular aspect of Foods and Nutrition were determined. This determination was done in the following way: The number of positive responses (positive attitudes) were found out and so were the number of negative responses (negative attitudes). The frequencies for each response were therefore given. Similarly the computer used descriptive statistics to determine the correlation between attitude items and performance. The data included

use of frequencies to determine percentages, and cross tabulations to determine the relationship of the said variables. The data are tabulated in the next chapter together with other graphic presentations. The latter, i.e. measure of associations used chi-square tests which attempted to find out many issues raised in the study such as the relationship between performance of students and their attitudes towards the subject.

This and other measures of association were analysed by use of an electronic computer. Thus, based on these issues, collected data were analysed.

REFERENCES

Norman, H. Nie et al. Statistical Package for the Social Sciences. SPSS 2nd edition. New York: McGraw Hill (1975), pp. 276-286.

CHAPTER FOUR

ANALYSIS OF DATA

4.0 Introduction

The main objective of this study previously stated in Chapter One is to determine the following factors in relation to the subject Foods and Nutrition:

(1) To investigate the different attitudes held by students towards the subject Foods and Nutrition.

(2) To test whether there are differences in attitudes toward Foods and Nutrition subject among students from different schools.

(3) To test whether there are differences in attitudes between students in Form Three and Form Four.

(4) To investigate the attitudes of Foods and Nutrition teachers towards that subject.

(5) Finally and above all, to investigate whether there is any relationship between attitudes of students and their performances in the subject Foods and Nutrition.

In order for these relationships to be tested, statistical tools used involved averages, percentages and the chi-square method. The chi-square method was used to test objective three, whereas percentages and averages were used to test the rest of the objectives. The chi-square method enabled the researcher to decide whether the hypothesis tested was acceptable or not in the light of proven evidence. Chi-square test is therefore a widely used statistical tool for determining whether a relationship exists between two bases of classification.

In order for these calculations to be arrived at, data gathered are presented in form of tables:

Commencing with objective (1), i.e. investigating students' attitudes towards the subject, data are presented in Appendix A. Data for objective (2) are however presented in the following order:

4.1 Students' Preference of the Subject Foods and Nutrition

This item was seeking students' attitude on the preference of the subject. Sometimes it is believed that students who are not good in other subjects, go for Foods and Nutrition and other Home Economics subjects such as Needlework and Home Management. It is

equally believed that since there are different categories of schools in this country ranging from high cost to low cost, government to harambee, etc, attitudes of students are likely to differ on the basis of such categories. Here is a try to check the truthfulness of such opinions.

TABLE 4.1.1

Showing Responses of Less Gifted Students' Preference of the Subject Foods and Nutrition

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	0.0	3.7	3.7	22.2	66.7
2	2.6	5.1	0.0	10.0	82.1
3	2.8	8.3	0.0	11.1	77.8
4	4.3	17.0	12.8	19.1	46.8
5	5.4	0.0	2.7	18.9	73.0
6	0.0	14.3	14.3	23.8	47.8
7	4.5	0.0	4.5	18.2	72.7
8	0.0	0.0	0.0	30.0	70.0
Average (%)	2.5	6.1	4.8	19.2	65.8

It can be observed from Table 4.1.1 that an average score of 85% of the students subjected to the study disagreed with the statement, meaning that they do not think that less gifted students prefer to take the subject. At the same time it can be observed from school to school that different attitudes are reflected on this statement. Opinions of schools 4 and 6 appear to differ from the rest of schools.

4.2 Students' Responses on Expectation in the Subject

It is generally believed that the higher the expectation a student has for an acitivity, the more he/she will achieve in it. On the basis of such an assumption, this item was seeking students' attitude on their expectation in the subject. The researcher further wanted to test whether the different schools tested on this item portrayed different views. Table 4.2.1 is therefore an illustration to check the validity of such an opinion.

TABLE 4.2.1

Showing Responses of Students' Expectation in the Subject

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	59.3	37.0	0.0	0.0	3.7
2	69.2	30.8	0.0	0.0	0.0
3	86.1	11.1	0.0	0.0	2.8
4	46.8	42.6	4.3	6.4	0.0
5	59.5	29.7	5.4	5.4	0.0
6	52.4	38.1	0.0	4.8	4.8
7	47.7	47.7	2.3	0.0	2.3
8	70.0	25.0	5.0	0.0	0.0
Average (%)	61.3	17.6	2.1	2.1	1.7

This Table reveals that an average score of 78.9% of the students disagreed with the statement. Similarly all the schools tested on this item had same views, that is, all appeared to have agreed with the statement.

4.3 Foods and Nutrition Learnt for the Sake of Passing Examinations

There has been a general feeling among the public that some subjects are just learnt for the sake of passing examinations. On this note the above item sought students' responses to the statement. At the same time it was deemed necessary to test whether different schools reflected different opinions on the item. Table 4.3.1 therefore tries to check the truthfulness of the statement.

Table 4.3.1

Showing Responses on Foods and Nutrition For the Sake of Passing Exams

SCHOOLS	ATTITUDES: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	0.0	7.4	7.4	44.4	40.7
2	0.0	7.7	2.6	46.2	43.6
3	5.6	2.8	5.6	44.4	41.7
4	2.1	14.9	8.5	53.2	21.3
5	5.4	8.1	2.7	32.4	51.4
6	0.0	9.5	23.8	38.1	28.6
7	0.0	0.0	4.5	54.5	40.9
8	0.0	5.0	0.0	25.0	70.0
Average (%)	1.6	6.3	6.9	42.3	42.3

It can be noted from the table above that an average score of 84.6% of the students disagreed with the statement that Foods and Nutrition is only learnt for the sake of passing examinations. This means that there is more to the learning of the the subject. All schools likewise portrayed similar opinions.

4.4 Foods and Nutrition as a Boring Subject

This item was seeking students' responses in as far as the subject being considered boring is concerned. Sometimes students in schools have demonstrated such views as Foods and Nutrition being a boring subject. On this note the researcher wanted to test the truth of this matter in as far as opinions of students and that of the schools tested were concerned. The Table below gives these illustrations.

TABLE 4.4.1

Showing Responses on Foods and Nutrition as a Boring Subject

SCHOOLS	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	3.7	14.8	0.0	48.1	33.3
2	0.0	7.7	0.0	41.0	51.3
3	5.6	8.3	0.0	25.0	61.1
4	19.1	23.4	0.0	40.4	17.0
5	0.0	8.1	0.0	24.3	67.6
6	4.8	9.5	0.0	42.9	42.9
7	4.5	6.8	0.0	40.9	47.7
8	5.0	5.0	0.0	45.0	45.0
Average (%)	5.3	10.5	0.0	38.4	45.7

This Table reveals that an average score of 84.1% disagreed with the statement that Foods and Nutrition is a boring subject. At the same time, it can be observed that opinions of school 4 differed remarkably from that of the other schools on the same item.

4.5 Time Wastage in the Learning of the Subject Foods and Nutrition.

This item was seeking students' responses on time wastage in the learning of the subject. Very often, opinions have been aired that it is a waste of time to learn a subject such as Foods and Nutrition. The majority even assumed that it is a subject that can be easily learnt from home situation. Below is a try to check the validity of this statement. The researcher further wanted to test if the different schools tested had different opinions on the item.

TABLE 4.5.1

Showing Responses on Time Wastage in the Learning of the Subject

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	0.0	0.0	3.7	22.2	74.1
2	0.0	0.0	0.0	17.9	82.1
3	0.0	0.0	0.0	16.7	83.3
4	0.0	2.1	0.0	14.9	83.0
5	0.0	0.0	0.0	8.1	91.9
6	0.0	4.8	0.0	33.3	61.9
7	0.0	2.3	2.3	22.7	72.7
8	0.0	5.0	0.0	0.0	95.0
Average (%)	0.0	1.8	0.8	16.9	80.5

It can be observed above that a very high score of an average of 97.4% disagreed with the statement, meaning that it is not a waste of time to learn the subject. All the schools tested on the other hand held similar views on the item.

