A STUDY OF KNOWLEDGE, UNDERSTANDING AND PRACTICES IN HEALTH EDUCATION AMONG STANDARD SEVEN PUPILS IN KIBERA DIVISION, NAIROBI

BY

MUMBI ELIZABETH KING'ORI

A Project submitted in partial fulfillment of the requirements for the degree of Master of Education (Primary Teacher Education) Kenyatta University

1991

DECLARATION

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

Mumbi Kingori.

MUMBI ELIZABETH KING'ORI

This project has been submitted for examination with my approval as University supervisor.

DR. J.N. MAUNDU

KENYATTA UNIVERSITY

1991

ACKNOWLEDGEMENT

I wish to express my sincere gratitude to all those helped me in this study.

First and foremost to my supervisor Dr. J. Maundu for his invaluable guidance throughout the study.

To Dr. A Obura for her useful suggestions, willingly given.

To Mr. E. Odoul of AMREF for sparing his time to give helpful suggestions and for providing some literature relevant to the study.

To Rhoda, for typing and for always trying to do her best for me.

To all of you: "Thank- you."

ABSTRACT

The purpose of this study was to evaluate the health knowledge of Standard 7 pupils over a wide range of health topics and some of their health related practices. This group of pupils was chosen because they will soon (in Standard 8) finish their first cycle of formal education and at this stage, many pupils tend to drop out of formal school and are thus unlikely to receive further systematic health education.

Concepts tested during this study included that of balanced diet and its relation to health, causes and home management of diarrhoea, home management of high fever, the role of immunization, knowledge of environmental sanitation control measures. The study investigated practices such as the food intake patterns at home and at school, compared nutritional status with nutritional knowledge and also assessed the state of the school environmental sanitation.

The study was conducted by the use of a 30 item questionnaire, an observation chart and an informal interview schedule, all of which were administered by the researcher herself. The study sample consisted of 208 Standard 7 pupils from 5 schools in Kibera, Nairobi. The interview schedule was administered on 20 teachers teaching

in these 5 schools. The results were analysed and expressed in raw frequency and simple percentage, and a Z-test analysis was performed to investigate if nutritional knowledge affected nutritional status.

A summary of the findings revealed that the pupils had limited knowledge in some concepts such as nutrient content of food, items used to constitute a home made oral rehydration solution, evidence of immunization and examples of immunizable diseases. However, the majority of the pupils are knowledgable about the role of immunisation, environmental sanitation control measures, the need for food and fluid by a patient suffering from diarrhoea and some simple steps in the home management of high fever.

The pupils do not eat well balanced meals at home or at school, and their nutritional knowledge does not influence neither their food intake nor their nutritional status. The pupils also learn in schools whose environmental sanitation contrasts with the knowledge that they have. Their teachers are of the opinion that the pupils apply little of what they learn in school health education but also believe that given the correct teaching/learning conditions they could apply more.

Strong recommendation is given for the inclusion of parents in the school Health Education programme in order to make it

more effective to the community. It is also recommended that school Health Education programmes should deliberately seek to improve the health experiences of the pupils and especially give priority to the pupils' immediate environment.

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CHAPTER 1

1.1 INTRODUCTION

The health of the people is a very important factor in determining the development of a nation, and in reference to Africa, Kimble states;

> 'In the African social drama, sickness has a strong claim to being arch villain. It is bad enough that a man should be ignorant, for this cuts him off from the commerce of other men's minds. It is perhaps bad enough that a man should be poor for this condemns him to a life of stint and scheming, in which there is no time for dreaming and no respite from weariness. But what is surely worst is that a man should be unwell for this prevents his doing anything much about either his poverty or his ignorance. (Kimble, 1960, p. 159).

Sound positive Health Education Programmes have been known to play a significant role in the prevention of disease and the promotion of health (Steuart, 1985). Those who educate in health are many e.g. doctors, dentists, nurses, nutritionist, teachers, parents.

Responsibility for the health of children is shared by the home, the teacher and the child. But outside the home, the teacher is with the child constantly enough to promote habit formation effectively. Since some parents do not themselves posses the necessary knowledge and awareness of health needs, the teacher often finds himself in the

unenviable position of bearing the burden of the promotion of good health habit formation effectively. Thus school Health Education can provide knowledge, influence attitudes and facilitate behaviour favourable to the prevention of disease and the promotion of health.

Primary School Health Education is of particular importance since children's habits can be influenced more easily than adults and since primary schools provide an opportunity to reach a large section of the population.

In Kenya, during the colonial era, Health Education was studied as a separate subject. After independence it was incorporated into General Science under the topics Healthy Bodies/Good Health for all in standards. 1, 2, 3, 4 and 6. In the current 8-4-4 System the Kenya Institute of Education (K.I.E.) in conjunction with the Ministry of Health introduced Health Education as a unit in Science (standards. 1-8) and Home Science (standards. 4-8) with the aim of increasing public awareness and involvement in preventive health practices. The Home Science syllabus also has a separate unit on Foods and Nutrition. Aspects of Health Education are also found in Physical Education and Agriculture.

1:2 Background to the Problem

The Need for Health Education

Kenya, like many other developing countries, experiences the continued presence of endemic and preventable diseases.

Every year 4,600,000 children under 5 die of diarrhoea in developing countries. It is the major cause of death among children. Every small child in the 3rd world suffers an average of 3 diarrhoeal attacks a year and such repeated attacks, even if they do not cause death, lead to malnutrition which stunts physical and mental growth. Two million people die of malaria each year and 100 million are infected annually (WHO in UNEP, 1986). Other major killers in the less developed world have been identified as malnutrition, infections spread in human excrement and airborne infections, with the important diseases being dysentery, pneumonia and measles (Tucklin, 1985).

In Kenya acute respiratory infections and gastro-intestinal infections each cause 20% of under five year's death and are followed by malnutrition and then measles (Kenyan Ministry of Planning and National Development and UNICEF, 1989).

Respiratory infections in all their forms are the major causes of morbidity in all areas of Kenya with diarrhoeal disease following as a close second and started as probably

being the leading cause of death in certain districts. Intestinal worms are stated as being a more concealed problem of great prevalence, leading to a variety of morbidity patterns e.g. anaemia and malnutrition. The six diseases for which immunisation is available are stated to still contribute a large proportion of childhood morbidity and disability. The leading causes of attendance in Kenyan hospitals are Acute Respiratory Infection, Malaria, Diarrhoea and Intestinal Worms, in that order (Ministry of Planning and National Development, UNICEF, 1989).

The three major environmental disease caused mainly by lack of safe drinking water and sanitation are diarrhoea, malaria and schistosomiasis in that order (UNEP, 1987).

Various forms of protein-energy malnutrition are common throughout Kenya (Jansen et al., 1977). The common causes of malnutrition are food scarcity, inappropriate child feeding and care and the burden of repeated infections (Ministry of Planning and National Development, UNICEF, 1989).

The main features of the nutrition factors in children of school going age are:

1. Iron-deficiency anaemia
2. Protein-energy malnutrition
3. Iodine deficiency
4. Short-term hunger

5. Intestinal Parasites

(Eraj in Ayot, Menya, 1990)

School children affected by malnutrition and other health factors tend to have the following Educational factors also affected:

- School attendance
- Drop out and repeat rates
- Social interaction
- Academic performance

According to a report by the Ministry of Economic Planning and National Development (1989), the population of wasted children among the urban poor is equal to or greater than the corresponding proportion among the rural population. The comparatively high frequency of wasting may reflect household shortages of food and also the prevalence of disease.

It has also been reported elsewhere that Nairobi slum areas experience overcrowding, shortage of water and sewerage facilities, and health care (Enge, 1979). A study of Mukuru squatter settlement in Nairobi (1988) revealed that only 59% of the immunisable children were fully covered. Indications are that immunisation cover for poor urban areas is generally low. Reasons given by mothers for not fully immunising their children (Githure, 1988) include; lack of time, distance to the clinic, long queues at the

clinic and lack of knowledge about the importance of immunisation.

Given the presence of these diseases, Health Education has a significant role to play in their prevention and the promotion of health. People need to understand what causes ill health in the community and how this is related to their social and physical environment. They need to have the knowledge and motivation to carry out activities which solve their health problems.

The Role of Children

'The concept of older children caring for the younger ones is one that is firmly rooted in many African cultures'(Heron, Otaala, 1982, p.20). Since this is so, it would be worthwhile to encourage the children to concern themselves with the health and general development of their younger brothers and sisters. They can be able to identify who at home is showing signs of malnutrition or other health problems and draw this to the attention of parents or other elders. They may help change the health ways of their friends and younger brothers and sisters. The children can also help the unschooled 'child minders' or 'maids' and many times, these child minders are barely children themselves, being school dropouts in the primary or secondary level.

School children, since they are numerous can carry out joint health actions in the community and make the community a better place to live in. This may involve common action against breeding places of malaria transmitting mosquitoes and sanitary actions (e.g. building latrines, water source protection). Children can keep immunisation records of babies in the community and remind mothers when the baby is due to be immunized. They can find out about the health care resources in their own community e.g. people with some special health knowledge, and encourage members of their family to make use of the available health service.

"Children can and do influence and 'educate' their parents and can play a major role in stimulating their parents to participate in the promotion of their own health and that of their children" (Heron, Otaala, 1982 pg 20.) e.g. children can promote good health by asking for a balanced diet.

The children of today are the mothers and fathers of the next generation, therefore the health education they get is vitally important. Although taboos in health practices may exist, children's habit can be influenced more easily than adults and the training a child receives in his earliest years has profound influence on his behaviour as an adult. Therefore children when properly oriented, have a better

chance of producing healthier, happier families in the future.

1:3 Rationale

Given that Health Education in our Primary schools is important since children can play an important role in the promotion of health, then there is need to evaluate the Health Education is these schools.

It is necessary to find out if our Health Education programme in our Primary schools equips pupils with adequate knowledge and understanding about some crucial aspects of health. It is also necessary to establish whether the children apply their knowledge to practical situations and what some of their health related practices are in order to find out if the current Health Education programme is effective in bringing about desirable practices in the pupils at present.

