UNIVERSITY OF CAPE COAST

THE STATUS OF FOOD AND NUTRITION PRACTICAL WORK IN SENIOR HIGH SCHOOLS IN THE HOHOE MUNICIPALITY OF THE VOLTA REGION OF GHANA.

BRIGHT YAWA FOMETI

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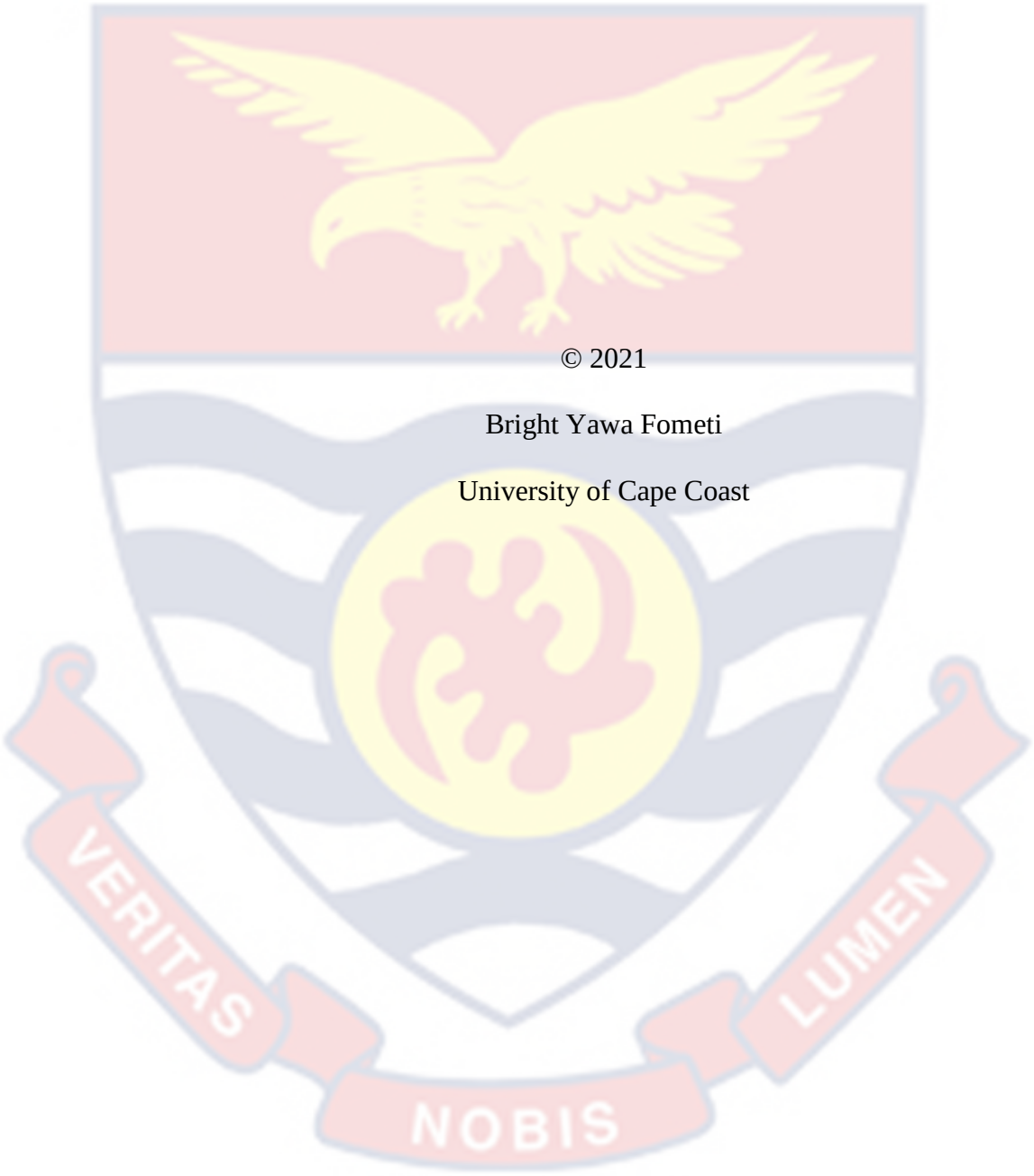

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BY

BRIGHT YAWA FOMETI

Thesis submitted to the Department of Vocational and Technical Education of the Faculty of Science and Technology Education, College of Education Studies, University of Cape Coast, in partial fulfilment of the requirements for the Award of Master of Philosophy degree in Home Economics

NOVEMBER 2021

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: …… Date: ……..

Name: Bright Yawa Fometi

Supervisors' Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Supervisor's Signature: ……. Date……..