4.6 Bright Students Having Negative Attitudes Towards the Importance of Foods and Nutrition

There has been a tendency for some students and even teachers to think that bright students have negative attitudes towards the importance of Foods and Nutrition. In certain schools, bright students have been led away from choosing this subject for some unknown reasons.

The above item therefore sought attitudes of students towards this item and the Table below tries to check the effectiveness of the item. The Table likewise tries to check whether views on this item differ from one school to the other.

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TABLE 4.6.1

Showing Responses on Bright Students Having Negative Attitudes Towards the Importance of Foods and Nutrition

SCHOOL	ATTITUDES: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	7.4	14.8	3.7	29.6	44.4
2	12.8	38.5	23.1	20.5	5.1
3	11.1	25.0	2.8	13.9	47.2
4	17.0	40.4	12.8	17.0	12.8
5	8.1	10.8	8.1	32.4	40.5
6	0.0	19.0	19.0	33.3	28.6
7	6.8	29.5	11.4	29.5	22.7
8	15.0	30.0	5.0	30.0	20.0
Average (%)	9.8	26.0	10.7	25.8	27.6

While an average score of 53.4% of the students tested disagreed with the statement, it is interesting to note that an equally high figure i.e. 35.8% agreed with the same item. At the school level, school 4 in particular agreed with the statement with a score of 57.4% while school 2 with a score of 51.3%. This means

that while in some schools bright students tend to look down upon the importance of Foods and Nutrition, in others, this is not the case.

4.7 Girls' Interest in the Subject Foods and Nutrition

This item was seeking who on the basis of sex takes more interest in the subject. Most people do feel that Home Economics or Foods and Nutrition is a female dominated subject. The researcher wanted to test if such a view differs from school to school.

Here then is a try to check the truthfulness of the opinion.

TABLE 4.7.1

Showing Responses on Girls' Interest in the Subject

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	33.3	48.1	7.4	7.4	3.7
2	33.3	48.7	5.1	7.7	5.1
3	50.0	33.3	0.0	8.3	8.3
4.	29.8	38.3	6.4	25.5	0.0
5.	40.5	43.2	2.7	10.8	2.7
6.	23.8	38.1	19.0	9.5	9.5
7	25.0	40.9	6.8	20.5	6.8
8	30.0	60.0	10.0	0.0	0.0
Average (%)	33.2	43.9	7.2	11.2	4.5

It can be noted above that an average score of 77.1% of the students agreed with this statement. At the school level, schools 4 and 7 reflected rather interesting opinions, with a notable percentage disagreeing with the statement. All in all the majority of the schools tested agreed that girls take keener interest in the subject.

4.8 Dislike of Subject Based on Prejudice

Most likely, those who chose to dislike the subject Foods and Nutrition do so as a result of prejudices developed against the subject. As a result of this, the Table below tries to check the truthfulness of such opinions ranging from different students to different schools.

TABLE 4.8.1

Showing Responses on Dislike of Subject Based on Prejudice

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	7.4	22.2	14.8	25.9	29.6
2	17.9	41.0	10.3	12.8	17.9
3	19.4	30.6	13.9	16.7	19.4
4	17.0	38.3	6.4	31.9	6.4
5	18.9	37.8	5.4	16.2	21.6
6	38.1	19.0	9.5	23.8	9.5
7	20.5	47.7	9.1	18.2	4.5
8	35.0	25.0	20.0	10.0	10.0
Average (%)	21.7	32.7	11.2	19.4	14.9

It can be observed from Table 4.8.1 that while an average score of 54.4% of the students agreed with the statement, a remarkably high score, namely 34.3% disagreed with the same item. It is equally clear that school 1 and to some extent school 4 had rather different opinions on the item.

4.9 Unpopularity of the Subject

That Foods and Nutrition as an unpopular subject has been much exaggerated. This item was seeking responses of students on the subject being considered as an unpopular. Similarly it is possible that such a view would differ from one school to the other. Table 4.9.1 therefore tries to examine the validity of the item.

TABLE 4.9.1

Showing Responses on the Unpopularity of the Subject

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	18.5	22.2	18.5	25.9	14.8
2	10.3	12.8	23.1	41.0	12.8
3	8.3	16.7	11.1	44.4	19.4
4	8.5	38.3	23.4	21.3	8.5
5	5.4	27.0	24.3	29.7	13.5
6	19.0	0.0	38.1	33.3	9.5
7	11.4	27.3	15.9	36.4	9.1
8	5.0	5.0	30.0	25.0	35.0
Average (%)	10.8	18.7	23.1	32.1	15.3

There appears to be a significant difference in students' opinions and the schools tested. While an average score of 47.4% of the students disagreed with the above statement, it is interesting to note that over half that number i.e. 29.5% agreed with the item. It is equally worthwhile to note that a relatively high percentage i.e 23.1% were undecided on the item. Schools 1 and 4 in particular reflected interesting opinions on the item.

4.10 Foods and Nutrition Classes are Interesting

It is encouraging to know that students are conscious about how interesting the subject is. This item tried to seek students' responses in as far as their feelings about the subject are concerned. The Table below tries to investigate the truthfulness of the statement:

TABLE 4.10.1

Responses Showing Foods and Nutrition Classes as Interesting

SCHOOL	ATTITUDES: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	11.1	59.3	18.5	0.0	11.1
2	53.8	28.2	5.1	5.1	7.7
3	55.6	30.6	5.6	2.8	5.6
4	40.4	40.4	10.6	6.4	2.1
5	56.8	35.1	2.7	5.4	0.0
6	42.9	33.3	9.5	4.8	9.5
7	45.5	40.9	4.5	2.3	6.8
8	55.0	30.0	0.0	5.0	10.0
Average (%)	45.1	37.2	7.1	4.0	6.6

From the Table above it can be seen that a remarkably high average score of 82.3% of the students tested agreed with the item. Similarly all schools tested on the item portrayed similar views meaning that students find the subject to be quite interesting.

4.11 Foods and Nutrition Only Involving Cooking

On the issue of what the subject involves, many have felt that, due to proper lack of understanding, the subject involves nothing but cooking. Here is a try to check the extent to which such attitudes vary among students or from school to school.

TABLE 4.11.1

Showing Responses on the Subject
Only Involving Cooking

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	0.0	7.4	0.0	22.2	70.4
2	7.7	2.6	0.0	17.9	71.8
3	2.8	0.0	0.0	19.4	77.8
4	0.0	2.1	0.0	23.4	74.5
5	5.4	5.4	0.0	29.7	59.5
6	4.8	0.0	0.0	33.3	61.9
7	2.3	2.2	0.0	36.4	59.1
8	5.0	5.0	5.0	5.0	80.0
Average (%)	3.5	3.1	0.6	23.4	69.4

It is encouraging to note here that students are conscious of the importance of the subject. A very high score averaging to 92.8% of the students disagreed with the above statement. All schools likewise held the same opinion, meaning that there is more to the subject rather than just the already preconceived ideas that it only involves cooking.

4.12 Foods and Nutrition as an Easy Subject

Very often some of the students do feel that Foods and Nutrition is an easy subject not worth learning in schools. Such students therefore prefer to go for what they consider as the so called challenging subjects such as the pure sciences. In view of this, the Table below tries to determine the truthfulness of the view.