A revelation of inadequate knowledge and understanding or of undesirable practices would then call for a re-examination of the present teaching and learning methods including a review of materials used in Health Education in our Primary schools.

Since Health Education is taught in our Primary schools from Std. 1 to 8 in units in Science and Home Science, it is thus a continuous source of Health Education to all

Primary school going children. It thus deserves to be given due attention and efforts made to strengthen it.

1:4 Statement of the Problem

There is a need for Health Education in Kenya to help prevent the prevalent diseases and to promote health. School children have an important role to play in promoting good health in themselves, their younger brothers and sisters and the future generations. It is important to evaluate the Health Education Programme in our schools.

It is common practice to evaluate Health Education programmes by measuring change in knowledge, attitude and behaviour or practice. A corresponding level of change in the three components of knowledge, attitude and behaviour signify a successful impact, whereas the absence of any change in one of the components indicates only a partial impact which requires to be further reinforced (Ramachandran, 1983).

This study addresses itself to two aspects in the evaluation of Health: knowledge and practice. The basic aims of Health Education in Primary schools should be to change the behaviour of pupils so that they practice healthful ways of living. In order to sustain the desired behaviour, the pupils must be equipped with the relevant knowledge.

This study aims to establish if the pupils are knowledgeable, about the concepts, understand them and undergo experiences that are beneficial to their health in some of the crucial aspects of health in our present day Kenya. The study therefore has the following objectives.

1:5 Objectives of the Study

This study intended to establish the following:

1. If the pupils can demonstrate ability to select well balanced meals.
2. If the pupils eat well balanced meals at school and at home.
3. A comparison between the ability to select well balanced meals and the consumption of such meals at school and at home.
4. Whether there is any difference in nutritional status between those students who are able to select balanced meals and those who cannot.
5. If the pupils are knowledgeable about the home management of high fever.
6. If the pupils are knowledgeable about the cause and home management of diarrhoea.
7. If the pupils are aware of the role of immunization and which diseases can be immunized against.
8. If the pupils are aware of measures that can be taken within the environment to prevent the occurrence of some diseases.

9. An assessment of the environmental sanitation of the school and to compare this with the pupils' knowledge of the same.

10. The pupils source of health information.

1:6 Significance of the Study

The study will be useful in determining to some extent, how effective our current Primary school Health Education Programme is and will thus be useful in the following ways.

- to the teachers of Health Education in our Primary schools who are the actual implementors of the programme to see how successful the outcome of their present teaching is. The study could also guide the teachers in methods of evaluation of School Health Education.
- to the trainers of Health Education teachers in making them aware of some of the present outcomes of the Health Education programmes and to accordingly modify the training of teachers.
- to the K.I.E. which is responsible for formulating and evaluating the Health Education syllabus in pointing out areas of the syllabus which may need to be modified.
- as a general guide to the evaluation of Health Education in the formal school set up.
- to any other organisations who are interested in the successful outcome of the School Health Education programme.

1:7 Assumptions of the study

The following were the assumptions.

1. Pupils have been exposed equally to those parts of the syllabus dealing with Health Education.
2. The responses obtained from the pupils are honest.

1:8 Limitations and Scope of Study

1. The study only addresses itself to selected areas of Health Education and does not address itself to the whole of the Health Education Programme.

2. The study limits itself to Standard 7 pupils only and those in Kibera Division, Nairobi, in particular.

1:9 Definition of Terms used in the Study

Health - a complete state of physical, mental and social well being, not merely free from sickness or infirmity (WHO, in Ramachandran, 1983)

Health Education - is concerned with changes in knowledge, feelings and behaviour of people. In its most usual form, it concentrates on developing such health practices as are believed to bring about the best possible state of well being (WHO in Ramachandran, 1983).

Health Related Practices - the behaviour or practice

necessary for health in any situation (Ramachandran, 1983).

8-4-4 Education System - Kenyan Education system consisting of 3 cycles :8 years in Primary school 4 years Secondary and 4 years in the University.

Standard 7 (or 8 etc) - The seventh level in Primary school.

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CHAPTER TWO

LITERATURE REVIEW

2:1 Introduction:

This chapter deals with a review of Literature that is related to School Health Education. The literature is reviewed in three parts: the first part deals with previous research in School Health Education in Kenya and elsewhere in the world, part two deals with Principles and methods of School Health Education. The chapter ends with a summary of the reviewed literature.

2:2 Previous Research in School Health Education

McGuffin (1979) carried out an investigation on health knowledge and behaviour of fifth formers in Northern Ireland. The aim of the investigation was to find out if any association existed between the knowledge and stated behaviour of fifth-formers over a wide range of health topics.

A coded answer knowledge test was prepared and contained items on physiology, general health, child care, nutrition, smoking, alcohol and drugs. Information on the behaviour of the fifth formers was based on stated behaviour in response to a questionnaire. This questionnaire contained items on nutrition, use of pocket money relevant to health,

footwear, dental practices, physical exercise, smoking and the use of alcohol.

He found that associations between knowledge and behaviour were significant in all the above stated areas except nutrition and meal patterns and footwear. Consequently, McGuffin recommended that since health behaviour is associated in a significant way with the level of knowledge, a vital component of any health education programme should be factual.

He noted that pupils in the inquiry who studied Biology and Home Economics for public examination had significantly greater levels of knowledge and a significantly better score on the behaviour scale than those who did not study the subjects and therefore recommended a basic Biology and Home Economics course for both boys and girls.

Dale (1978) carried out an evaluation of a programme of school health education on smoking in Leeds. This investigation was carried out on children aged between nine and thirteen. Pupils receiving Health Education lessons were considered as the experimental group and those who did not receive these lessons formed the control group. A questionnaire administered to both groups examined knowledge, attitude and behaviour related to the smoking.

This inquiry found that knowledge increased, and negative attitudes towards smoking also increased in the experimental group. However, there was no evidence of improvement in behaviour in the experimental group as compared to the control group. Nevertheless, Dale pointed out that the programmes seemed to influence the occasional smokers more than the smokers. (The occasional smokers are regarded as those smoking less than one cigarette per week).

From these findings, Dale suggested that health education is most effective for those who are experimenting and weighing up this form of behaviour and is less likely to be of value where behaviour patterns are relatively firmly established. He then recommended that it might be worthwhile to introduce the Health Education lesson on smoking at an earlier age, since half of the group under inquiry had already tried smoking.

In another study by Deeyah, D.D. (1978) it was shown that Primary 3 pupils in Nigeria made significant improvement in Nutrition knowledge and eating practices after participation in a Nutrition Education Programme. She considered 2 groups of pupils; one with parental involvement, the other without. Both the groups showed improvement in Nutrition knowledge and eating practices without a significant difference between the two.

An example where school Helath Education had an impact on the community is cited in Moshi, Tanzania. School children were taught how to use Oral Rehydration Therapy (ORT) using sugar, salt and water. As homework they were set the task of teaching ORT to their parents. A survey found that the proportion of mothers who could prepare an oral rehydration solution correctly rose from 13% to 65% (William et al., n.d).

On teaching and learning, a study was carried out in Somalia (1988) to investigate the effectiveness in the classroom of selected materials and approaches to learning; the impact of the same materials and approaches on the knowledge base, attitudes and behaviour of out-of-school youth and parents; and the potential of using school resources as a base for a wider community involvement in Health Education. This study found that if the school pupils are allowed to work with certain materials and to take them home, that the following were some of the achievements:-

- the knowledge level of parents and other members of the community and their interest in health issues improve.
- in specific instances, the behaviour of the out of school community changes.
- parents' interest and participation in school affairs increases.

- school childrens' knowledge and interest in health issues improves and their behaviour in specific instances changes.

Thus previous research outside Kenya indicates that effective Health Education programmes in schools can and does influence the health practice in children and to some extent in the community.

In Kenya, Kihato, M. W. (1987) reported that high school girls in Nairobi liked a limited knowledge variety of foods and had limited knowledge of construction of nutritionally adequate meals, energy balances and nutritional needs for a adolescent. The respondent on the average ate 3 meals for day, but the meals were largely unbalanced.

A pilot Health Education project was launched in 35 schools in Nakuru District using the Child-to Child approach Tay A. K 1989) it was devised by the Health Behaviour and Education Department of the African Medical and Research Foundation (AMREF) and the Ministries of Education and Health. The activities of this Health Education programme were mainly carried out through the Health clubs that were introduced. These clubs coordinated and facilitated health activities in the school and also led the school community out into the local community to demonstrate the new techniques for the promotion of health that they had learned at school. Before the launching of the programme,

teachers underwent a brief training session in the form of seminars and workshops.

Results of the programme indicated a general improvement in the health of the pupils as supported by attendance records kept at medical centres and dispensaries. The schools also experienced an improvement in use of latrines and rubbish bins.

A process evaluation report of the school Health Action Project in Sigor Division in West Pokot District (1991) reported that there was a need to have continuous training in Health Education as well as continuous material support. It was also reported that one of the constraints to the construction and therefore use of latrines was a strong traditional belief about digging pit latrines. However, it was pointed out that although the belief remains strong in the community, it is dying out in schools. The report suggested that the first step towards the building of latrines should be ensuring that people understood the importance of proper waste disposal, thus supporting the belief that adequate knowledge and understanding help sustain desirable behaviour.

Reports from Nakuru (1991) and West Pokot each describe the successful role that the Health Clubs had played in the promotion of health, but they also noted that although Health Clubs were formed in many schools, some of these

clubs have not been very active. Some of the reasons given for the lack of activity included: the transfer/death of trained health club patron, disinterest of the club patron, lack of support from fellow teachers, and club members, misunderstanding of what a school health club really means. This indicates that although Health Clubs are important in the School Health Education programme they have their own limitations. It is thus important to strengthen the formal Health Education component as it provides continuous Health Education and it benefits a wider population of pupils and teachers within the school. In fact as pointed out in the Nakuru report (1991), 'It appears that if maintenance of latrines is only left to the health club members, then the rest of the school community do not participate. Therefore sharing of responsibilities with other pupils is of paramount importance.'(Makongoso, 1991, p.9)

It is also worthwhile to note that in both Nakuru (1991) and West Pokot (1991) reports, although there is extensive documentation in change of behaviour, they only provide limited information on the knowledge base of the pupils, which as has been mentioned before is important in sustaining desirable behaviour. Thus this study intends to focus on both the knowledge base as well as some of the practices of the students.