Name: Dr. Christiana Boateng

ABSTRACT

The study examined the status of teaching and organising Food and Nutrition practical work in the senior high schools in the Hohoe Municipality of Ghana. Three research questions and three hypotheses were formulated to guide the study. The mixed methods research design was adopted and used for the study. The population for the study comprised four (4) Home Economics Heads of Department, five (5) Food and Nutrition teachers and 162 third year students offering Food and Nutrition in four senior high schools within the Hohoe Municipality of the Volta Region of Ghana. The census sampling technique was employed for the study. Three instruments comprising a questionnaire, observation checklist and interview guide were used to collect data. The questionnaire data was analysed using the Statistical Package for Social Sciences (SPSS 22.00), computer software. Descriptive statistic was used to analyse the observation data and thematic analyses for the interview data. The results of the study showed that students were not taken through enough practical due to financial challenges faced by students, qualified teachers exhibited adequate knowledge of the subject matter and all the schools lack well equipped food laboratory for organising practical work. Students' poor performance is mainly as a result of lack of material resources in the schools. It is recommended that The Ministry of Education, PTA, NGOs, churches and Old Students Associations should aid the schools by providing the material resources needed for Food and Nutrition practical work.

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My sincere appreciation and love go to members of my family for their love, support, understanding and willingness to sacrifice their own interests for mine. There were times when all my attention was on this work but they were able to cope.

DEDICATION

To my husband, children, mother, uncles, aunties, siblings, my pastor and the entire family.

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CHAPTER ONE

INTRODUCTION

Background to the Study

Home Economics is an applied multi-disciplinary subject that provides students with a wide range of learning experiences, knowledge, understanding, and skills that are critical for living as individuals and as members of a family. It is the integration and application of academic information, together with the development of practical skills that is at the heart of the field of Home Economics (Home Economics Institute of Australia, 2005).

The Ghana Home Economics Association (GHEA, 2017) contended that Home Economics is deep and wide. It draws from a collection of disciplines to attain optimum and sustainable standards of living for individuals, families, and the wider society.

The fundamental emphasis of Food and Nutrition is the well-being of individual persons and families in their everyday living. Food and Nutrition education is practically oriented and employs an action-oriented, empowerment approach that allows students to develop the ability for critical and innovative decision-making and problem-solving (Home Economics Institute of Australia, 2010).

. The cognitive processes, experiences, understandings, knowledge and attitudes developed in this programme of study are those which are central to effective functioning in life (San Sisto College, 2019).

Food and nutrition, clothing and textiles, and management in living are all included in Ghana's Home Economics curriculum for senior high school students. The Food and Nutrition course provides an in-depth study of food concerns that have a long-term impact on the health and well-being of individuals and communities. It is possible to use the understanding, abilities, and attitudes learned in the Food and Nutrition curriculum in a variety of educational, professional, and personal settings. Native, national, and international employment markets in the food and associated health industries are solid and increasing at a rapid pace. As a school discipline, food and nutrition is closely linked with the workplace, vocational education and training (VET), and higher education (Ministry of Education, 2010).

Food and Nutrition is an academic subject with a strong practical component. This study, therefore, focuses on the 'practical work' component, which is an integral aspect of the food and nutrition subject in senior high schools in Ghana.

Here are some definitions from science that can help us better understand what "practical work" means. Any exercise in which learners engage independently or in small groups to examine or manipulate the objects or materials they are studying is considered a practical exercise in the field of food and nutrition education and training (Millars, 2010). Food and nutrition education is distinguished by its emphasis on hands-on learning. According to Millars (2010), "we are more likely to grasp and recall things we have done than those that we have just been told" (p2). McDonnell, O'Connor and Seery (2007) argue that practical classes are intended to supplement materials learnt

during lessons and provide students with practical experiences, which will be pivotal in their careers in the future.

Practical work allows learners to gain more understanding of certain subjects. It extends the knowledge of learners regarding a phenomenon, demonstrates and confirms conventional principles (Millar, 2004). Furthermore, practical work makes learners to gain a level of experiences in planning an experiment based on their own initiatives. For Woolnough and Allsop as cited in Leite (2005), the goal of practice-based learning is to build actual competencies and procedures, with a priority on problem-solving and the discovery of genuine phenomena.

Practical work is both exciting and motivating and may assist learners in remembering what they have learnt (Pekmez, 2000). Practical work includes food laboratory experiments, assignments, study tours and projects. The benefits of practical work are unrivalled. Gaining theoretical knowledge is of no value until learners can apply it for practical purposes and in real-life situations. There is a higher possibility of an individual to remember activities, which are carried out with his/her own hands. Practical work complements the theory. It stimulates experiential learning and inspires self-learning, which may result in perfection. Practical work enables students to familiarise themselves with the necessary equipment and tools they use. It is, therefore, very vital to provide an opportunity for students to involve in practical work (Abrahams & Reiss, 2012; Leite, 2005).