TABLE 4.12 .1

Responses Showing Foods and Nutrition as an Easy Subject

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	0.0	48.1	7.4	40.7	3.7
2	15.4	38.5	12.8	20.5	12.8
3	27.8	52.8	2.8	13.9	2.8
4	12.8	10.6	8.5	38.3	29.8
5	18.9	45.9	10.8	16.2	8.1
6	14.3	33.3	4.8	38.1	9.5
7	6.8	31.8	9.1	45.5	6.8
8	5.0	35.0	15.0	25.0	20.0
Average (%)	12.6	30.9	8.9	29.8	11.7

There appears to be a significant variation in opinions both from the students and schools subjected to this item. It is interesting to note that while an average score of 43.5% of the students agreed with the statement, an almost equal number namely 41.5% disagreed with the same item. Schools 2, 3, and 5 in particualar agreed with the statement with remarkably high scores while schools 4, 6, 7 and 8 disagreed with the item with equally encouraging scores.

4.13 There is Lack of Job Opportunities for Those Who Have Learnt the Subject

Majority of students have often doubted the job opportunities opened to them having pursued the subject Foods and Nutrition. Many do feel that there are very few openings available in the job market for students who have specialised in this subject. This item was therefore seeking responses of students on the job prospects offered by the subject, and the Table below tries to investigate the truthfulness of such views.

TABLE 4.13.1

Showing Lack of Job Opportunities for Those Who Have Learnt the Subject

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	3.7	3.7	33.3	33.3	25.9
2	0.0	12.8	25.6	25.6	35.9
3	2.8	11.1	16.7	13.9	55.6
4	0.0	6.4	34.0	36.2	23.4
5	5.4	5.4	18.9	40.5	29.7
6	4.8	14.3	14.3	33.3	33.3
7	2.3	15.9	25.0	34.1	22.7
8	5.0	0.0	15.0	35.0	45.0
Average (%)	3.0	8.7	22.9	31.5	34.0

It is seen in the analyzed data in the above Table that an average score of 65.5% of the students subjected to the study disagreed with the statement. It is however worthwhile to note that a relatively high percentage namely, 22.9% were undecided on this item meaning that they are unaware of the job opportunities opened to them by the subject. Majority of the schools tested on this item were undecided with schools 1 and 4 having the highest scores of indecision.

4.14 Foods and Nutrition Should be Taught to Boys

This item was seeking responses on the teaching of the subject to the male sex. Normally, in most circumstances men do feel that Foods and Nutrition is a female dominated subject and better taught to women and not otherwise. Such a discrimination on the basis of subject has been rather outstanding in a manner that most schools offering this subject are no doubt girls' schools. The Table below tries to check the truthfulness of such an opinion.

TABLE 4.14.1

Showing Responses on the Teaching of the Subject to Boys

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	0.0	0.0	0.0	37.0	63.0
2	2.6	2.6	7.7	43.6	43.6
3	5.6	2.8	8.3	41.7	41.7
4	2.1	2.1	0.0	44.7	51.1
5	5.4	2.7	13.5	43.2	35.1
6	4.8	14.3	9.5	47.6	23.8
7	4.5	6.8	6.8	40.9	40.9
8	0.0	5.0	5.0	55.0	35.0
Average (%)	3.1	3.9	6.4	44.2	41.8

From this Table, it can be seen from the analysed data that a remarkably high percentage namely,86% agreed with the statement. All schools were of the same opinion meaning that the subject must not be subject to sexual discrimination.

4.15 Need for Public Education

There has been an assumption that most of the general public are ignorant of the importance of Foods and Nutrition. This item therefore sought responses on the need for public education in the area of Nutrition Education.

The table below tries to check the truthfulness of the assumption.

TABLE 4.15.1

Showing Responses on the Need for Public Education on Foods and Nutrition

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	59.3	33.3	3.7	3.7	0.0
2	69.2	30.8	0.0	0.0	0.0
3	69.4	19.4	5.6	2.8	2.8
4	46.8	38.3	4.3	4.3	6.4
5	64.8	24.3	5.4	2.7	2.7
6	38.1	42.9	14.3	4.8	0.0
7	52.3	36.4	0.0	9.1	2.3
8	75.0	20.0	0.0	0.0	5.0
Average (%)	59.4	30.7	4.2	3.4	2.4

It appears obvious that the public should be educated on the importance of Foods and Nutrition. It is seen from the above Table that an average score of 90.1% of the students agreed with the statement. All schools subjected to the study were similarly of the same opinion meaning that there is a crucial need for public awareness on Nutrition Education.

4.16 Foods and Nutrition as Compared to Other Sciences

Majority of students will always opt for the other sciences before they can give such subjects as Foods and Nutrition any due priority. This shows that as compared to other subjects, the above mentioned subject has been viewed as being less important. The above item therefore was seeking students' attitude on the importance of the subject in relation to other subjects. The Table below therefore tries to investigate the truthfulness of such an opinion.

TABLE 4.16.1

Showing Responses on Foods and Nutrition as Compared to Other Sciences

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	4.8	48.1	7.4	22.2	7.4
2	12.8	20.5	28.2	30.8	7.7
3	8.3	19.4	16.7	41.7	13.9
4	10.6	29.8	29.8	19.1	10.6
5	10.8	16.2	10.8	32.4	29.7
6	23.8	23.8	14.3	28.6	9.5
7	4.5	27.3	18.2	29.5	20.5
8	5.0	15.0	30.0	30.0	20.0
Average (%)	11.3	25.0	19.4	29.3	14.9

There appears to be a significant variation of opinions of students and schools tested on this item. While an average score of 44.2% of the students disagreed with the above item, a rather close figure of 36.3% agreed on the same item. It is relatively important to note that a good percentage of 19.5% were undecided on the issue. On the part of schools, it is apparent that schools 1, 2, 4 and 6 agreed with the statement with remarkable scores while schools 3, 5, 7 and 8 disagreed with equally high scores.

4.17 Need for a Special Radio Programme

It is needless to say that such mass media as the Radio plays a very important role in transmitting information to as many sections of the population in the shortest time possible. The above item was seeking responses on the need for a special radio programme and the Table below checks the truthfulness of this opinion.

TABLE 4.17.1

Showing Responses on the Need for Special Radio Programmes in the Subject

SCHOOL	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1	22.2	59.3	7.4	7.4	3.7
2	51.3	38.5	5.1	2.6	2.6
3	58.3	27.8	8.3	5.6	0.0
4	25.5	51.5	6.4	10.6	6.4
5	64.9	27.0	5.4	0.0	2.7
6	28.6	42.9	4.8	19.0	4.8
7	38.6	31.8	15.9	6.8	6.8
8	60.0	35.0	0.0	0.0	5.0
Average (%)	43.7	39.2	6.7	6.5	4.0

It is encouraging to know that students are conscious of the importance of mass media in the transmission of knowledge. An average of 82.9% of the students tested agreed with the statement. All the schools, on the other hand, aired similar views meaning that there is a crucial need for radio programmes geared at Nutrition education.

Having tested this objective, the next one involved investigating whether attitudes vary in regard to differen

classes. Some of the predominant factors affecting the development of attitudes have been viewed to be environmental, peer group association, parents' socio-economic status, age, class, etc, etc. In relation to such factors the researcher was out to investigate the extent to which class can affect attitudes, i.e. to test whether there are differences in attitudes between Form IIIs and Form IVs.

4.18 Students' Preference of the Subject Foods and Nutrition

The first item in regard to class was seeking students' attitude towards the subject in as far as its preference is concerned. The Table below checks the truthfulness of such an opinion.

TABLE 4.18.1

Showing Dull Students' Preference of the Subject

CLASS	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
FROM THREE	4.4	6.7	6.7	18.5	63.7
FORM FOUR	1.5	5.3	3.0	17.3	72.2
Average (%)	3.0	6.0	4.9	17.9	67.9

As can be observed in the Table, opinions of the two classes remained the same on the item with an average score of 85.8% meaning that the choice of the subject has nothing to do with dullness.