2:3 Principles and Methods of School Health Education

Referring to School Health Education in developing countries, Minas and Junge (1988) state that it is inadequate compared to the existing needs and they further state that

> 'The time allocated is often very limited and the content frequently lacks any relevance to students' lives and environments. Teaching/learning aids are non-existent and therefore teachers rely on theoretical and abstract facts. Most teachers of health lack adequate training and are left to their own initiative. The school environment is in an unsatisfactory sanitary condition (particularly in rural schools) and this does not encourage pupils to follow hygienic practices' (Minas, Junge, 1988, p.2).

Yiga-Matovu (1987) argues that Health Education should aim at the learners acquiring the following:

- an awareness of the concepts of primary health care, child survival and development and nutrition
- an understanding of 'good health' based on knowledge about it
- availability and preparedness to act in a preventive and/or remedial way in problems of health

- a sense of personal involvement and responsibility for their own health, that of their younger brothers and sisters and of other children in the community.

He emphasises that the Health Education Curriculum should not be restricted to a school classroom and must ensure teaching

- from the local health situation
- about the local health situation
- for a better health situation

and should employ both formal and non-formal methods of teaching and learning.

A conference on Basic Education for health (AMREF, UNICEF, 1986, p31) also noted that 'it is extremely important that provision be made for a healthy school environment and reasonable health care for the pupils. Without these, the teaching and learning programme in Health Education would be a hollow shell'.

2:4 Evaluation of School Health Education

Yiga-Matovu suggests that when the course has been in force for some time changes should be seen in the following aspects

- learners awareness of health and child survival problems.

- Ability to identify and effect simple solutions to these problems.
- a change in behaviour that relates to health and child survival and development.

If this is not the case, then he asserts that it may be necessary at the national level to review the whole course, its resources and strategies. At local level teachers may evaluate the programme from two aspects.

(i) Student learning

(ii) The instructional programme

When assessing student learning it should be done on the basis of clear cut objectives, which may be classified as cognitive affective and skill, elsewhere classified as knowledge, attitude and practice (Ramachandran, 1983).

He further stated that when evaluating the instructional programme the teachers should consider the evaluation of

(a) teaching methods and learning activities

(b) the teaching/learning environment.

In the evaluation of any teaching method, the teacher should as far as possible choose variables that are both observable and measurable.

According to Yiga-Matovu, the immediate learning environment is the classroom and its facilities. The school and the community outside the classroom as well as the very state of health in the locality constitute a wider but equally important component of the learning environment. Although the teacher may have little or no control outside the classroom environment, he may still exert considerable influence e.g. through informal activities such as clubs; through staff meetings, parents - teachers' association meetings.

Gabriel (1986) suggests that in order to monitor and assess School Health Education programmes, it is important to identify appropriate indicators, e.g. change in morbidity and death rates, extent of malnutrition, extent to which recommended health practices are adopted, change in attitude related to good health, extent of people's participation.

In reference to Nutrition Education in elementary school, Musgrave (1980 p.1) claims '... the proof of nutrition education lies in the affective domain and can be measured as a change of a learned behaviour - eating. Since knowledge tests seldom relate directly to behaviour or attitude changes, other methods are being sought. Results of nutrition instruction should be reflected in the nutritional status of the child.'

2:5 Summary of Literature Review

A review of the literature available reveals that in cited cases of School Health Education Programmes, knowledge may influence the health behaviour of the pupils themselves and that of their community. The literature provides guidelines for effective school Helath Education Programmes and how this effectiveness may be evaluated.

Therefore guided by the theoritical frame work that knowledge may affect health behaviour and by the guidelines for evaluation of school Health Education, this study intended to evaluate specific aspects of our School Health Education Programme.

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CHAPTER THREE

DESIGN OF THE STUDY

3:1 Introduction:

This chapter intends to describe the sample used in the study as well as the instruments and their administration in the collection of data.

3:2 The Sample:

(i) Selection of schools

The sample, consisting of 5 schools, was selected using simple random sampling (lottery) from schools in Kibera Division Nairobi. This Division is part of the Langata Education Division which consists of 14 schools.

Of the 5 schools included in the sample, one was in the middle of Kibera slums, surrounded by shanty dwellings and with evidence of poor sanitation typical of slums nearby. Two of the schools bordered the slums, whereas the remaining two were located less than 1km from the slums.

(ii) Selection of pupils

From each school, one stream of standard 7 pupils was selected using simple random sampling (lottery) except in one school whereby there was only one stream which was therefore used. The sample consisted of 208 pupils.

Standard 7 pupils were selected to make up the sample since:

- it was assumed that they had reasonable exposure to the relevant knowledge.
- it is recommended that such health practices as oral rehydration, home nursing, are more appropriate for older primary school children (Otaala, Mworia, 1979).
- this is a group of students who will soon be in standard 8; the last level in the first cycle of the 8-4-4 Education System. For many of them it will be the terminal stage of their formal education (Kenya Ministry of Planning and National Development, UNICEF, 1989). It is therefore, important to determine what Health Education they have been equipped with, which hopefully, can be of some use to them in the rest of their lives.

(iii) Selection of teachers

A sample of 20 teachers was acquired as follows: in each of the 5 sample schools the 2 teachers teaching Home Science and Science to the pupils in the sample were selected. In each sample school two other teachers teaching the above mentioned subjects in

upper primary and who were available at the time were also included in the sample.

3:3 Instrumentation and Data Collection Procedure.

Three instruments were used to collect data: Questionnaire, Observation Chart and an Information Interview Schedule (see appendix, A,B,C respectively).

The Questionnaire - a questionnaire was used since some Health Behaviours have been classified in the Action Domain as non-observable Health Behaviour (Stephens in Cowley, 1981). According to Stephens, these health behaviours cannot be observed systematically in a school setting; and information regarding the practice is derived often by inquiry of the student or others aware of such practices e.g. nutritional practices.

The questions in the questionnaire covered specific areas as stated in the objectives of the study. The construction of the questions was guided by the 8-4-4 syllabus.

The questionnaire consisted of 30 items in 2 parts:

Part 1 consisted of 5 items designed to assess the respondents' knowledge of the concept of balanced diet, proper food selection and the respondents eating patterns.

Part 2 on the other hand consisted of 25 items designed to assess the respondents' knowledge and understanding of the concepts listed in the objectives of the study. Two of these items were open-ended, whereas the rest were multiple-choice questions.

The questionnaire was administered by the researcher in 3 stages. During the first session, the pupils dealt with items on their eating patterns. During the second session, they dealt with items on knowledge of the concept of balanced diet and proper food selection. During the final session, the pupils responded to other items on knowledge and understanding as listed in the objectives of the study.

The Observation Chart

This consisted of 3 parts:

Part one was used to record evidence of stagnant water, poor refuse disposal in the school environment and was also used to assess the state of the school latrines. The evidence as listed above was obtained from actual observation by the researcher and also from information gathered by the local people.

The purpose of this part of the chart was to give an indication of whether or not the pupils put to practice what they learn about environmental sanitation.

Part 2 was used to record the food items brought to school by the pupils. The purpose of this part of the chart was to give an indication of the pupils' eating habits in the school.

Part 3 was used to record the Age, Weight and Height of the pupils.

The weight was measured using a Hansard Scale (weighing to the nearest 0.5kg). The height was taken as follows: the pupils were required to remove their shoes, and stand on a flat surface with feet together and heels against the wall. A ruler was placed on top of the head and moved back against the wall and the height was marked using chalk. The height was then measured using a metallic (Tricle)tape to the nearest 0.1cm. Both weight and height were measured for all pupils before lunch.

The following parameters can be calculated to establish the nutritional status: Height for age, weight for age, weight for height, weight for head circumference and Arm circumference for height.

In 1975 a working group convened by the World Health Organization to advise on the use of anthropometric indicators of nutritional status in surveys and for nutritional surveillance recommended, among other things, that in the assessment of nutritional status in cross-sectional studies, primary reliance should be placed on Weight for Height as an indicator of the present state of nutrition and Height for age as an indicator for past nutrition. (Kenya Ministry of Economics, Planning and Development, 1978/79). Thus in this study , Weight for Height was used as an indicator for the present state of nutrition.

All the information on the observation chart was filled in by the researcher herself.

Informal interview schedule.

This consisted of five open-ended questions (see appendix C) which were put informally to the teachers by the researcher. The responses to the items were categorised and recorded by the researcher.

The purpose of the interview was to determine whether or not the teachers considered the Health Education as being effective and what suggestions they had for its improvement.

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CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4:1 Introduction

This chapter analyses the data obtained using the instruments described in the previous chapter. The analysis is presented along the lines of the objectives of the study.

4:2 Nutrition

Nutrient content of food.

In order for the pupils to be able to choose meals wisely, it is important for them to know the nutrients contained in the foods so as to ensure that one includes the range of nutrients necessary for optimum growth and health.

To test the subjects knowledge of this concept, responses to three questionnaire items (16,23,26)were analysed. The analysis of the responses are shown in Table 4:1

Table 4:1 Responses to Nutrients Content of food

N=208

Responses	Frequency	%
3 correct responses	27	13.0
2 correct responses	63	30.3
1 correct responses	75	36.0
None correct	43	20.7

The results show that only 13.0% were able to respond correctly to all the 3 items on nutrient content of food, 30.3% responded correctly to 2 items, 36.0% to 1 item and 20.7% did not respond to any of the items.

The results indicate that the pupils have relatively poor knowledge of the nutrient content of food and are thus ill equipped to make wise decisions on food choices that would cover the range of nutrients necessary for optimum growth and health.

Frequency of providing necessary nutrients.

It is important for one to understand that each meal taken should include as wide a range of nutrients as possible.

The results in Table 4:2 show an analysis of the responses to 2 questionnaire items (5 and 17) regarding the frequency of including some nutrients in daily meals.

Table 4:2 Responses to Frequency of providing necessary nutrients.

Response	Frequency	%
2 correct response	97	46.6
1 correct response	86	41.4
No correct response	25	12.0

The results indicate that 46.6% of the subjects were able to respond correctly to both the items, 41.4% responded correctly to one item, whereas 12.0% did not respond correctly to either item.