A more hands-on and minds-on approach to practical work can help students build their conceptual understanding, and teachers should prepare how students will combine these two key components of practical work. Many

"recipe"-style assignments are used extensively in practical work to help students accomplish what the teacher intends (Abrahams & Reiss, 2012).

Sufficient and adequately maintained specialist facilities and conducive learning environment are indispensable prerequisites for responding to the extensive requirements of the practical work components of Food and Nutrition education at all levels of education. Educational institutions, which are well endowed with human resources, learning equipment and facilities such as well-trained teachers and food laboratories are better positioned for better performance in examinations than less endowed ones (Mobegi & Ondingi, 2011).

On the contrary, insufficient funding, inadequate supply of teaching and learning materials and equipment may result in poor academic achievements of students (Gogo, Ayodo, & Othuon, 2010). In a study, Ogwo and Oranu (2006) found that inadequate resourcing and teacher attitude towards improvisation of equipment and material are major obstacles in carrying out learning activities in Food and Nutrition.

Shadreck (2012) conducted a study and found that for effective implementation of programmes with practical work and skills, adequate resourcing is critical. As an academic discipline with a strong practical component, teaching Food and Nutrition is more effective when food laboratory equipment and materials are available and are often used. Inadequate professional and qualified teachers for teaching Food and Nutrition; negative attitudes by parents and students towards the subject; insufficient infrastructure and equipment in schools; underutilisation of equipment where available due to lack of expertise of teachers and

unreliable/irregular supply of electrical power or frequent power cuts; insufficient instructional materials and books in schools; and inadequate funding of schools are some of the factors that hinder the effective implementation of Food and Nutrition curriculum.

Practical work in Food and Nutrition in SHS in Ghana is fraught with challenges culminating into poor performance of students in the practical aspect of their final West African Senior Secondary School Certificate Examinations (WASSCE). For example, the Chief Examiners Report in Food and Nutrition (WAEC 2016, 2017, 2018, 2019, 2020) signposted more weaknesses than strengths in practical work, particularly in Food and Nutrition. These weaknesses included the inability to prepare time plans; improper handling of food such as fruits and vegetables; and the challenge of adequately washing of utensils and clearing up after cooking (The West African Examinations Council - WAEC, 2017). Washing up is still not properly done by most candidates, Reasons/interpretation for choices and writing of the time plan are still major problems for most candidates, use of wrong tools for working (WAEC, 2018, 2019,2020). Similarly, in 2020, for example, the Chief Examiners' Reports for Food and Nutrition practical (WAEC, 2020) recommended that the remedy for poor performance in Food and Nutrition practical work is that "teachers should organise many practical lessons for candidates to improve on their skills and endeavour to teach and exhaust every topic in the syllabus thoroughly; proper handling of fresh fruits and vegetables must be emphasised both in the theory and practical by teachers".

However, there has been little discussion about the reported Food and Nutrition practical work in senior high schools. It is important, therefore, to investigate the factors obstructing effective practical work at the SHS level, particularly in the Hohoe Municipality of the Volta Region of Ghana.

Statement of the Problem

One of the primary aims of the Ghanaian educational system at the SHS level is to educate persons with professional capabilities to empower them to engage constructively towards the growth of the nation (Ministry of Education Syllabus, 2010). Food and Nutrition as a discipline stresses the study of the physical, emotional, intellectual and social aspects of the person, the family and society. The wellbeing of the individual, the family and society is the fundamental focus in Food and Nutrition. This commitment is shown through supporting the learner to develop relevant capabilities that he/she would require to be able to enhance the quality and meaning of life in a changing society (Ministry of Education Syllabus, 2010).

Food and Nutrition education in Ghana's Senior High Schools aims to prepare students for the workforce and to help them gain entrance to higher education options in relevant institutions. Food and Nutrition as a subject is taught in order to generate skills that would successfully impact employment in a specific sector of job creation, in order to address the difficulties of youth unemployment. (Kuya, 2017). Learners in the field of food and nutrition are taught about the production and management of products, as well as how to use tools and equipment to make them. Teaching and learning strategies for Food and Nutrition should be based on the fact that the subject has a strong practical component (San Sisto College, Brisbane, 2019).

The summary of the West African Examination Council (WAEC) Chief Examiners Report over five years indicates persistent poor performance in Food and Nutrition practical. Some of the constant and/or sustained weaknesses identified over the years (2015 - 2020) by the Chief Examiners' Report are the inability of candidates to apply certain principles to practical situations, which were evident in Food and Nutrition practical work. In 2017, a below-average performance compared to previous years was reported for candidates who took exams in Food and Nutrition. In view of the persistent poor performance in practical work, the Chief Examiner's Report suggested that "practical lessons should be undertaken more often for improvement" (WAEC, 2017; WAEC, 2020). Thus, the Chief Examiner's Report had again emphasised the primacy of food and nutrition practical work in senior high schools. However, there has been little discussion about the reported Food and Nutrition practical work in senior high schools. Nothing has been recorded on how the recommendation by the Chief Examiner over the years have been addressed. Hence, this study seeks to investigate the factors obstructing effective practical work at the SHS level, particularly in the Hohoe Municipality of the Volta Region of Ghana.