4.19 Class Versus Boring Subject

This item was seeking students' attitude on their feelings about the subject in relation to boredom. The Table below tries to check the validity of the item.

TABLE 4.19.1

Showing Responses of Class Versus Foods and Nutrition as A Boring Subject

CLASS	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
FORM THREE	8.1	13.3	0.0	40.0	38.5
FORM FOUR	3.8	9.0	0.0	36.1	51.1
Average (%)	6.0	11.2	0.0	38.1	44.8

It can be observed from the table that the two classes namely, Form IIIs and Form IVs held similar views on the item with an average score of 82.9% meaning that Foods and Nutrition is not a boring subject.

4.20 Class Versus Bright Students

The item below was seeking students' attitude on the statement that bright students do have negative attitudes toward the importance of Foods and Nutrition. The Table below investigates the truthfulness of the item.

TABLE 4.20.1

Showing Responses of Class Versus Bright Students

CLASS	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
FORM THREE	6.7	35.6	11.9	24.4	21.5
FORM FOUR	13.5	19.5	10.5	24.8	31.6
Average (%)	10.1	27.6	11.2	24.6	26.6

The two classes disagreed with the statement with an average score of 51.2%. It is however interesting to note that a very near score of 37.7% agreed with the item.

4.21 Class Versus Foods and Nutrition as an Easy Subject

The following item sought attitudes of students from the two different classes, i.e. Forms III and IV on Foods and Nutrition as an easy subject. Table 4.21.1 tries to check the truthfulness of such an opinion.

TABLE 4.21.1

Showing Responses of Class Versus Foods and Nutrition as an Easy Subject

CLASS	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
FORM THREE	8.1	34.1	9.6	31.9	16.3
FORM FOUR	18.8	37.6	8.3	28.6	6.8

There appears to be a significant difference between the two classes tested on the above item. While majority of Form IIIs disagreed with the above statement, with a score of 48.2%, it is interesting to note that Form IVs were of the opinion that Foods and Nutrition is an easy subject by a score of 46.4%. This means that the opinions of the two idfferent classes differed on this item.

4.22 Class Versus Foods and Nutrition When Compared to Other Subjects

The following item sought opinions of the different classes on the importance of the subject when compared to the rest of the subjects. The Table below gives further illustrations to test the truth of the matter.

TABLE 4.22.1

Showing Class Versus Foods and Nutrition When Compared to Other Subjects

CLASS	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
FORM THREE	11.1	31.1	17.8	27.4	12.6
FORM FOUR	10.5	19.5	22.6	30.8	16.5

It appears from the Table that there is a significant difference between the two classes tested on this item. From the Table presented, it can be observed that while majority of Form IIIs agreed with the statement with a score of 42.2%, Form IVs disagreed with the item with a score of 47.3%. This means that opinions are divided on this item between the two classes tested.

Having tested the different attitudes held by students towards the subject Foods and Nutrition, and whether such attitudes vary from school to school, and from class to class as illustrated in objectives 1, 2, and 3, the researcher felt it worthwhile to test the attitudes of Foods and Nutrition teachers towards the subject. This was done because the researcher felt that the attitudes of teachers can to some extent affect that of students (as already discussed in the review of related literature).

Teachers' attitudes towards the subject Foods and Nutrition were discussed under the following clusters.

1) Responses regarding teachers' interest in the subject.
2) Responses regarding work conditions.

3) Responses regarding teaching facilities.

4) Responses regarding the syllabus and methods of teaching the subject.

For further illustrations see appendix B Table 4.23.1

Finally in looking at the last objective 5, it is generally claimed that when one has a favourable attitude towards an activity then it is possible that he/she will achieve higher in that activity.

Favourable attitudes are hence associated with better achievements. In connection with this the researcher wanted to observe whether there is any relationship betweeen the different attitudes held by students towards the subject Foods and Nutrition and their performances in the subject. Such a relationship was tested by the use of a chi-sqaure method. The tables that follow try to check whether there is a relationship between attitudes and performances of students in the subject Foods and Nutrition.

4.23 Scoring Procedure

The results of the responses for tables 4.23.1 and 4.24.1 had to be quantified for meaningful analysis.

Scores were allocated to each type of response. For instance, the following scheme was used for the purpose:

1. Strongly Agree - 5 points
2. Agree - 4 points
3. Undecided - 3 points
4. Strongly Disagree - 2 points
5 Disagree - 1 point

With such a scheme then, each pupil's response was scrutinised itemwise. This was done for all the students subjected to the study. Finally the overall score obtained by each student was stated. This was further categorised as follows: All scores below 119 points were identified and so were those over 150 points. These were then categorised as shown:

119 points	=	E
120-129 points	=	D
130-139 points	=	C
140-149 points	=	B
150 points	=	A

Similarly, 'O' level examination scores obtained from the Kenya National Examination Council (KNEC) for all the Form IV students subjected to the study were categorised as shown:

1, 2	-	A
3	-	B
4, 5, 6	-	C
7, 8	-	D
9	-	E

The two values then, namely, the attitude items and the examination scores were tallied together. For instance, if one student had an overall score of attitude items ranging to 120 points and D as categorised, and examination score of 7 and therefore D, these were put together to become DD. This procedure was done for all the 160 Form IV students. A contigency Table was then drawn on the basis of this criterion. These illustrations formed the observed frequencies, e.g. if DD was computed to have a value of 8 and if there were 8 DDs in the contingency table, then 8 became the observed frequency. Table 4.23.1 gives an example of observed frequency. Expected frequencies were calculated as shown in the same table.

The rationale behind use of observed and expected frequencies was to determine whether a relationship exists between these two bases of classifications in order for the chi-square to be determined.

TABLE 4.25.1

A Contingency of Observed and Expected Frequencies for 160 Form IV Students

ATTITUDE SCORES	A	B	C	D	E	TOTAL
A fo	0.0	1.0	0.0	0.0	0.0	
fe	0.11	o.43	0.26	0.16	0.0	1
B fo	8	13	10	6	1	
fe	4.5	16.6	9.7	5.9	1.1	38
C fo	10	26	13	11	1	
fe	7.2	26.7	15.6	9.5	1.9	61
D fo	1	28	18	6	3	
fe	6.6	24.5	14.3	8.7	1.7	56
E fo	0.0	2	0.0	2	0.0	
fe	0.5	1.7	1.0	0.6	0.1	4
TOTAL	19	70	41	25	5	160

As can be observed from this equation, if every observed frequency is exactly equal to the corresponding expected frequency, then the computed value of $X^2 = 0$. This is the smallest value any X^2 can have. Therefore, the larger the discrepancies between the observed and the expected frequencies, the larger is X^2. Hence X^2 on Table 4.24.1 was calculated by use of the X^2 formula given on the next page.

4.24 Calculation of Chi-square

Chi-square is a statistical tool whose purpose is to provide an answer to relationships of sets of data by comparing observed with expected frequencies. Chi-square is also denoted by X^2 and its computed value =

$$X^2 = \frac{(fe - fo)^2}{fe}$$

where fo = an observed frequency and

fe = an expected frequency.