This indicates that the subjects are fairly knowledgeable about the need to include various nutrients in the different meals served daily.

In order for one to fully comprehend the importance of having a balanced diet, one must understand the relationship between diet and health. If pupils are to help identify young children with common deficiency diseases and then point this out to their elders, they should be able to recognize the symptoms of these diseases. If they are to help such children by asking for certain foods from their parents, the pupils should be aware of what foods are lacking in common deficiency diseases. Two common diseases affecting young children are Kwashiokor and Marasmus. The pupils were required to associate the

relevant symptoms with these diseases (questionnaire items 20 and 22). They were also required to identigy the nutrients lacking and the remedy in the case of Kwahiokor (qestionnaire items 15 and 21). The responses are summarized in Table 4:3

Table 4:3 Responses to items on symptoms and remedies of Deficiency Diseases

Symptoms	N=208	
Responses	Frequency	%
2 correct responses	117	56.3
1 correct response	53	25.5
No correct response	38	18.2
Remedies		
Responses		
2 correct responses	118	56.9
1 correct response	64	30.5
No correct response	26	12.6

Thus more than half of the pupils were able to identify both the symptoms and also the remedies for deficiency diseases. Equipped with such knowledge, these pupils should be encouraged to identify their younger brothers and sisters, or other children who may have symptoms of deficiency diseases, and wherever possible, try to

influence their parents or other elders in providing the right kind of food.

Food Selection - In order to consume a balanced diet one must select foods that will provide the necessary nutrients for optimum growth. In this study a balanced diet is considered as one which includes food from the three food groups, namely: body building foods, energy giving foods, and protective foods. In order to test the subjects' understanding of the concept of balanced diet, they were provided with a list of foods and asked to make food choices from it and construct three different balanced meals. Table 4:4 shows the response to this item.

Table 4:4 Response to Food Selection

N=208

Response	Frequency	%
3 balanced meals	36	17.3
2 balanced meals	67	32.2
1 balanced meal	56	26.9
No balanced meal constructed	49	23.6

Thus 17.3% of the pupils were able to construct three balanced meals and 32.2% were able to construct 2 balanced meals. Thus 49.5% were able to construct 2 or more balanced meals, 26.9% were only able to construct only 1

balanced meal whereas 23.6% were unable to select food that would constitute even one balanced meal.

The results thus indicate that almost half of the pupils are able to make food choices that would bring about balanced meals. If these pupils could use this knowledge to influence their parents' food choices or to make wise decisions for themselves when the opportunity arose for them to choose their own food then they would be making good use of this vital knowledge.

Food Intake Patterns

In order to determine the eating patterns of the subjects, they were required to recall their food intake over the immediate last 24 hours, and to indicate whether the food eaten was taken at home or at school. The subjects were also required to show the researcher any food items they had carried from home. The meals were then inspected to find out if they provided a balanced diet.

Meals Taken at School

An inspection of food carried from home indicated that only 4.8% of the pupils carried food items from home, and that in all cases, the items carried constituted a meal that was not balanced.

Table 4:5 shows an analysis of meals eaten at school, using information obtained from the 24 hours recall exercise.

Table 4:5 Meals eaten at School

Characteristic	Frequency	N	%
Total meals eaten at school	39	208	18.7
Balanced meals eaten at school	10	39	25.6

The results indicate that only 18.7% of the pupils eat lunch at school, and out of these only 25.6% ate balanced meals.

Thus few pupils eat lunch at school and the food they eat here is mostly unbalanced.

Meals eaten over 24 hours

Table 4:6 shows the analysis of the meals eaten over a given 24 hour period.

Table 4:6 Analysis of Meals eaten over 24 hours.

N=208

Response	Frequency	%
3 or more balanced meals taken	4	1.9
2 balanced meals eaten	22	10.6
1 balanced meal eaten	66	31.7
No balanced meals eaten	116	55.8

The results indicate that only 1.9% of the pupils eat 3 or more balanced meals in a day, 10.6% eat 2 balanced meals, 31.7% eat one balanced meal and 55.8% take no balanced meals in a day.

Thus the majority of the pupils, over the given period, did not eat well balanced meals. This could be due to a number of factors e.g. the Social Economic Status (S.E.S.) of the parents, the level of Health Education of the parents etc.

Comparison of ability to select and the consumption of balanced meals

It is necessary to find out if those pupils who are knowledgeable about balanced diet also consume balanced meals in order to explore whether the experiences that the

pupils undergo are in contrast to the knowledge that they are equipped with.

In this case those who were able to select two or more balanced meals were considered.
The analysis of their responses are given in Table 4:7

Table 4:7 Comparison of ability to select and consumption of balanced meals.

Characteristic	freq.	N	%
Total number selecting 2 or more balanced meals.	103	208	49.5
Number selecting 2 or more balanced meals and eating the same.	15	103	14.6
Number selecting 2 or more balanced meals and eating 1 balanced meal	57	103	55.3
Number selecting 2 or more balanced meals and eating no balanced meals	31	103	30.1

The results show that our of those able to select two or more balanced meals, only 14.6% ate 2 or more balanced

meals in a day, although 55.3% ate at least one balanced meal in a day whether at home or at school.

Thus very few pupils who are capable of selecting balanced meals eat such meals frequently. This indicates that as far as balanced meals are concerned, most of the pupils undergo experiences that are in contrast to their knowledge. This may be so because the pupils probably have little influence over the food choices for their meals. It is possible that other factors e.g. parental influence, social-economic status etc play the major role in determining the pupils' meals.

Nutritional Status and Nutritional Knowledge of the Pupils

In order to get further information on whether or not the experiences that the pupils undergo is in contrast to the knowledge that they have, the nutritional status of pupils who could select balanced meals was compared with the nutritional status of those who could not do so.

In order to meet objective four (4) i.e. To establish whether there is any difference in nutritional status between those students who are able to select balanced meals and those who cannot, the following Null Hypotheses were used.

Ho_1 - There is no significant difference in nutritional status between those girls who can correctly select balanced meals and those who cannot do so.

Ho_2 - There is no significant difference in nutritional status between those boys who can correctly select balanced meals and those who cannot do so.

The weight/height indices were calculated for the pupils and a Z-test was performed at 5% (0.05) level of significance (See Appendix D). Table 4:8 gives a summary of the Z-test analysis.

Table 4:8 Results of the Z-test Analysis

Group	Sex	N	Mean Weight/ Height Index	S.D.	Z-Value
Selects 2 or more balanced meals	F	52	30.175	3.940	
Selects less than 2 balanced meals	F	60	29.900	4.926	0.233
Selects 2 or more balanced meals	M	51	26.905	3.304	
Selects less than 2 balanced meals	M	45	27.659	3.14	0.810

The critical Z-value at 5% (0.05) level of significance is 1.645, therefore the calculated Z-value in the case for boys and in the case for girls was less than the critical value. Thus the Null Hypotheses Ho_1 and Ho_2 were accepted.

Thus there is no significance difference in nutritional status between those girls who can select balanced meals and those who cannot do so, and there is no significant difference between those boys who can select balanced meals and those who cannot do so.

These results go further to show that the nutritional knowledge that the pupils have has little influence over

their nutritional practices and does not bring about a significant difference in the pupils nutritional status.

4:3 Home Management of High Fever

High fever is characteristic of many of the diseases affecting young children e.g. Pneumonia, Measles, Malaria. Since many times, school children are required to look after their sick young brothers or sisters, it is important for them to have some information of how to manage a child with high fever at home.

To test their knowledge of this, two questionnaire items (14, 28) were used and the responses are summarised in Table 4:9.

Table 4:9 Responses to items on Home Management of High Fever

N=208

Response	Frequency	%
2 correct responses	107	51.4
1 correct response	85	40.9
No correct response	16	7.7

The items dealt with two important factors; keeping the child cool (although not cold) and the kind of food that the child needs during or after this period.

The data indicates that most of the pupils (51.4%) are aware of the necessity of keeping the child cool and the kind of food to be given when a child has high fever. This knowledge would be very useful if the pupils were able to apply it whenever possible.

4:4 Diarrhoea

Since diarrhoea is a common feature in many ailments affecting young children, it is important that pupils are aware of common environmental causes of diarrhoea and how to manage it at home as this condition can easily cause dehydration. The subjects were therefore asked questions relating to the cause of diarrhoea and the giving of food and fluids to the affected person.

Questionnaire item 25 dealt with environmental causes of diarrhoea and Table 4:10 shows the summary of the responses.

Table 4:10 Responses to Environmental Causes of Diarrhoea

N=208

Response	Frequency	%
Bathing in dirty contaminated water	10	4.9
Germs which are breathed in	8	3.9
Germs which enter through the skin	6	2.9
Germs which enter through the mouth by contaminated food or water	181	88.3

The majority of the pupils (88.3%) were able to give the correct response, thus showing that they were aware that the most common environmental cause of diarrhoea are the germs entering the mouth from contaminated food or water.

The next step was to determine whether or not the subjects were aware that one should not stop giving a child with diarrhoea foods and fluids.

Questionnaire item 6 dealt with the necessity of giving food while diarrhoea lasts. Table 4:11 gives a summary of the responses to this item.

Table 4:11 Response to the need for food while diarrhoea lasts

N=208

Response	Frequency	%
True	31	14.9
False	172	82.7
No answer/undecided	5	2.4

Thus the majority of the pupils (82.7%) are aware that anyone suffering from diarrhoea still needs to be given food.

Questionnaire item 7 dealt with the necessity of fluids while diarrhoea lasts and Table 4:12 analyses the responses for this item.

Table 4:12 Response to the need for fluids while diarrhoea lasts

N=208

Response	Frequency	%
True	26	12.5
False	178	85.6
No answer/undecided	4	1.9

Thus the majority of the pupils (85.6%) are aware that anyone suffering from diarrhoea still needs to be given fluids.

Considering the necessity for both food and fluid (as dealt with by items 6 and 7) the responses are analysed in Table 4:13.

Table 4:13 Responses to the need for both food and fluids while diarrhoea lasts.