Purpose of the Study

The purpose of this study is to investigate the status of food and nutrition practical work in senior high schools and examine the factors obstructing effective practical work at the SHS level in the Hohoe Municipality of the Volta Region of Ghana.

Objectives of the Study

The specific objectives of the study are to:

1. determine how Food and Nutrition practical work is organised and managed by teachers during practical activities;
2. Identify the quality of human resources for carrying out Food and Nutrition practical work in senior high schools in the Hohoe Municipality;
3. uncover the material resources available for carrying out practical work in Food and Nutrition in senior high schools in the Hohoe Municipality;
4. determine the difference between the old secondary schools and the new senior high technical schools in terms of organisation of Food and Nutrition practical work;
5. ascertain whether or not there is a difference between the old secondary schools and the new senior high technical schools in terms of quality of human resources for organising Food Nutrition practical work;
6. estimate the difference between the old secondary schools and the new senior high technical schools in terms of the availability of material resources for organising Food and Nutrition practical work

Research Questions

The following research questions guide the study:

1. How are Food and Nutrition practical organised and conducted in senior high schools in the Hohoe Municipality?

2. What quality of human resources are available for carrying out Food and Nutrition practical work in senior high schools in the Hohoe Municipality?
3. What are the material resources available for carrying out Food and Nutrition practical work in senior high schools in the Hohoe Municipality?

Hypothesis Formulation

Hypothesis 1

H_o: There is no statistically significant difference between the old secondary schools and the new senior high technical schools in terms of organisation of Food and Nutrition practical work in the Municipality.

H_1: There is a statistically significant difference between the old secondary schools and the new senior high technical schools in terms of organisation of Food and Nutrition practical work in the Municipality.

Hypothesis 2

H_o: There is no statistically significant difference between the old secondary schools and the new senior high technical schools in terms of quality of human resources for organising Food Nutrition practical work in in the Municipality.

H_1: There is a statistically significant difference between the old secondary schools and the new senior high technical schools in terms of quality of human resources for organising Food Nutrition practical work in in the Municipality.

Hypothesis 3

H_o: There is no statistically significant difference between the old secondary schools and the new senior high technical schools in terms of the availability of material resources for organising Food and Nutrition practical work in the Municipality.

H_1: There is statistically significant difference between the old secondary schools and the new senior high technical schools in terms of the availability of material resources for organising Food and Nutrition practical work in the Municipality.

Significance of the Study

The findings may help identify important issues affecting the teaching and learning of practical work in Food and Nutrition in Senior High School in Ghana. This study will help overcome the challenges militating against teaching and learning of practical work in Food and Nutrition. The study will also contribute to improving student performance in WASSCE concerning Food and Nutrition practical works. In addition, the findings may serve as a useful resource for future researchers who may want to extend the frontiers of research in Food and Nutrition practical work. Finally, the results of this study may inform policy and practice in the field of Food and Nutrition and Home Economics in general, particularly, practical work.

Delimitations

Food and Nutrition has two aspects: theory and practical work. This study involves only the organisation of Food and Nutrition practical work and solely delimited to senior high schools in Hohoe Municipality of Ghana. The Hohoe Municipality has senior high schools which are offering Food and

Nutrition (both theory and practical work) programme to students. It is, therefore, assumed that the right information would be gathered to ascertain the objectives of this study.

Limitations

People's views about issues, phenomena, and problems are conceived and held in their minds and are expressed differently. Thus, what is perceived by one person as an issue, a phenomenon or a problem may not be viewed as such by another person. It has been envisaged that these variations of human perspectives might affect the responses of teachers and students, heads of department and the observer who responded to the questionnaire and interview and observed Food and Nutrition practical work respectively. Some of the responses might, therefore, be influenced by the subjectivity of some of the respondents. This subjectivity, in turn, might affect the results of the study. In order to reduce the effect of this subjectivity, a convergent mixed methods research design was adopted and used.

Operational Definition for Old and New Schools

Old Secondary Schools: the researcher categorised the two schools which were established before the 1987 educational reforms as old (Hohoe Evangelical Presbyterian Secondary School was established in 1961 and Likpe Secondary School was established in 1958).

New Senior High Technical Schools: the researcher refers to the schools which were established after the 1987 educational reforms as new (Alavanyo Senior High Technical School (1985) and Akpafu Senior High Technical School (1991). Alavanyo Senior High Technical is

deemed as new school because it was established just two years before the implementation of the 1987 educational reforms.