TABLE 4.24.1

Correlation of Calculated Chi-Square

ATTITUDE SCORES	A	B	C	D	E	TOTAL
A fo	0.0	1	0.0	0.0	0.0	
fe	0.11	0.43	0.256	0.156	0.003	1
X^2	0.09	0.74	0.27	0.13	0	
B fo	8	13	10	6	1	
fe	4.5	16.62	9.7	5.9	1.1	38
X^2	2.72	o.79	0.01		0.01	
C fo	10	26	13	11	1	
fe	7.2	26.68	15.63	9.53	1.90	61
X^2	1.09	0.02	0.44	0.23	0.43	
D fo	1	28	18	6	3	
fe	6.65	24.5	14.3	3.75	1.75	56
X^2	4.80	0.50	0.96	0.86	0.89	
E fo	0.0	2	0.0	2	0.0	
fe	0.47	1.75	1.02	0.625	0.125	4
X^2	0.47	0.03	1.02	3.02	0.16	
TOTAL	19	70	41	25	5	160

$X^2 = 26.69$

Having calculated the X^2 the next question that confronted the researcher was, is the computed value of X^2 too large that she is required to reject the null hypothesis, i.e. that there is no relationship between the attitudes of students and their performances in the subject?

To answer this question the number of degrees of freedom in the contingency table namely Table 4.23.1 had to be determined in order to apply the X^2-test. Generally, in a contingency table containing say r rows and c columns there are (r-1)(c-1) degrees of freedom also denoted by df.

In the case of this study, Table 4.24.1 shows a 5x5 contingency table. Therefore there are (5-1)(5-1) df. = 16 degrees of freedom.

Since the computed value of X^2 was found to be 26.69, the next question is, is the hypothesis significant or not if the calculated value of X^2 = 26.69 at 16 df?

At 16 df, there was no significance hence it can be concluded henceforth that there is no relationship between the attitudes of students and their performances as per the findings.

As indicated earlier in the Chapter, the purpose here was to determine whether a relationship exists between the different attitudes tested and performances in the subject, hence analysis had to be geared towards this goal.

CHAPTER FIVE

INTERPRETATION AND SUGGESTIONS FOR FURTHER RESEARCH

5.0 Introduction

The main objective of the present study was to investigate the different attitudes held by students and teachers towards the importance of the subject Foods and Nutrition and students' achievement in the subject.

Interpretations for the current research were therefore made around the following areas, namely:

1) Attitudes of students towards the importance of Foods and Nutrition subject.

2) Effects of school and class on the changes of attitudes towards Foods and Nutrition subject.

3) Attitudes of teachers towards:
   - the importance of the subject,
   - the teaching facilities and
   - the working conditions.

4) The relationship between the attitudes held towards the subject and students' performances in the subject.

5.1 Attitudes of Students Towards the Importance of Foods and Nutrition.

Starting by interpreting the first objective, namely, students' attitude towards the importance of the subject Foods and Nutrition, it has been observed from the information tabulated in Appendix A that almost all students tested on the various issues relating to the importance of the subject reflected favourable attitudes. Cases in points giving further illustrations appear in almost all the questions in that table.

For instance, when asked to give views on the notion that Foods and Nutrition classes are interesting as indicated by Q20 of the same table, it is interesting to note that 83.1 per cent of the respondents agreed with the item meaning that students enjoy learning this subject. Therefore it can be derived from such responses that for students to enjoy the subject, it must be of some importance to them. This shows that it is a subject worth learning.

Such an emphasis is further highlighted by the same table on the item which reads out that Foods and Nutrition is a subject worth learning. To this 93.4 per cent of the respondents agreed. This implies that the majority of the students do realise the importance of the subject.

The importance of this subject is further shown by the item which states that dislike of the subject mainly comes from lack of its knowledge. Respondents tested on this agreed with the statement and feelings implied here are that, it is possible that those who dislike the subject do so as a result of prejudices developed towards it.

A case in point is that, many students and even the community at large have assumably rated the subject as a "woman's subject." Others go further to describe it as "a kitchen subject". Respondents tested on this issue refuted the claim by a vote of 90 per cent. At school level therefore, there is a realisation that subjects should not be descriminated on the basis of sex, but should be seen in light of what they can offer to the school community.

It is interesting to note that assumptions have been made that Home Economics Subjects (Foods and

Nutrition being inclusive) are relatively easy as compared to other disciplines. In certain schools, it was further observed that dull students have been led into the choice of the subject.

In light of such criteria, performances are likely to be much affected if bright students are to be led away from participating in the subject. Where such cases occur, it is better suggested that students be left to choose areas that interest them, rather than forcing them to take subjects which teachers think are less challenging.

Similarly, in the past majority have often assumed that the subject Foods and Nutrition involves nothing but "cooking" as is implied by the term "Foods". Such is a very misleading idea and was proved wrong by a vote of 83.4 per cent, implying that there is more to the learning of the subject. The 'O' level school syllabus, for instance, includes a detailed study of the following areas:

1) Nutritive value of Foods, e.g. Proteins, Carbohydrates, Fats, Vitamins, etc.
   - Chemical and physical nature of each constituent.
   - Effects of cooking on each constituent.

2) Basic methods of cookery, i.e. Boiling, stewing, Frying, Baking and the principles involved.

3) Methods of preparing and cooking to preserve nutritive properties.

4) Digestion and absorption of food.

5) The circulatory system and in so far as this affects food requirements.

6) Planning, preparing and serving of foods to families taking into consideration the nutritional needs of each individual.

7) Storage of foods with or without a refrigerator, i.e. Food Preservation.

8) Personal and kitchen hygiene.

9) Use and care of various kitchen equipment and utensils.

Hence it can be seen above that the subject Foods and Nutrition has much more to offer than just cooking as is often pre-conceived.

Being a practical subject, Home Economics subject provides skills to students and these can be

of future benefit to them, more so in todays world whereby we are continually confronted by high rates of population explosion leading to unemployment and high rates of crimes. This therefore is one of the subject areas in the curriculum that moulds an individual to be self-sufficient in terms of wage employment.

One of the main objectives of Home Economics subjects already stated earlier in the study is to help raise the individual's living standards by teaching relevant skills that are useful for an individual's day to day tasks in real life situations. Such an objective is important in the sense that it helps in the improvement of one's social and economic welfare.

Home Economics says Professor Marangu is "concerned with the quality of family life - health, mental and social. In other words it is a way to enable families to achieve a good quality of life".

This being the case, it can be said that Foods and Nutrition remains to be a very important subject in the schools curriculum. Therefore an observation of the items in Appendix A in testing objective one has shown that students have favourable attitudes

towards the importance of Foods and Nutrition and that assumptions normally portraying that Foods and Nutrition is an unpopular subject have been proved wrong and unfounded.

5.2 Effects of School on Changes in Attitudes

In relation to students' attitudes towards the subject, the researcher investigated the effects of school on the development of attitudes towards certain issues concerning Foods and Nutrition.

As was earlier mentioned in the study, it is generally assumed that such factors as school, age, class, socio-economic status, peer groups, etc. have an effect on the development of certain attitudes.

Kenya, being a fast growing country, has a school population of children from diversified backgrounds both socially and economically. In view of this schools are generally categorised under the following, namely: high cost schools, low cost schools, harambee, government and private schools. All these categorisations were considered in this study and the main idea was to detect the extent to which a school a child goes to determines his/her attitude towards certain areas of the subject. The researcher therefore

found out that the variable school could sometimes affect students' attitude in certain areas of the subject though not always.

For instance Table 4.1.1 reading that "dull students prefer to take the subject Foods and Nutrition", had most schools disagreeing with the item, meaning that even bright students do perfer to take the subject. However, it is quite interesting to note that school 4 later observed to be a high cost school agreed with the statement.

From these findings it can be derived that certain attitudes vary from one school to another and that attitudes of students from high cost schools may sometimes differ significantly from those of low cost schools. This further means that in certain high cost schools dull students are led into the choice of the subject. In low cost schools this may not necessarily be the case.