N=208

Response	Frequency	%
2 correct responses	150	72.1
1 correct response	49	23.6
No correct response	9	4.3

The above results indicate that the majority of the pupils (72.1%) are aware that one should still give food and fluids while diarrhoea lasts. This vital information could be useful if the pupils applied this knowledge in the home situation.

An effective way to manage diarrhoea at home is to provide the patient with Oral Rehydration Solution. The subjects were asked to list the items that could be used to prepare

this solution. Table 4:14 shows an analysis to questionnaire item 10, regarding this concept.

Table 4:14 Response to Preparation of Oral Rehydration Solution

N=208

Response	Frequency	%
3 correct items	92	44.7
Incorrect response	116	55.3

The results indicate that more than half of the pupils (55.3%) are not able to state three important items included in a home made Oral Rehydration Solution (ORS). This means that if these pupils were actually asked to make up the solution, it would be unlikely that most of them would be able to do so, since they are not equipped with the knowledge of what items they would have to include.

The above result of a correct response by 44.7% of the students contrasts sharply with the response from Item 7(see appendix E) whereby 85.6% of the pupils are aware that a child with diarrhoea should continue being given fluids. The Oral Rehydration Solution is not the only fluid that someone with diarrhoea can be given, but it is one that is relatively easy to prepare at home. Thus since many of the pupils are aware that fluids should be given

during diarrhoea, then it is also desirable that they should know how to prepare ORS.

4:5 Immunization

It is important for people to recognise and appreciate the role of immunization in the promotion of health.

In order to ascertain the subjects knowledge of this concept, questionnaire item 12 asked the respondents to state the role of immunization. The responses to this item are given in Table 4:15.

Table 4:15 Response to the role of Immunization

N=208

Response	Frequency	%
Cure Diseases	33	15.8
Make the child look stronger	5	2.4
Prevent individuals from catching certain diseases	168	80.8
No answer/undecided	2	1.0

Thus most of the subjects (80.8%) were able to identify the role of immunization in the prevention of diseases from the list of choices given.

It is necessary for one to be aware of which diseases can be immunized against in order to avoid a situation whereby one believes that a wide range of diseases are immunisable, even when they are not.

In order to find out if the subjects were aware of immunisable diseases, they were asked to pick them out from a list of diseases or conditions. Their response to the questionnaire item 11 dealing with this issue is analysed in Table 4:16.

Table 4:16 Response to Immunisable Diseases

N=208

Response	Frequency	%
6 correct diseases	59	28.4
Responses including:		
Diarrhoea (generally)	58	27.9
Malnutrition	45	21.6
Malaria	26	12.5

Thus only a few (28.4%) of the pupils were able to correctly identify the 6 immunisable diseases.

It is important to note that some of the subjects (21.6%) believed that a condition like malnutrition could be prevented by immunization, and that some (12.5%) believed

that malaria could also be immunized against. Some of the pupils (27.9%) also believed that diarrhoea, generally, could be immunized against.

If the school children are to help in the immunization programme by identifying those children who haven't been immunized and bringing this to the attention of their elders, they ought to be aware of simple evidence of immunization e.g. the information given on the immunization card, the BCG scar, among others.

Questionnaire item 13 required the subjects to state any evidence of a child having received the BCG vaccination. Their response to this item is given in Table 4:17.

Table 4:17 Response to Evidence of Immunization

N=208

Response	Frequency	%
Correct response	43	20.7
Incorrect response/no answer	165	79.3

Thus only a few of the subjects (20.7%) were able to state correct evidence of immunization. Out of these, only 2(4.6%) mentioned that the Immunization Card could be used

to provide evidence that the BCG vaccination had been given, the rest stating a scar on the left arm.

Although the scar on the left arm is sufficient evidence of the BCG vaccination, it is desirable that more pupils are aware of the Immunization Card as a source of evidence of immunization.

4:6 Source of Health Information

It is important to determine what the pupils perceive as their source of health information. Their response to this is important in two main ways; it could be used to strengthen and enrich the source they perceive as providing them with more health information; or it could be used to help the pupils focus on useful reliable and easily available sources that they tend to overlook.

The pupils were required by questionnaire item 8 to indicate the source they considered most reliable, and to designate against each source 1,2,3,4,5 in order of preference. To obtain a weighted value, a value of 5 was assigned to the first order, a value of 4 to the second order, and so on. To obtain the wieghted rank, the number of choice was multiplied by the appropriate wieghted value (5,4,3,2,1) and added up. The item with the largest

numerical total represents the most prefered source. The analysis of preferred sources is given in Table 4:18.

Table 4:18 Order of Preference of Pupils' Source of Health Information

Order of preference	Source	Mathematical weighting
1	Health workers	720
2	Parents	746
3	Teachers	721
4	Radio/TV advertisments	433
5	Classmates or other friends	271

The data indicates that most pupils prefer health workers as their source of health information. Health workers, by nature of their training, do tend to be equipped with reliable health information and it is therefore only right that one should consider them as the most reliable source.

The data also indicates that the pupils prefer Parents to Teachers as sources of Health information. This indicates the importance of including Parents in the school Health Education programme if the pupils are to regard the information provided by it more seriously.

Questionnaire item 9 required the subjects to indicate the source providing them with health information most of the time. Table 4:19 analyses the responses to this item.

Table 4:19 Sources chosen as providing Health Information most often to pupils

N=208

Source	Frequency	%
Health Workers (e.g. doctors, nurses)	86	41.4
Parents	57	27.4
Teachers	51	24.5
Radio or TV advertisements	8	3.8
Classmates and other friends	6	2.9

The data indicates that many of the pupils (41.4%) believe that the Health Information they get comes mainly from Health Workers. More pupils believe that they get Health Information from parents than from teachers. This is despite the fact that the current 8-4-4 syllabus has a reasonably wide coverage of Health Education issues and also despite the number of contact hours the children have with their teachers. It would seem that teachers are not fully recognised by their pupils as a frequent source of reliable Health Information.

4:7 Environmental Sanitation

In order to improve the use and care of latrines as well as methods of refuse disposal, people have to understand how some of the related illnesses are spread.

In order to test their understanding of the relationship between sanitation and disease, items were constructed on houseflies, their mode of disease transmission, the importance of keeping them away from latrines and refuse heaps and on control measures and their corresponding diseases.

Questionnaire item 24 required the pupils to state the most important reason for covering pit latrines. Table 4:20 summarises the responses.

Table 4:20 Response to the covering of pit latrines

N=205

Response	Frequency	%
To keep houseflies away from the pit	112	54.6
To prevent the bad smell from the pit from spreading	92	44.9
No answer	1	0.5

Thus many pupils (54.6%) believe that the most important reason for covering pit latrines is to keep houseflies away from the pit, although many also believe that it is more important to prevent the bad smell from spreading.

Although it is desirable to prevent the foul smell from the pit from spreading, it is important for the pupils to link the pits with houseflies as these are the vectors of some diseases. Thus the prevention of a foul smell could be used to help encourage the practice of covering pit latrines, but the keeping away of houseflies should be stressed as it links with the spread of disease.

Questionnaire item 27 required the pupils to state the most important reason for disposing of rubbish in bins that are covered with lids. The response is given in Table 4:21

Table 4:21 Response to Disposal of Rubbish in Bins covered with a lid.

N=205

Response	Frequency	%
To keep houseflies away from the rubbish	104	50.7
To prevent the bad smell from spreading	49	23.9
To make sure our surroundings look beautiful and clean	51	24.9
No answer	1	0.5

Thus half of the pupils (50.7%) believe that the most important reason for disposal of rubbish in bins or containers that are covered is to keep houseflies away from the rubbish.

In this case again, the prevention of the bad smell from spreading and the keeping of a clean surrounding are desirable, and these reasons may be used to encourage the practice of disposing of rubbish in containers with lids, but it is also important to stress the keeping away of houseflies.

The pupils were further required to identify the mode of transmission and to identify a common disease spread by houseflies from a given list. This concept was dealt with by questionnaire items 19 and 29 and the responses are summarised in Table 4:22

Table 4:22 Responses to mode of disease transmission by Houseflies and example of disease

N=208

Response	Frequency	%
2 correct responses	128	61.6
1 correct response	60	28.8
No correct response	20	9.6

Thus many of the subjects (61.6%) were able to identify the mode of disease transmission and a disease spread by houseflies.

To further ascertain the pupils understanding of environmental sanitation, they were required to match control measures with their corresponding diseases. Questionnaire item 30 dealt with this concept and Table 4:23 summarises the responses.

Table 4:23 Summary of responses on Environmental Sanitation Control Measures.

N=208

Response	Frequency	%
4 correct responses	134	64.7

Thus the majority of the pupils (64.7%) were able to correspond major environmental diseases with their control measures.

This information would be very useful to the pupils if they were to apply it to their own environments e.g. the school. Thus the school environmental sanitation was inspected as is described in the following paragraphs.

4:8 School Environmental Sanitation

Using an observation chart (see Appendix B) the following were noted: the type, number and state of the latrines; the method of waste disposal and the presence of stagnant water.

Table 4:24 provides information on the latrines.

Table 4:24 The type, number and state of latrines

Characteristic	Comment
Type:	
Flush Toilets	Present in 4 out of the 5 schools observed
Pit latrines	Present in 1 school. Pit latrines were uncovered.
Number:	Average 45 pupils per toilet.
Water availability in the toilet	4 schools faced with acute water shortage and state of toilets therefore poor. 1 school had more regular supply of water.
Facilities for washing hands nearby	4 schools have these facilities but most faced with acute water shortage. 1 school did not have this facility nearby.

The data indicates that most of the schools had flush toilets with one of them having pit latrines. Where there were pit latrines, they were not covered. In all the schools except one, the toilets had facilities for washing hands nearby, but all the schools except one were faced

with an acute water shortage. The toilets were therefore in an unsanitary condition.

Methods of Waste Disposal

In the 5 schools, rubbish was piled in heaps within the school grounds with no signs of recent burning or burying.

School children were found playing at the rubbish heaps in 2 schools.

Thus the schools had poor, unsanitary methods of waste disposal and this rubbish posed a health hazard to some school children playing with it.

Stagnant Water

This was present within 2 schools and bordering 2 others.