Organisation of the Study

This study report has been organised in five chapters. Chapter one, the introduction, comprises the background to the study, statement of the problem, objectives of the study, research questions and hypotheses, significance of the study, delimitations and limitations of the study and the organisation of the study report. Chapter two is on the related literature as proposed by authorities of Food and Nutrition practical work organisation. The chapter reviews literature on the theoretical framework of the study, the conceptual framework of Food and Nutrition in organising practical work including challenges to organising Food and Nutrition practical work in schools and empirical reviews (review of related studies and results). Chapter three presents the methods employed in conducting the research. Chapter four presents and discusses the results of the study. The last chapter (chapter five) is where the researcher presents the summary, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

Overview

This chapter reviews the related literature on the problem areas covered by the study. The literature covers the theoretical framework, conceptual and theoretical and empirical reviews concerning the study in various areas such as:

1. Theoretical Framework of the Study
2. The Food and Nutrition Curriculum
3. The Content and Structure of the Food and Nutrition Course at SHS Level
4. Quality of Human Resources for Organising Food and Nutrition Practical Work
5. Material Resources for Organising Food and Nutrition Practical Work
6. Practical Work Organisation in Food and Nutrition
7. Challenges Militating against Food and Nutrition Practical Work
8. Summary of Literature Review

Theoretical Framework of the study

The research was based on the curriculum analysis (of curriculum evaluation type) developed by Eraut, Gold and Smith as cited in McCormick and James (2018) to provide evidence to guide curriculum decision-makers. It involves evaluating the status of existing evidence, the collection of further evidence and analysing both existing and newly gathered evidence in order to

draw conclusion about the curriculum. In order to assess a program's value and success, curriculum assessment necessitates gathering data from several sources (Hussain, Dogar, Azeem, & Shakoor, 2011). It entails making decisions on whether or not a curriculum or programme should be kept or adjusted, or perhaps halted altogether (Hussain, Dogar, Azeem, & Shakoor, 2011). They, along with other researchers, hold that in a literal sense, curriculum assessment does not examine the curriculum at all, but rather the evidence around it. A group of researchers claims that there are two types of evidence. These are documentary evidence and empirical evidence. The documentary evidence, which is usually readily available, is in the form of plans or curriculum materials. The empirical evidence, which requires special collection of data, is made up of observations and opinions of people involved in implementing the curriculum. They conclude that curriculum evaluation can be based on either documentary evidence alone or empirical evidence alone, or both.

This study, therefore, involved eliciting evidence from people involved in implementing the Food and Nutrition practical work curriculum in the senior high schools with the use of questionnaire, interview and observation of activities they engage in to gather empirical evidence.

The Food and Nutrition Curriculum

It has been characterised as part of Food and Nutrition that focuses on food and how it affects one's health. Taking a course in food and nutrition may open the door to a variety of careers in the food industry, including catering and nutrition services. Food and nutrition classes in schools aim to teach students about nutrition and hygiene in order to improve the health of all

people in a developing society; they also aim to teach students how to save money and resources by planning and preparing balanced meals; and they aim to teach students how to cook and serve food in an appealing way. Food & Nutrition can only be taught effectively if the proper and appropriate instructional materials are used (Afolabi & Adeleke, 2010). Teaching and learning about food and nutrition requires a combination of instructional tools and the competence of the instructor and pedagogical topic knowledge (Orji, 2006).

Food and Nutrition studies have shown that this is the most important topic of study in the field (Afolabi & Adeleke, 2010). Subject content formerly covered in Home Economics courses is now part of the new Food and Nutrition sub-area. The problem is that nowadays, information is addressed scientifically. A scientific approach to food and nutrition, for example, is shown by nutrition and health themes, which are taught alongside other fields of science in schools. In addition, data shows that FN skills and knowledge are critical in improving health and living situations for individuals and the community as a whole. People may get an understanding of the importance of FN in enhancing their health by participating in the FN programme. By educating students how to be efficient and adaptable in an ever society, as well as helping them become conscious of food regulations at both national and international levels, this programme equips students with the foundational skills they need to succeed in today's fast-paced world.

Additionally, students are expected to be able to utilise their understanding and expertise in food production in order to get the most nutritious advantage out of their meals. In order to prepare students for the

workforce, management and entrepreneurship skills are incorporated. The curriculum incorporates an appreciation of native cuisines and traditional meals as a means of promoting cultural and national identity and instilling attitudes and values. Written and practical exams are used to evaluate the course material. Nutrition and health, food and technology, consumer education, and the food service industry are all part of it. In order to ensure that practical applications are carried out, it moves away from the domestic science notion of preparing and serving meals.