Analysis presented in Tables 4.6.1 - 4.9.1, 4.12.1 and 4.16.1 helped in revealing the extent to which the variable school does affect development of certain attitudes. Table 4.6.1 for instance was found to have rather interesting results. This Table was testing the extent to which bright students are said to have

negative attitudes towards the importance of Foods and Nutrition and to this, two schools agreed with the items and when observed were found to be high cost schools. The rest of the schools disagreed with the statement. From the findings it can therefore be deduced that high cost schools have a tendency of looking down upon the subject. Such attitudes where they exist should be discouraged by the school authorities if better students are to be produced.

The table stating that 'Foods and Nutrition is an easy subject" also gave quite astonishing results. Of the eight secondary schools subjected to the study, five agreed with the statement while the rest disagreed. Of the three schools which disagreed with the statement, two were low cost schools, and had poor performances in the National Examinations as were revealed by the results. The results of the high cost schools which disagreed with the statement were however rather encouraging. The schools which agreed with the statement on the other hand had very remarkable and encouraging results. This means that those schools which believe that the subject is difficult are likely to perform poorly in the subject than those which find it easy.

Similarly, the table stating that "as compared to other subjects, Foods and Nutrition is least important",

had ramarkably interesting results. While some high cost schools agreed with the statement, low cost schools disagreed with the same item. From this it can be deduced that while in high cost schools certain subjects are given priority, this may not be the case in low cost schools. The researcher therefore suggests that such attitudes where they exist must be discouraged and it is upon the respective teachers to do so.

Therefore in conclusion, in regard to this objective it can be pointed out that certain attitudes do vary from one school to another. These may further vary from low or high cost schools depending on environmental factors.

However, at this stage it would be totally wrong to assume that attitudes vary wholesome from school to school. On the contrary, it was observed that majority of these attitudes remained the same despite the type of school. These points are reinforced by tables 4.2.1. 4.3.1, 4.5.1, 4.7.1, 4.13.1, 4.15.1 to 4.17.1.

For example when asked to respond to the attitude item stating that "Foods and Nutrition is learnt for the sake of passing exams", all the schools disagreed with the statement meaning that they all realise the

importance of the subject, that is, it has more to offer and therefore not a dead end in itself.

Similarly, on the item stating that "It is a waste of time to learn Foods and Nutrition", all the schools subjected to the study disagreed with the statement. Such a response implies that the subject is worth learning.

Equally important is the notion that all schools agreed on the idea that they find the subject to be of much interest to them.

Modern psychological researches have often found out that interest is closely associated with high achievement hence students who show interest in an activity are likely to aim and excel higher in that activity unlike those who display disinterest. This being the case, then, it can be assumed that students who are interested in this subject are most likely to benefit from its knowledge rather than those who look down upon it.

On the same tone, all the schools tested on the item stating that "Foods and Nutrition involves nothing but cooking", disagreed with the statement. This means that the subject involves much more as has already been discussed elsewhere in the chapter.

Equally important is the preconceived idea amongst many that the subject has nothing to offer in the job sector. When tested on this issue, most schools reflected relatively high scores of indecision meaning that they are not aware of the opportunities opened to them in this field.

Kasuku (1984) in her study entitled "Factors leading to the acceptability of Home Economics in Kenyan secondary schools" identified the following areas of employment that is offered by this subject.

1) Service and Research i.e. teaching in pre-school, high school, trade and special schools, colleges and universities.

2) Work in institutions - as dieticians, consultants, and economic planners.

3) Business and industry in the following areas : Food manufacturing, administration and management; testing, demonstration and promotion, advertising and public relations.

4) Community service - field nutritionist's social welfare and public health; family life programmes.

5) Research in Family Economics, Food and Nutrition and Nutrition Education; Food Technology and Applied Nutrition.

Therefore, it is obvious that Foods and Nutrition holds a very wide spectrum in the job sector. It has so much to offer for those who have learnt it hence the idea that it limits one in choice of a career becomes rather misleading.

Importance of Foods and Nutrition is further highlighted when the issue of which sex deserves to be taught the subject is raised. It has often been assumed that a woman's place is in the kitchen and that a subject such as this is better taught to them and not to men. Some have gone to the extent of referring to the subject as "kitchen education". When students were tested on this item they refuted the claim by a vote of 86 per cent. This implies that the subject should not be sex stereotyped but rather should be seen in light of what it offers to people's welfare.

This being the case, Foods and Nutrition deserves to be taught to all regardless of sex. Equally important was that all schools agreed that there is a need to educate the public about the importance of this subject. Much of malnutrition and disease that continually confronts a community is as a result of ignorance. As it is, the government has tried its level best through adult literacy classes and Family Life Education to reach the entire public and pass relevant information on the area of Nutrition. But alot still remains to be done if the entire malnutrition and disease are to be completely wiped out. There is for instance a crucial need for further follow-up and research into these areas to see that these processes are on the right track.

Conclusively it can be pointed out that while in certain circumstances the variable namely school, may affect certain attitudes, generally most of these attitudes will remain the same regardless of what school one may come from.

5.3 Effects of Class on Changes in Attitudes

This objective tried to find out whether such a variable as class has an effect on students' attitudes. The researcher therefore wanted to find out the extent

to which attitudes of Form IIIs varied from those of Form IVs and if so in what areas of the subject. Tables 4.18.1 to 4.22.1 hence reinforce these ideas.

It is clear from Table 4.18.1 that all the two classes disagreed with the statement that "Dull students prefer to take the subject Foods and Nutrition". From this it can be said that class has no effect on students' attitudes.

It is further proved by looking at the figures on Table 4.19.1 that students disagreed with the statement that "Foods and Nutrition classes are boring" - this implies that both classes do find the subject interesting. Therefore, it can be concluded that class may have no effect on the development of certain attitudes.

However, it would be wrong to assume that class has totally no effect on the attitudes of students.

It was observed that in certain areas of the subject the two classes reflected varied opinions. For instance when asked to give their opinions on the item reading that "Foods and Nutrition is an easy subject", it is interesting to note that whereas Form IIIs diagreed with the statement, Form IVs agreed. This implies that

the higher one climbs up the academic ladder, the easier the subject becomes.

It is further highlighted by Table 4.22.1 that the views of the two classes differed significantly. This table was testing the extent to which Foods and Nutrition compares with other subjects in terms of its importance. To this Form IIIs felt that it was just as important. But Form IVs agreed with the item implying that they don't find it to be as important as the other subjects.

These few examples therefore help to illustrate that whereas class may have no effect on certain attitudes regarding the subject, in certain circumstances it may have an effect. This means that whereas the attitudes of the two classes are likely to remain the same on a number of issues, sometimes they tend to differ depending on certain issues.

In conclusion, although assumptions have been aired that Foods and Nutrition is an unpopular subject in the school community, the current research proved this to be wrong. Attitudes of students were generally found to be favourable. Finally such factors as school and class were observed to have had an influence only in certain areas of the subject.

5.4 Attitudes of Teachers Towards the Subject

In the following discussion, the researcher investigated teachers' attitudes towards the subject. This was done for the following reasons: Since the students and teachers are in constant communication, it is possible for the attitudes of teachers to affect that of students. Therefore in investigating teachers' attitudes, the researcher wanted to find out the extent to which the attitudes of the two are related or unrelated.

The Table in Appendix B gives a breakdown of teachers' responses to the attitude items.

Teachers' attitudes were henceforth interpreted in regard to the following:

1) Their attitudes in regard to the importance of the subject.

2) Attitudes in regard to teaching facilities.

3) Lastly, attitudes in regard to working conditions.

An observation of the Table in Appendix B shows that teachers reflected positive attitudes towards many

issues relating to the subject.

It was observed for instance that most teachers showed favourable attitudes that Foods and Nutrition is an important field worth teaching. They indicated such views as finding the subject interesting, enjoyable and fascinating to teach. 80% of the teachers in this regard agreed that the subject is worth teaching.