The stagnant water within and around the schools gives rise to unsanitary environmental conditions.

Comparison of the Schools' actual Environmental Sanitation with the pupils knowledge of the same.

Most of the pupils were able to identify the mode of disease transmission by houseflies, give an example of a

disease transmitted by them; identify the importance of keeping houseflies away from pit latrines and rubbish bins; and correctly correspond environmental sanitation control measures with the appropriate diseases.

Yet all the schools reported poor methods of waste disposal, most had some stagnant water either within or close to the school, and most of the latrines had an acute water shortage, making them unsanitary.

It is thus evident that the pupils learn in a school environment which largely contrasts with the health knowledge that they posses.

4:9 The teachers' informal interviews

In previous Chapters (1 and 2) it has been suggested that School Health Education can be effective in bringing about healthy practices in the school children.

A preliminary step for teachers who desire to teach effective Health Education is for them to believe that it is possible to have an effective Health Education programme.

The first item on the informal interview schedule (see Appendix C) therefore sought to find out if the teachers

believed that it was possible for Primary School children to influence their own state of health to some extent. Their response is given in Table 4:25.

Table 4:25 Teachers' Responses to the Possibility of Primary School Children influencing their own state of health.

N=20

Response	Frequency	%
Yes, it is possible	18	90
No, it is not possible	2	10

Examples given where children may influence their own state of health were personal hygiene and nutrition. Those who thought it is not possible felt that other factors e.g. the Social Economic Status of the pupils always influenced their health more.

Thus most teachers (90%) believe that it is possible for Primary School children to influence their own state of health to some extent. This belief is a sound foundation for effective Health Education and needs to be strengthened so that teachers are aware of more areas where pupils may influence their state of health.

School teachers have many contact hours with their pupils and would therefore be in a better position to judge whether or not the pupils practice what they learn in Health Education. When asked to comment on the application of this knowledge, the responses they gave were categorized and subsequently summarised in Table 4:26

Table 4:26 Teachers' response to Pupils Application of Health Education

N=20

Response	Frequency	%
Little application	14	70.0
Adequate application	2	5.0
A lot of application	4	20.0

Thus most of the teachers (70.0%) were of the opinion that pupils apply only a little of what they learn in Health Education. Some of the teachers (20.0%) felt that the pupils apply much of what they learn in Health Education, citing the apparent healthy state of the pupils as evidence, whereas a few teachers (5.0%) felt that the application was adequate citing examples like personal hygiene.

The fact that most teachers felt that there is only a little application of knowledge is important since this

indicates that teachers feel that the Health Education is not as effective as it could be.

The Health Education that the Primary School children receive should be useful to them in both present and future situations. The teachers were asked whether this was the case in item 3 of the interview. Their response is summarised in Table 4:27.

Table 4:27 Teachers' response to the usefulness of Health Education.

N=20

Response	Frequency	%
More useful for the present	0	0.0
More useful for the future	3	15.0
Useful for both the future and the present	17	85.0

Thus most teachers feel that the current Health Education is useful to the pupils in both their present and future situations.

It is always important for one to examine various parts of the syllabus critically and identify any constraints or limitations that it may have. When asked in item 4 what

the limitations of the current syllabus are, the following are the responses given in Table 4:28.

Table 4:28 Limitations of Health Education as given by Teachers

N=20

Limitations	Frequency	%
Broad Syllabus	8	40.0
Pupils' Social Economic Status	6	30.0
Emphasis on passing of exams	3	15.0

Thus limitations cited are the broad 8-4-4 syllabus which leaves little time to focus on Health Education; the Social Economic Status of the pupils which hinders them from getting adequate nutrition, compels them to live in unsanitary conditions etc.; and the fact that most of the time teachers are trying to drill pupils to pass exams.

The teachers were then asked to suggest means of improving the Health Education currently being taught. Their suggestions are given in Table 4:29

Table 4:29 Teachers' suggestions on the improvement of Health Education.

N=20

Suggestions	Frequency	%
Improve the teaching approach	12	60.0
Improve the Social Economic Status of the pupils	2	10.0
Improve the teaching aids(general)	1	5.0
Improve the text books	1	5.0
Involve parents	1	5.0
It is satisfactory the way it is	5	25.0

Thus many of the teachers (60.0%) believe that the Health Education would be more effective if the teaching approach improved. They felt that if the teachers taught with the aim of changing or influencing the pupils' health behaviour, they would succeed in doing so. Some felt that if the Social Economic Status of the pupils was raised, then their health would also improve since practices e.g. nutrition would improve. A few teachers felt that they needed more teaching aids for Health Education; a few felt that the Text Books did not go into enough details in Health Education; and a number of the teachers (25.0%) were satisfied with the Health Education as it is.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

5:1 Introduction

In order to find out if the pupils are equipped by the School Health Education Unit found within the 8-4-4 syllabus with adequate knowledge and understanding of some concepts and whether or not they undergo practices or experiences beneficial to their health, a questionnaire and an observation chart were administered to pupils; an informal interview was held with a number of teachers; and the school environmental sanitation was inspected. The data obtained using these instruments was analysed and summarised in Chapter Four.

In this Chapter, a summary of those findings is given, conclusions are drawn from those findings, implications are noted and recommendations for further research are given.

5:2 Summary of Findings

Considering the Data Analysis in Chapter Four the following are the summary of the findings:

1. More than 50% of the subjects responded correctly to all items testing knowledge and understanding of the following aspects.
   (a) Home management of high fever
   (b) Common environmental causes of diarrhoea
   (c) Need for food and fluid when experiencing diarrhoea
   (d) The role of immunization
   (e) Importance of keeping houseflies from latrines and rubbish pits
   (f) Diseases transmitted and mode of transmission by houseflies
   (g) Association of Environmental Control Measures and their corresponding diseases.
   (h) Symptoms and remedies of some common deficiency diseases.
2. Less than 50% of the subjects gave the correct response to all the items testing
   (a) Nutrient content of food
   (b) Frequency of serving essential nutrients
   (c) Selection of foods constituting a balanced diet
   (d) Items that can be used to constitute an Oral Rehydration Solution at home
   (e) Identification of immunisable disease during a child's first 9 months.
   (f) Evidence of immunization in a child.

3. The pupils find Health Information most reliable when it comes from Health Workers followed by parents, teachers, Radio or T.V. advertisements and classmates or other friends, in that order.

4. Pupils believe that they get their Health Information most of the time from Health Workers followed by parents, teachers, Radio or T.V. advertisements and then classmates or other friends, in that order.

5. Most of the pupils do not eat lunch in school, but the majority of those who do so do not eat well balanced meals there.

6. The majority of the pupils do not eat well balanced meals daily.

7. Most of the pupils who are capable of selecting well balanced meals do not consume them themselves.

8. The ability or otherwise to select well-balanced meals is not reflected in the nutritional status of the pupils.

9. Although the pupils are fairly well knowledgeable about environmental sanitation, they attend schools

whose environmental sanitation measures are not adequate enough.

10. Most teachers believe that it is possible for a child to influence his own state of health to some extent, but they also feel that few of the primary school children apply what they learn in Health Education in their daily lives. Many of the teachers believe that the Health Education could be more effective if the teaching approach improved.

5:3 Conclusions and Implications

Pupils are knowledgeable in those concepts concerning home management of high fever, common environmental causes of diarrhoea, the role of immunization, diseases transmitted and their mode of transmission by houseflies. The symptoms and remedies of common deficiency diseases, the importance of keeping houseflies from pit latrines and rubbish bins and the association of environmental control measures and their corresponding diseases.

The pupils have relatively poor knowledge of concepts concerning nutrient content of food, frequency of serving essential nutrients, selection of foods constituting a balanced diet, items that can be used to constitute Oral

Rehydration Solution at home, immunisable diseases, evidence of immunization in a child.

All these concepts are important as far as child survival is concerned and efforts should be made to explore means by which the children's knowledge can be enriched especially where it is inadequate and further means should be sought by which the knowledge can affect their health behaviour and thus the state of their own health and that of younger brothers and sisters at home.

Pupils have a poor knowledge base to enable them to select well balanced meals and currently their knowledge in nutrition does not influence neither their food consumption nor their actual nutritional status. Literature reviewed in Chapter Two indicated that it is possible for effective school nutrition education programmes to influence the eating habits of primary school children, therefore our Health Education in the 8-4-4 system needs to be reviewed so that it is more effective in nutrition education.

The pupils are knowledgeable about environmental sanitation and yet the school environmental sanitation measures are not adequate enough. This requires the teachers to motivate the pupils to apply their knowledge about environmental sanitation to their school environment first and then to other nearby and home environments.

Since pupils rely more on Health Information from their parents than from teachers, these parents then need to be involved more in Health Education programmes in schools.

Since pupils believe that they get their Health Information most of the time from Health Workers and parents more than from teachers, efforts ought to be made to change the attitudes of the pupils towards Health Education in school, so that they perceive it as a source of frequent, reliable and practical Health Information.

In order to improve the effectiveness of the current Health Education in the primary schools, efforts should be made to ensure that the teaching approach is one that aims to bring about changes in health practices and improves the present state of health of the pupils and their younger brothers and sisters as much as possible. This inevitably calls for more parental involvement in the programme.

5:4 Recommendations for further research

Considering the conclusions and implications discussed, the researcher recommends the following for further research.

1. Research to determine the attitudes of parents towards Health Education in Primary Schools, with a view of involving them more in it.

2. Research to determine resource materials that can be used to bring about effective Health Education.

3. Research to determine teaching methods that bring about effective school Health Education.

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Appendix A

STUDENTS QUESTIONNAIRE

This is not a test. I am interested in knowing what you think about various things concerning Health Education. Your answers to the questions will not be used in any way against you, but could help improve Health Education activities in your Division.

Please try and answer the questions as correctly and as honestly as you can.

Pupil's number ------- Date of birth ----------

Tick whether boy or girl ☐ boy ☐ girl

a) How many children are there in your nuclear family ------

b) What is the highest education that your father got. (tick correct answer)

1. less than primary
2. Primary
3. Secondary
4. other (name it) ----------

c) What is the highest education that your mother got.
1. less than primary
2. Primary
3. Secondary
4. Other (name it) ----------

d) What work does your father do ----------

e) What work does your mother do ----------

f) In which estate do you live? ----------

Q1. List below the foods and liquids you have taken since yesterday morning upto now, and indicate the time you ate the food and where you ate it (home or school).