Globally, bad eating habits and sedentary habits are considered to be the top risk factors for health and well-being. Urbanization, lifestyle shifts, and increasing availability of highly processed foods have all contributed to a change in people's eating habits. Intake of lipids and energy-dense foods has risen sharply as a result of this dietary pattern; for many, this has led to an under-consumption of vegetables, fruits and whole grains. Proper eating habits have been related to reduce chronic illness risk in the future for those who adopt them. A nutrition education programme may assist children and adults learn how to make appropriate dietary choices and maintain healthy eating habits for the rest of their lives, according to Story, Lytle, Birnbaum and Perry (2002). In schools, nutrition education is a great match since it can be taught in a variety of topic areas, including health science, nutrition and food and nutrition. To achieve this, nutrition education courses for kids in schools should focus on improving students' knowledge and abilities, self-efficacy, and behaviour in accordance with dietary requirements.

The primary goal of many contemporary school-based education programmes is to encourage students to adopt good eating habits. Instead of

focusing solely on health-related aspects of food consumption, some nutrition researchers (such as Harmon & Maretzki (2006a) and Lawrence and Worsley (2007) have argued that nutrition education programmes should include information on a variety of food-related topics, including enjoyment and enjoyment of food. In their work, these educationalists stressed the need of educating future generations, particularly those who would be food consumers, on the many facets of the food supply chain from production to consumption to food waste. In order to encourage people to make environmentally conscious food choices, researchers are focusing on the many parts of the food system (Parrish, Worsley, Yeatman & Sadegholvad, 2016; Sadegholvad, Yeatman, Omidvar & Parrish & Worsley, 2016).

In the majority of school nutrition education programmes, health-related elements of eating habits are the primary focus (Stage, Roseno, Hodges, Hovland, Diaz & Duffrin, 2016; Christian, Evans, Nykjaer, Hancock & Cade, 2014). Studies show that educating teenagers about nutrition and food systems (N&FS) is an effective way to help them make better food choices (Sadegholvad, Yeatman, Omidvar, Parrish & Worsley, 2016; Harmon & Maretzki, 2006b; Sadegholvad, Yeatman, Parrish & Worsley, 2017).

In Ghana, the objectives of teaching Food and Nutrition senior high schools (SHS) are concerned with helping students to acquire knowledge, attitudes and values, and skills needed to improve food needs of the individual, the family and society in a changing environment. To that end, the curriculum aims to teach students how to: 1. gain a basic insight of foods, their nutritional value, and how to utilise them; 2. create a comprehension of the connection among nutrition and health; 3. recognise the importance of effectiveness in

kitchen planning and in the choice, use, and maintenance of kitchen equipment; 4. apply the general principles of meal planning, food preparation, and serving to feeding oneself and one's family. Assimilate the fundamental principles underlying food processing and preservation; 7. obtain the necessary competencies for additional studies; 8. utilise research data and other sources of information to build and enhance traditional cuisine; and 9. establish a food-related business using all the basic skills acquired (Ministry of Education, 2010).

At the SHS level, students learn about nutrients in food, their functions and deficiency diseases, nutrition all through the life cycle, food choices and purchase, meal management, food safety and sanitation, processing, preservation, and storage of foods, and career opportunities in the food industry. A strong foundation in Integrated Science and Basic Design and Technology in the Junior High School is necessary for success in Foods and Nutrition. Students taking Food and Nutrition at the secondary school level must also take Management-In-Living and Chemistry/Biology. Aside from core science, students of Food and Nutrition may choose one of the following electives (French, Economic, General Knowledge in Art, Textiles, ICT, E-Masth, and others) to demonstrate their readiness for continued study in tertiary institutions and other advanced professions, such as nursing (Ministry of Education, 2010).

In order to sustain life, everyone on the planet must eat at some point in their lives. But while some individuals go hungry, others become sick from overeating, which may be linked to a variety of unhealthy habits. Food and nutrition education in advanced countries aims to improve people's dietary

habits, gain knowledge about the capacity to pick suitable meals, and enhance people's ability to adopt good eating habits (Suzuki, 2012).

An integrated effort between school, family and the community is essential to offer children with nutrition education in order to ensure that they are well-nourished. All school personnel and teachers, under the guidance of the principle, are expected to deliver food and nutrition instruction to students in a variety of ways. Educators in the field of nutrition play a critical part in these initiatives. Teachers who specialise in nutrition focus mostly on school lunch programmes. Food and nutrition courses devote a significant amount of time to this topic. Indeed, food and nutrition education has traditionally focused on diet as a primary topic.

The Content and Structure of the Food and Nutrition Course at SHS Level

The Food and Nutrition (FN) course at the Senior High School (SHS) level has its scope as nutrients in foods, functions and deficiency diseases, nutrition through the life cycle, food selection and purchase, and meal management. Others are safety and sanitation, processing, preservation and storage of foods. The rest are career opportunities in the food industry (GES, 2010). The SHS Food and Nutrition has been structured and organised as a three-year course with the objective of helping the required knowledge, attitudes and values, and skills to qualify for further study in tertiary and other advanced institutions and professions such as nursing and catering (Ministry of Education, 2010).