On the question of working conditions majority felt that there were certain areas with loop-holes which needed attention. The question of insufficient teachers was for instance given due importance. 48% of the teachers were for this view. They felt that lack of enough teachers made the teaching of the subject less effective. However in high cost schools, this was observed not to be a critical problem.

In view of their working conditions most teachers therefore were of the suggestion that there is a crucial need by the authorities concerned to train more teachers in this field, if effective learning outcomes are to be accomplished.

In regard to teaching facilties most teachers displayed such opinions as insufficient teaching and learning facilities. These included insufficient food

equipment, utensils and texts which had all to be shared at any one time by most students. 68% of the teachers agreed that they were confronted by these difficulties in their teachings. To enrich their teachings 80% of the respondents felt that there was a crucial need for field trips to food industries. These, they said, were never easily organised by the schools administration due to inadequate funds.

The question of fund was given so much priority by almost all the teachers subjected to the study. 92% argued that there was never enough fund to carry out their teachings effectively and Foods and Nutrition being a practical subject, the relevant authorities, they felt, must do something about the funds if they have to accomplish effective teaching objectives.

Hence with all these difficulties ranging from insufficient equipment in the food laboratories (cookers, utensils, etc); insufficient textbooks, insufficient teachers, insufficient funds, the subject therefore becomes almost next to impossible to teach effectively and as a result students' performances have been rather affected.

Therefore it can be pinpointed here that there is a crucial need to improve on these issues by the

authorities concerned. Thus, although teachers have tended to view the subject as interesting and worth teaching these areas must be looked into if they are to be motivated to teach effectively.

5.5 Students' Performance in Examinations and Their Attitudes

Finally, although the researcher was very much interested in investigating the attitudes held by students and teachers towards the importance of the subject, it was equally thought important to investigate the relationship between the stated attitudes of students and their performances in the subject.

In investigating the students' attitudes, it was not unusual for the researcher to emphasise on different sets of variables such as school and class, the idea being to give the study an in-depth.

Relationship between the different attitudes and performance was thought necessary as a result of the fact that, usually it is assumed that if a student has an unfavourable attitude towards an activity, then, it is also possible that he/she is likely to perform poorly

in that activity. This being the case, then to what extent are students' attitudes towards the importance of Foods and Nutrition related to their performances in that subject? Are students with unfavourable attitudes likely to perform poorly in the subject? Or are those with favourable attitudes capable of achieving higher in the subject? Or, alternatively is it that attitudes developed towards the subject have nothing to do with students' performances. These then, were some of the issues raised that formed much of this discussion.

In order for the relationships between the two variables be arrived at, chi-square test was used and as already mentioned in the previous chapter, this is the statistical tool frequently used in determining relationships between two sets of data.

The calculated chi-square was therefore found to be 2¢.69 at 16 degrees of freedom, which means that there is no relationship between attitudes of students and their performances in the subject, i.e. an attitude a student develops towards the subject has no effect on that student's performance. For example, a student with an unfavourable attitude towards Foods and Nutrition may perform better in that subject as one with a favourable attitude.

Hence it is not a must to have a favourable attitude in order to achieve higher in an activity. For instance such activities as reading books, attending classes regularly etc, can help a student in achieving higher.

Achievement is also related to one's mental level, therefore a good student is likely to score higher marks despite his attitude towards that subject.

Similarly, Foods and Nutrition being one of the examinable subjects, students are expected to pursue it and thereby perform better in it just as they would in any other subject. This being the case they have to work hard in it to score better grades despite feelings that they may have towards it.

On the other hand since all the students covered in the sample were girls, it is possible that all might be helping at home with cooking activities, hence their own personal experiences at home might have contributed towards good performances. This could have nothing to do with attitudes. For example, cooking on a daily basis may prove to be boring due to monotony but this does not mean that one may perform poorly. On the contrary performances have been known to go side by side with skill and experience and therefore as a result of this

girls are likely to perform better in the subject. Personal experiences at home may therefore contribute to good performance even though attitudes may be unfavourable.

Conclusively in this study it was observed that there are some students with lower level of positive attitudes who had higher scores. It therefore seems that in achieving a high score, attitude might be a contributory factor but not a deciding one. That is, it is not a determinant of high scores; it is not a sole factor. For instance, such factors as intelligence may be said to be determinants of high achievement.

Therefore it is important to point out that although with positive attitudes there is a likelihood of interest which in turn contributes to achieving high scores, positive attitudes can only pave ways for high achievement but are not in any manner determinants.

Hence to achieve a high score one does not necessarily need to have positive attitudes, thus the objective is proved null. In view of this the researcher would like to suggest the following to teachers:

5.6 Suggestions for Further Research.

Looking at performances of students, it seems that the teaching is successful but teachers would have to go beyond the classroom. There is a need for them to inculcate positive attitudes in the students. It was observed from the findings that teachers do have favourable attitudes towards the subject, but it seems they have failed to transfer this to students. They must therefore transfer this to students where it is absent.

This can be done by making the subject more challenging, interesting and enjoyable. Teachers must take keen interest in teaching the subject.

Similarly, it is suggested that co-operative studies with teachers should be made in order to make them aware of classroom practices in relation to the attitudes of students. The implication of this current research study supports the assumption that if teachers are unaware or unconcerned about the apparent fact that imparting information by means of class lectures or reading textbooks would be relatively ineffective in the development of attitudes, the importance in connection with attitude development would be likely to be overlooked. Hence additional studies should be designed

by future researchers to study the effect of attitudes on learning by incorporating other variables such as:

1) teachers' views on their pupils' attitudes.
2) teaching methods.

Secondly, pupils have indicated that they have positive attitudes towards Foods and Nutrition. However, these effective dimensions of learning need to be developed and strengthened further through direct, systematic attention focused on teaching methodology and through clearly defined objectives.

There is equally a crucial need for pupils to be exposed to the openings that are available to them in this field after graduation from the Foods and Nutrition subject. Students must be educated to learn that Foods and Nutrition is a very challenging area which can channel them to very demanding jobs such as self-employment, employment as food technologists, researchers, etc, etc. All these jobs need high level of intelligence and expertise, which can lead one into key positions in various organisations, industries and institutions.

Lastly, this study has revealed several areas worth mentioning. As with all research studies, there is

need for further research. For instance, there is a need to include both school and non-school factors, e.g. socio-economic status of pupils in a similar study. The current study is therefore expected to assist future researchers in choosing variables needing further inquiry.

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APPENDIX A

TABLE 4.25.1

Students' Responses to the Attitude Items

STATEMENT	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
RESPONSES REGARDING PUPILS' INTEREST					
1. Less ambitious students take Foods and Nutrition as a major subject.	2.2	9.2	10.0	41.0	37.6
2. The dislike of many students on Foods and Nutrition is based on prejudice	13.7	29.5	20.7	20.3	15.5
3. Foods and Nutrition is never liked by students	0.4	4.8	7.4	34.7	52.8
4. Dull students prefer to take Foods and Nutrition as an examination subject.	3.0	6.3	4.8	18.1	67.5
5. Foods and Nutrition is only important for those students who plan to become good housewives.	1.8	5.5	1.5	42.1	49.1
6. There is no motivation in learning Foods and Nutrition.	4.4	3.0	8.5	32.1	52.0
7. The higher the expectation a student has for learning Foods and Nutrition the more she will learn it.	60.5	33.6	2.2	2.2	1.5

Table 4.25.1 (cont'd)