Food Eaten/liquid take	Time (approximate)	Where (Home or School)

From the list of foods below, choose food that would be combined to make three different balanced meals. List the meals under meals 1 to 3 below

List of foods.

Arrow roots	milk	coffee
Bread	Margarine	crisps
Bananas(ripe)	Maize flour	Chocolate drink
Bananas (green)	Mangoes	chicken
Beef	Millet	Fish
Beans	Oranges	Garden peas
Cabbage	Potatoes	Green peas
Carrots	Pawpaw	Groundnuts
Chips	Pork	Green grams (dengu)
Cassava	Pumpkin	Kimbo
Kunde	Yam	Pigeon peas
Pears	pineapple	Rice
Sukumawiki	Sugar	Sausages
Spinach	Soda	Tea

Q.2 Meal 1.

Q.3 Meal 2.

Q.4 Meal 3.

Part 2

For the following , tick the correct answer unless you are instructed differently.

Pupil's Number ---------

Q.5 What is the minimum number of meals per day which should contain fruits and vegetables.

a) 1 b) 2 c) 3 d) 4

Q.6 A child with diarrhoea should not be given any food to eat while the diarrhoea lasts.

True/ False

Q.7 A child with diarrhoea should not be given anything to drink while diarrhoea lasts.

True / False

Q.8 For the following question, 5 choices (a,b,c,d,e) are given. For your first choice indicate 1 against it, for your second choice indicate 2 against it and so on until your 5th choice.

Of the following who do you believe the most as far as information about food, nutrition and health are concerned.

Indicate the number of preference here

a) Classmates and other friends ---------

b) Parents ----------

c) Radio or Television advertisements ---------

d) Teachers ---------

e) Health workers e.g. doctors, nurses ---------

Q.9 Who do you actually get your information from concerning food, nutrition and health most of the time. (tick only one)

a) Classmates and other friends

b) Parents

c) Radio or Television advertisements

d) Teachers

e) Health workers e.g. doctor, nurses.

Q.10 A child suffering from diarrhoea can be given a solution Oral Rehydration Therapy (O.R.T.) which can easily be prepared at home. List 3 items which can be used to make up this solution.

Q.11 A child can be immunized against some diseases during his first 9 months. Below is a list of diseases. Tick 6 which can be immunized against during these first 9 months. (Tick 6 only)

Cholera	Diabetes	Whooping cough
Diarrhoea	Diphtheria	Malnutrition
Measles	Tetanus	Polio
Tuberculosis	Leprosy	Malaria

Q.12 The purpose of immunization is to

a) Cure diseases

b) Make the child look stronger

c) Prevent individuals from catching certain diseases

13 How can you tell if somebody has received a BCG vaccination? (against tuberculosis)

Q.14 Which of the following would you do in case your young brother or sister is sick and has a high fever: (tick only one).

a) Cover with heavy blanket

b) Completely avoid washing the body

c) keep the child cool but not cold.

Q.15 Kwashiorkor is a disease commonly seen in young children and is caused by lack of enough

A. Carbohydrate
B. Protein
C. Vitamin C
D. Vitamin A

Q.16 Which is the best source of Vitamin C from the following

A. Milk
B. Bread
C. Oranges
D. Meat

Q.17 What is the minimum number of meals per day that should contain foods like fish.
(a) 1 (b) 2 (c) 3 (d) 4

Q.18 Immunisation by use of vaccines in young children should start
(a) At 9 months (b) At birth
(c) At 6 months (d) At 1 year

Q.19 We should try to get rid of houseflies around us because
A. They usually carry germs on or in their bodies which can spread diseases
B. They can bite us and in this way spread diseases
C. They like sitting or resting on us and are therefore a nuisance

Q.20 If you see a child with thin, brownish and straight hair, a large swollen stomach, whose hands and feet may also be swollen; What disease is this child likely to be suffering from

(a) Beri-beri (b) Marasmus
(c) Kwashiorkor (d) Scurvy

Q.21 What food would you recommend for this child in Q.20 above
A. more milk and eggs
B. more ugali and rice
C. more oranges and pawpaws
D. more spinach and sukumawiki

Q.22 If you see a child who is very thin, with wrinkled skin, especially on the face, thighs and stomach, whose ribs show clearly beneath the skin and whose head looks big compared to his small body, what disease is this child likely to be suffering from:

(a) Beri-beri (b) Marasmus
(c) Kwashiorkor (d) Scurvy

Q.23 Which of the following is the best source of body building foods:
(a) Beans (b) Ugali
(c) Mangoes (d) Rice

Q.24 Which of the following do you think is the most important reason why we should cover pit latrines with a lid
A. To keep houseflies away from the pit
B. To prevent the bad smell from the pit from spreading

Q.25 What is the most common cause of diarrhoea
A. Bathing in dirty contaminated water
B. Germs which are breathed in
C. Germs which enter through the skin
D. Germs which enter through the mouth by contaminated food or water

Q.26 An example of an Energy giving food is
A. Cabbage
B. Potatoes
C. Eggs
D. Meat

Q.27 Which of the following do you think is the most important reason for disposing of rubbish in bins or containers covered with a lid
A. To keep houseflies away from the rubbish bin
B. To prevent the bad smell from it spreading
C. To make sure that our surroundings look beautiful and clean

Q.28 A young child is recovering from a high temperature and fever. Which one of the following meals should he be encouraged to take.
A. Sausage and chips and soda
B. Rice and meat and bread
C. Beans and Ugali and Sukumawiki
D. milk and porridge and fresh fruit juice

Q.29 Which one of the following diseases can be spread by houseflies:

A. Cholera
B. Pneumonia
C. Malaria
D. Coughs and colds

Q.30 Below is a list of control measures that people can carry out in order to prevent some diseases.

1. Get rid of wastes. Kill larvae by burning rubbish. Use proper latrines. Dispose of rubbish in closed tins.

_____

2. Destroy breeding places of mosquitoes by draining ponds and pools and filling them up with soil. Bury tins and bottles, cover water containers.

_____

3. Keep bedding clean. Spread them in the sun often. Use insecticide where possible.

_____

4. Drain ponds and swamps. Clear reeds and vegetation along edges of streams. Use chemicals to kill snails where possible.

_____

The following is a list of diseases or conditions which can be controlled by the above measures.

(a) Bilharzia (b) Diarrhoea or Cholera
(c) Malaria (d) Itching and Skin infections

In the blank spaces provided above, indicate the disease or condition which corresponds to the given control measures.

Appendix B

Observation Chart.
Part 1

A. Methods of Waste Disposal

As seen by the researcher	As described by local people

B. Evidence of Stagnant Water

As seen by the researcher	As described by local people

C. Latrines

Number and type of latrines

As seen by the researcher	As described by local people

State of the latrines

As seen by the researcher	As described by local people

Use of the latrines

As seen by the researcher	As described by local people

Part II Record of Food items brought to school by pupils.

Name of school ----------

Pupil's number	Food Items brought to school

Part III
Record of Age, Weight and Height of pupils.

Name of School _____

Pupil's number	Date of birth	Height	Weight (kg)

APPENDIX C

TEACHERS' INFORMAL INTERVIEW SCHEDULE

Q(i) Do you think it is possible for primary school children to influence their state of health? In what aspects do you think it is possible?

Q(ii) In your opinion do the pupils actually apply or practise what they learn in Health Education in schools? How?

Q(iii) Do you think that the Health Education currently taught in our Primary School syllabus is more useful to the child at present or the future?

Q(iv) What do you think are the limitations of the Health Education in our current 8-4-4 syllabus?

Q(v) What improvements do you think could be made to improve the Health Education taught in our Primary schools so that it is more effective for the child at present?

Z TEST ANALYSIS OF RESEARCH DATA

>2 BAL MEALS

GIRLS			BOYS		
HEIGHT	WEIGHT	WT/HT	HEIGHT	WEIGHT	WT/HT
166.0	47.5	28.6145	169.0	50.5	29.8817
164.5	53.5	32.5228	155.5	41.0	26.3666
150.4	37.0	24.6011	156.5	39.0	24.9201
167.4	64.5	38.5305	159.9	53.0	33.1457
158.6	62.5	39.4073	152.8	33.0	21.5969
154.2	38.5	24.9676	164.1	44.0	26.8129
144.8	37.5	25.8978	164.8	45.5	27.6092
157.1	46.0	29.2807	155.4	40.0	25.7400
156.0	39.0	25.0000	170.8	53.5	31.3232
151.1	58.5	38.7161	162.3	45.0	27.7264
164.1	42.5	25.8988	143.6	35.5	24.7214
149.8	44.0	29.3725	166.8	46.5	27.8777
173.8	60.5	34.8101	156.1	39.5	25.3043
172.5	58.0	33.6232	167.8	53.0	31.5852
153.8	39.5	25.6827	147.5	37.0	25.0847
163.5	51.5	31.4985	146.2	36.5	24.9658
162.8	55.0	33.7838	166.8	47.0	28.1775
151.7	43.0	28.3454	163.4	46.5	28.4578
152.5	50.0	32.7869	164.0	48.5	29.5732
151.7	36.5	24.0606	146.5	32.5	22.1843
152.3	41.0	26.9206	152.0	38.0	25.0000
157.3	41.0	26.0648	153.8	39.5	25.6827
145.8	34.5	23.6526	151.5	34.0	22.4422
154.0	48.5	31.4935	160.0	40.0	25.0000
147.0	46.5	31.6327	144.5	32.5	22.4913
148.8	45.5	30.5780	150.3	35.5	23.6194
161.0	55.5	34.4720	148.4	35.0	23.5849
149.7	51.0	34.0681	159.5	38.5	24.1379
160.3	53.5	33.3749	169.1	52.5	31.0467
155.5	44.5	28.6174	144.0	30.5	21.1806
160.5	54.5	33.9564	150.5	35.5	23.5880
152.5	48.5	31.8033	161.3	35.5	22.0087
163.3	45.0	27.5566	163.3	43.0	26.3319
158.3	53.0	33.4807	176.0	56.0	31.8182
157.3	52.5	33.3757	166.0	50.0	30.1205
163.2	52.5	32.1691	165.0	48.0	29.0909
158.5	40.5	25.5521	167.8	51.5	30.6913
145.8	42.0	28.8066	154.5	38.0	24.5955
159.5	53.0	33.2288	174.0	55.0	31.6092
156.8	41.5	26.4668	137.6	32.5	23.6192
163.5	50.0	30.5810	165.2	49.0	29.6610
162.4	43.5	26.7857	165.8	43.5	26.2364
161.5	41.0	25.3870	164.0	51.5	31.4024
167.5	50.5	30.1493	154.6	36.5	23.6093
157.0	51.5	32.8025	170.0	53.0	31.1765
165.3	58.0	35.0877	162.6	43.0	26.4453
154.8	45.5	29.3928	152.5	35.5	23.2787
154.5	41.0	26.5372	156.0	44.5	28.5256
151.5	38.0	25.0825	179.0	56.5	31.5642
152.0	46.0	30.2632	156.8	42.0	26.7857
162.3	47.0	28.9587	166.5	54.5	32.7327
167.8	56.0	33.3731			
SUMX	8,193.8	2,477.5	1,569.1	8,121.9	2,197.5	1,372.1
N	52	52	52	51	51	51
ROOTN	7.2	7.2	7.2	7.1	7.1	7.1
X-BAR	157.57	47.64	30.175	159.25	43.09	26.905
SD	6.8	7.2	3.940	9.1	7.4	3.304