At SHS 1, the syllabus has been structured into six (6) sections to cover the three terms of the academic year. Term 1 has two sections which are

sections 1 and 2 respectively. Section 1, Nutrition and health, includes introduction to nutrition and food, food habits, digestion of food and absorption of nutrients and metabolism. Section 2 has to do with food laboratory and equipment and includes the kitchen, kitchen safety and sanitation. Term 2 which comprises sections 3 and 4 has cooking food and food commodities respectively. Section 3, cooking food, includes principles underlying cooking, transfer of heat, methods of cooking and cooking terms. Section 4, food commodities, involves animals and animal products, and cereals/grains. For Term 3, Sections 5 and 6 have to do with food commodities, and food storage and preservation. Section 5, food commodities includes fruits and vegetables, legumes and oily seeds, fats and oils, starchy roots and plantain and food additives. Section 6, food storage and preservation comprise food spoilage, food preservation and food storage (Ministry of Education, 2010).

The Food and Nutrition course at SHS 2, Term 1, Section 1 focuses on flour cookery and confectionery which includes types of flour, basic ingredients in flour cookery, raising agents, batters and dough, cakes and biscuits, pastries, and yeast mixtures. Term 2, Section 2, sugar confectionery, has to do with sugars, icings and cake decoration. In addition, the SHS FN Term 2, Section 3 course structure concerns family meal management. It comprises meal planning, meals for special groups, réchauffé/left-over foods, convenience foods and fast foods. Term 3, Section 4 is on stocks, soups and sauces. Section 5 is on beverages and comprises types of beverages and principles underlying the preparation of beverages. Section 6 is concerned with festive and festival dishes (Ministry of Education, 2010).

For the SHS 3, Term 1, the main content in Section 1 is on the art of entertaining and comprises types of entertainment, table setting and table etiquette, and meal serving styles. Section 2 is on experimental cookery and comprises research into local dishes and drinks, and improvement of existing recipes. For Term 2, Section 3, the main content is the food industry and includes catering on a large scale, food purchasing, career opportunities in foods and nutrition, entrepreneurial skills, food packaging and work ethics. Section 4 is concerned with exhibitions as well as preparations for the West African Senior Secondary Certificate Examination (WASSCE). In addition, Term 3 has been allotted to WASSCE in progress implying that the period should be used for preparatory activities towards the FN practical activities and the written examinations (Ministry of Education, 2010).

According to the Ministry of Education (2010), to accomplish the teaching of the FN subject effectively, a minimum of six (6) periods a week of 40 minutes is recommended for learning Food and Nutrition in SHS 1, a minimum of six (6) for SHS 2. A minimum of six (6) periods a week is also recommended for learning in SHS 3.

Quality of Human Resources for Organising Food and Nutrition Practical Work

School food and nutrition educators who advocate for the use of staff attributes say that instructors should have a diverse set of skills. Most successful practises in secondary schools are characterised by instructors who have acquired the necessary subject knowledge, abilities, and pedagogical techniques, as well as the personal traits necessary to organise food and nutrition practical work (British Nutrition Foundation, 2019; Moodie, 2017).

Teaching and learning tactics and styles are another attribute of instructors that are well-versed in their subject matter. They have a strong interest in food education and are devoted to keeping up with the latest developments in the field. In the classroom, teachers are expected to be resourceful and flexible in order to manage their workload and prioritise their activities. They work well with others and prioritise the needs of students. Additionally, instructors are efficient in their planning and preparation for classes, building effective systems and managing their time efficiently, and displaying outstanding time management abilities. They use their leadership skills to enhance the quality of education for students. As a result, the instructors must be resourceful, which means they must produce and pick materials that are current, evidence based, and high-quality, concentrating on fulfilling learning objectives and the requirements of various learners. A teacher is required to pick the right components and equipment to meet the educational objective of the lesson plan. To ensure that students can use their understanding in various settings and exhibit their practical abilities properly and securely, the quality of the instruction is always the greatest possible. Finally, instructors are required to routinely reflect on and assess the effectiveness of their instruction. They devise a well-thought-out learning strategy that demonstrates growth. Educators re-evaluate their own abilities and expertise (British Nutrition Foundation, 2019; Moodie, 2017).