STATEMENT	ATTITUDES: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
RESPONSES REGARDING PUPILS' INTEREST					
8. Pupils only enjoy Foods and Nutrition practical classes.	10.0	23.6	10.3	42.8	13.3
9. Pupils learn Foods and Nutrition for the sake of passing exams.	1.8	7.0	6.3	44.3	40.6
10. Pupils find the learning of Foods and Nutrition boring.	0.0	5.9	11.1	37.6	45.4
11. It is a waste of time to learn a subject like Foods and Nutrition	0.0	1.5	0.7	17.0	80.8
12. Bright students tend to have negative attitudes towards the importance of Foods and Nutrition.	10.3	27.3	11.1	24.7	26.6
13. Girls take greater interest in learning Foods and Nutrition.	33.6	42.8	6.3	12.9	4.4
14. Pupils do not enjoy watching teachers demonstrate Foods and Nutrition practicals.	8.5	20.3	7.7	34.7	28.8
15. Foods and Nutrition theory classes are boring.	5.9	11.8	17.7	42.8	21.8
16. Students who take Foods and Nutrition are looked down upon by others as dull.	5.5	11.8	8.1	27.3	47.3

Table 4.25.1 cont'd

STATEMENT	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
RESPONSES REGARDING PUPILS' INTEREST					
17. Dislike of Foods and Nutrition comes mainly form lack of its knowledge.	20.3	35.1	10.3	19.9	14.4
18. There are no people with knowledge of Foods and Nutrition in highly paid jobs.	3.0	8.1	13.7	31.0	44.3
19. Foods and Nutrition as an unpopular subject has been much exaggerated.	10.3	21.4	21.8	32.5	14.0
20. Foods and Nutrition classes are very interesting.	45.8	37.3	7.0	4.1	5.9
21. All that is involved in Foods and Nutrition is nothing but cooking.	3.3	3.0	0.4	24.4	69.0
22. Foods and Nutrition learning encourages memorisation.	16.6	33.9	11.4	21.0	17.0
23. Foods and Nutrition is one of the easiest subjects to learn.	13.3	35.8	8.9	29.9	12.2
24. Students who have studied Foods and Nutrition do not get jobs easily.	2.6	9.2	24.0	31.4	32.8

Table 4.25.1 cont'd

STATEMENT	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
RESPONSES REGARDING PUPILS' INTEREST					
25. Foods and Nutrition should be made compulsory for all students.	17.3	27.3	11.4	21.4	22.5
26. Foods and Nutrition is not worth learning.	1.8	2.6	2.2	20.3	73.1
27. Boys should not be taught Foods and Nutrition.	6.9	2.1	1.0	45.0	45.0
28. As compared to other subjects Foods and Nutrition is least important.	3.0	3.7	2.6	36.9	53.9
29. Foods and Nutrition is not useful in the job market.	1.8	5.2	8.9	37.3	46.9
30. The public should be educated on the importance of Foods and Nutrition.	59.0	31.0	3.7	3.7	2.6
31. Foods and Nutrition knowledge is useful for all secondary school leavers.	34.3	51.3	7.4	4.8	2.2
32. Students are likely to take science subjects rather than Foods and Nutrition.	10.7	25.7	19.9	29.2	15.1

Table 4.25.1 cont'd

STATEMENT	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
RESPONSES REGARDING PUPILS' INTEREST					
33. Foods and Nutrition is not a necessary subject in secondary schools.	4.1	6.6	4.1	38.0	47.2
34. There should be a special radio programme on Foods and Nutrition Education aimed at all secondary school students.	43.5	38.7	7.4	6.3	4.1
35. Foods and Nutrition syllabus is irrelevant.	1.1	1.8	5.2	31.0	60.9

APPENDIX B

TABLE 4.26.1

Teachers' Responses to the Attitude Items

STATEMENT	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
RESPONSES REGARDING TEACHERS' INTEREST					
1. The teacher of Foods and Nutrition does not need any professional training.	0.0	12.0	4.0	24.0	60.0
2. Teachers are not interested in teaching Foods and Nutrition.	0.0	20.0	8.0	40.0	32.0
3. The teaching of Foods and Nutrition is fascinating.	8.0	68.0	8.0	12.0	4.0
4. A physics teacher can easily teach Foods and Nutrition.	0.0	8.0	0.0	56.0	36.0
5. The teaching of Foods and Nutrition is enjoyable.	28.0	52.0	8.0	0.0	12.0
6. Other teachers cannot teach Foods and Nutrition apart from qualified Foods and Nutrition teachers.	20.0	32.0	8.0	36.0	4.0

Table 4.26.1 cont'd

STATEMENT	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
RESPONSES REGARDING TEACHERS' INTEREST					
7. Students' performance in Foods and Nutrition is normally poor.	8.0	24.0	12.0	44.0	12.0
RESPONSES REGARDING WORKING CONDITIONS					
8. There are insufficient Foods and Nutrition teachers in the department.	12.0	36.0	16.0	16.0	20.0
9. Foods and Nutrition should be taught in schools having enough facilities.	24.0	32.0	4.0	32.0	8.0
10. Foods and Nutrition teachers work under easier conditions than do teachers in other subject areas.	4.0	0.0	4.0	48.0	44.0
11. Very few periods are allocated to Foods and Nutrition.	8.0	12.0	12.0	44.0	24.0
12. Schools with insufficient facilities should just close the department.	0.0	12.0	4.0	64.0	20.0

Table 4.26.1 cont'd

STATEMENT	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
RESPONSES REGARDING WORKING CONDITIONS					
13. There is no strain in teaching Foods and Nutrition.	4.0	4.0	0.0	64.0	28.0
14. Foods and Nutrition teachers should teach other subjects as well.	8.0	44.0	4.0	20.0	24.0
15. Foods and Nutrition syllabus is normally covered on time.	16.0	24.0	12.0	44.0	4.0
RESPONSES REGARDING TEACHING FACILITIES					
16. Teaching materials are readily available for teaching Foods and Nutrition.	0.0	12.0	0.0	52.0	36.0
17. Plenty of teaching materials are readily available for pupils' use in Foods and Nutrition topics.	12.0	12.0	0.0	64.0	12.0
18. Students' performance in Foods and Nutrition is very encouraging.	12.0	40.0	16.0	28.0	4.0
19. Lack of sufficient texts in Foods and Nutrition makes students depend on teachers' notes.	12.0	56.0	12.0	8.0	12.0

Table 4.26.1 cont'd

STATEMENT	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
20. Field trips to factories are easily organised for students.	4.0	0.0	16.0	48.0	32.0
21. There is an urgent need for radio lessons in Foods and Nutrition.	4.0	48.0	24.0	12.0	12.0
22. Lack of sufficient facilities make the teaching of Foods and Nutrition impossible.	16.0	44.0	4.0	28.0	8.0
23. Textbooks and curriculum materials are readily available for teachers' use.	8.0	16.0	4.0	64.0	8.0
24. Enough funds should be made available to buy foodstuff for students' use in practical lessons.	56.0	36.0	0.0	4.0	4.0
RESPONSES REGARDING THE SYLLABUS AND METHODS OF TEACHING					
25. Foods and Nutrition should be taught using lecture and demonstration methods only.	0.0	12.0	0.0	56.0	32.0

Table 4.26.1cont'd

STATEMENT	ATTITUDE: PERCENTAGE				
	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
RESPONSES REGARDING THE SYLLABUS AND METHODS OF TEACHING					
26. Foods and Nutrition present syllabus is irrelevant to the present Kenyan needs.	8.0	20.0	12.0	48.0	12.0
27. Foods and Nutrition should be taught by giving alot of practical work to students.	36.0	48.0	0.0	12.0	4.0
28. Concepts such as proteins, nutrients and malnutrition are difficult to explain to students.	12.0	64.0	0.0	0.0	24.0
29. Lack of interest in carrying out practical lessons by students is due to insufficient facilities.	16.0	28.0	16.0	40.0	0.0
30. Students' poor performance in examinations is due to poor facilities.	12.0	20.0	16.0	52.0	0.0