Z GIRLS = 0.233

<2 BAL MEALS

GIRLS			BOYS		
HEIGHT	WEIGHT	WT/HT	HEIGHT	WEIGHT	WT/HT
151.0	40.5	26.8212	162.2	44.0	27.1270
153.5	42.0	27.3616	148.3	35.0	23.6008
153.0	46.0	30.0654	150.1	37.0	24.6502
165.8	54.5	32.8709	157.5	43.0	27.3016
162.5	52.0	32.0000	169.5	53.0	31.2684
151.8	35.5	23.3860	154.0	41.0	26.6234
157.9	45.0	28.4991	152.8	35.0	22.9058
162.4	66.5	40.9483	169.6	54.5	32.1344
152.1	44.0	28.9283	160.7	41.5	25.8245
152.1	40.5	26.6272	151.7	42.5	28.0158
154.5	44.5	28.8026	161.0	52.5	32.6087
158.5	40.5	25.5521	179.1	61.5	34.3384
171.0	49.0	28.6550	163.5	46.5	28.4404
164.0	50.5	30.7927	145.8	33.4	22.9081
148.7	44.5	29.9260	167.5	48.5	28.9552
170.3	75.0	44.0399	166.5	43.5	26.1261
161.0	55.0	34.1615	156.2	37.5	24.0077
157.8	48.5	30.7351	149.5	40.5	27.0903
154.5	31.5	20.3883	174.3	55.0	31.5548
152.5	37.5	24.5902	164.0	45.0	27.4390
155.4	42.5	27.3488	161.2	35.5	22.0223
152.3	35.0	22.9810	145.8	39.0	26.7490
163.5	44.5	27.2171	152.2	38.5	25.2957
165.3	44.5	26.9208	147.0	35.5	24.1497
161.5	50.5	31.2693	168.8	53.5	31.6943
163.3	53.5	32.7618	143.6	32.5	22.6323
160.3	47.5	29.6319	151.2	38.5	25.4630
157.0	65.5	41.7197	158.0	45.0	28.4810
157.5	49.5	31.4286	158.3	46.0	29.0587
152.6	40.5	26.5400	167.4	49.0	29.2712
155.8	43.0	27.5995	161.0	41.0	25.4658
157.5	49.5	31.4286	164.1	42.5	25.8988
157.3	45.5	28.9256	146.9	37.5	25.5276
151.1	48.0	31.7670	146.2	35.0	23.9398
157.1	61.0	38.8288	157.1	49.0	31.1903
162.3	45.5	28.0345	164.6	47.5	28.8578
146.3	33.5	22.8982	161.3	53.0	32.8580
151.5	54.0	35.6436	168.3	48.5	28.8176
159.8	53.0	33.1665	161.5	49.5	30.6502
152.3	39.5	25.9357	163.3	43.0	26.3319
152.3	46.5	30.5318	161.5	55.0	34.0557
158.5	40.5	25.5521	157.2	40.5	25.7634
156.0	43.0	27.5641	172.8	50.5	29.2245
151.6	32.5	21.4380	171.3	50.0	29.1886
154.3	38.5	24.9514	169.8	49.5	29.1519
150.2	51.0	33.9547			
152.6	54.5	35.7143			
164.0	55.5	33.8415			
159.3	36.5	22.9127			
151.8	38.5	25.3623			
162.0	56.5	34.8765			
165.5	53.0	32.0242			
171.2	50.5	29.4977			
154.0	49.5	32.1429			
156.5	44.0	28.1150			
163.3	55.0	33.6803			
159.5	43.0	26.9592			
161.5	47.0	29.1022			
159.0	65.5	41.1950			
159.0	43.5	27.3585			
SUMX	9,456.7	2,833.5	1,794.0	7,184.2	1,995.4	1,244.7
N	60	60	60	45	45	45
ROOTN	7.7	7.7	7.7	6.7	6.7	6.7
X-BAR	157.61	47.23	29.900	159.65	44.34	27.659
SD	5.6	8.6	4.926	8.7	6.9	3.142

Z BOYS = 0.810

APPENDIX E

Summary of Answers to the Questionnaire

Q.NO.	A	B	C	D	E	No.answers /undecided	N
5	(2)1.5%	(8)3.8%	(63)30.1%	(111)53.1%	(24)11.5%		208
9	(6)2.9%	(57)27.4%	(8)3.8%	(51)24.5%	(86)41.4	(6)2.81%	208
12	(33)15.8%	(5)2.4%	(168)80.8%			(2)1.0%	208
14	(26)12.5%	(30)14.4%	(147)70.7%			(5)2.4%	208
15	(18)8.6%	(154)74.1%	(22)10.6%	(11)5.3%		(3)1.4%	208
16	(78)37.5%	(12)5.8%	(104)50%	(13)6.2%		(1)0.5%	208
17	(54)26.0%	(93)44.7%	(47)22.6%	(8)3.8%		(6)2.9%	208
18	(83)39.9%	(72)34.7%	(39)18.7%	(13)6.2%		(1)0.5%	208
19	(180)86.5%	(25)12.5%	(1)0.5%			(1)0.5%	208
20	(9)4.3%	(37)17.8%	(156)75%	(6)2.9%			208
21	(128)61.6%	(7)3.4%	(24)11.5%	(40)19.2%		(9)4.3%	208
22	(15)7.2%	(132)63.4%	(27)13.0%	(32)15.4%		(2)1.0%	208
23	(108)52.7%	(86)41.9%	(3)1.5%	(7)3.4%		(1)0.5%	205
24	(112)54.6%	(92)44.9%				(1)0.5%	205
25	(10)4.9%	(8)3.9%	(6)2.9%	(181)88.3%			205
26	(23)11.2%	(73)35.6%	(70)34.1%	(38)18.6%		(1)0.5%	205
27	(104)50.7%	(49)23.9%	(51)24.9%			(1)0.5%	205
28	(5)2.4%	(14)6.8%	(32)15.6%	(152)74.2%		(2)1.0%	205
29	(137)66.8%	(26)12.7%	(36)17..6%	(6)2.9%			205

	No. answers	True	False	
Q6	(5)2.4%	(31)14.9%	(172)82.7%	N=208
Q7	(4)1.9%	(26)12.5%	(178)85.6%	N=208

	3 correct items	
Q10	(92)44.7%	N=208

	6 correct Answers	
Q11	(59)28.4%	N=208
	4 Correct Responses	N=208
Q30	(134) 64.7%	

Q8. Health Workers

Rank	frequency	weighted value
1	144	720
2	23	8
3	28	84
4	4	8
5	5	5
		825 Total

Parents

Rank	Frequency	Weighted Value
1	46	230
2	68	272
3	63	189
4	25	50
5	1	5
		746 Total

Teachers

Rank	Frequency	Weighted Value
1	17	85
2	91	364
3	80	240
4	16	32
5	0	0
		721 Total

Radio/T.V advertisements:

Rank	Frequency	Weighted Value
1	2	10
2	22	88
3	114	228
4	41	41
		433 Total

Classmates and other friends

Rank	Frequency	Weighted Value
1	2	10
2	3	12
3	6	18
4	40	80
5	151	151
		271 Total

OFFICE OF THE PRESIDENT

PROVINCIAL ADMINISTRATION AND INTERNAL SECURITY

P.O. Box 30510,

NAIROBI

Ref. OP/13/001/21C 243/ 17th September 1991 19.....

The Secretary,
National Council for Science and
Technology,
P.O. Box 30623,
NAIROBI

RESEARCH AUTHORISATION

Applicant(s) ELIZABETH MUMBI KING'ORI

The above named has been authorised to conduct research on:

A STUDY OF KNOWLEDGE, UNDERSTANDING AND SOME RELATED PRACTICES IN HEALTH EDUCATION AMONG STD SEVEN PUPILS IN KIBERA DIVISON, NAIROBI

As indicated on the application form, this research will be conducted in:

NAIROBI

for a period ending DECEMBER, 1991

Under the Standing Research Clearance awarded to Kenyan Unversities/Public Institutions.

I herewith enclose copies of his/her application for record purpose. He/She has also been notified that we will need a minimum of two copies of his/her research findings at the expiry of the project.

J. A. MACOLOO (MRS)

for: PERMANENT SECRETARY/ADMINISTRATION

c.c.

CHAIRMAN, DEPT OF EDUCATION
COMMUNICATION AND TECHNOLOGY, KENYATTA UNIVERSITY
P. C. NAIROBI

The Applicant(s)
ELIZABETH M. KINGORI
DEPT. OF EDUCATIONAL COMUNICATION AND TECHNOLOGY, KENYATTA UNIVERSITY