In managing practical food classes when teaching, the British Nutrition Foundation (2019) proposes some accomplishments teachers must keep to in order to attain success. Health and safety issues, such as cleaning and storing raw materials for cooking, food allergies, and resourcing practical labour such

as shopping, are all addressed in an effective classroom system. It's also a good idea to be role models for excellent food handling and preparation practises, including the safe use of equipment. The third task is to make sure that everyone who works in the food classroom is aware of and adheres to the relevant procedures and protocols. A practical lesson's last phase comprises choosing and demonstrating relevant teaching methods, such as demonstrations and personalised help. Effective methods for the safe use of high, medium and low-risk ingredients or equipment in the classroom, taking into account group activity size, equipment location and number, supervision level necessary, suitable ingredient/equipment selection for ability are included in this fifth step. – Lesson time limitations, safe and successful food for everyone, and differentiation and individual growth are the sixth and last tasks to be completed. Pupils are prepared to cook with the use of excellent methods that increase their independence and decision-making abilities, as well as enabling them to choose and personalise their culinary activities. Organizing safe and effective sensory assessment methods and sessions is the ninth. When it comes to managing support employees (technicians and/or teaching assistants), the ninth step is crucial.

Teaching food and nutrition instructors must be provided with well-designed practical work courses that seek to familiarise the teachers with practical work in order to help them better grasp the objective of practical work in the classroom. This is particularly true in educational systems where teacher candidates have not had sufficient hands-on experience and, as a result, may not have reaped the full advantages of classroom experience.

Material Resources for Organising Food and Nutrition Practical Work

School-based nutrition education curricula aims at improving students' knowledge, skills, self-efficacy, and behaviour aligned with the dietary guidelines. In order to get ready to cook during Food and Nutrition practical work, it is important to consider how the equipment, resources and ingredients are managed and organised. Being clear about this will enable successful learning, increase efficiency and ensure health and safety.

A variety of facilities, equipment and materials resources are needed in schools for teaching and organising Food and Nutrition practical work. These include facilities such as Home Economic centres, curriculum kitchen, and show rooms; equipment such as gas/electric stoves with ovens, cooking utensils, weighing scales, serving trays, blenders and others; reference and resource materials and kit tools, and teaching and learning materials; and furniture (Moodie, 2017).

Moodie (2017) posits that some schools are fortunate in having a curriculum kitchen; others teach cooking skills in the classroom or in a multi-purpose room with a fitted cooker and sink (for example a parent/family room or after school activities room). Whichever room or area is chosen it will need to be available during the school day for significant amounts of time, have access to electricity and hot and cold water, be clean, well ventilated and light and safe to use. The chosen accommodation will also depend on whether pupils are taught in whole classes, half classes or in small groups.

This means that the oven or stove must be situated in a safe location away from where the students are working, but it should also be simple to explain how food can be put in and removed from the oven or how food may

be cooked on a stovetop. In addition to being safe to use, electric stockpots may be used as a replacement for a saucepan, such as for preparing oatmeal. Close supervision should be given to students as they engage in all kitchen tasks (British Nutrition Foundation, 2019; Moodie, 2017).

The British Nutrition Foundation (2019) proposes that students should be taught how to use cutting tools safely such as sharp knives (in this case, small serrated paring knives with an 8-9cm blade are suggested), graters, Y-shaped peelers (or using a teaspoon, which can be just as effective for removing the skin from carrots), melon ballers (used instead of a corer). To support planning and teaching reference should be made to the new national curriculum - cooking and nutrition. The location of culinary and nutrition classes in the school curriculum must be carefully considered to promote success, fun, and effective teaching and learning. In order to assure advancement of skills and knowledge, it is important to map the recipes to the whole school curriculum.

Food and nutrition (FN) instructors should participate in activities related to equipment, ingredients, food sources, functional qualities, procedures, and skills while teaching food preparation and cooking, according to British Nutrition Foundation (2019) and Moodie (2017). Successful instructors should understand how kids acquire essential ideas and skills, and employ age/ability appropriate teaching techniques that engage learners, challenge a wide variety of abilities, and promote self-confidence while teaching food. The Foundation suggests that competent teachers For successful learning, instructors display proficiency in a broad variety of culinary skills. In order to improve scientific knowledge of important food

preparation and cooking processes, they explain how and why food is prepared and the functional qualities of components. Small hand and electrical equipment, as well as ingredients, are carefully selected by instructors to ensure that they are safe to use and that they meet the needs of their students (such as cost, seasonality, sustainability). A well-balanced diet may be achieved via the use of teachers' knowledge, skills, and abilities in the areas of menu planning, preparation, and cooking. As a final step, instructors examine and refine recipes to satisfy particular needs and requirements (such as ingredient, culinary skill, cooking technique, and portion size alterations) as well as widen food experiences, such as experimenting with new foods and recipes.

Practical Work Organisation in Food and Nutrition

Millar (2004) defines practical activity as any teaching and learning activity which includes at a certain point the learners in seeing or handling actual items and materials. Much of the learning involved with a practical project takes place via the process of talking about the observations and measurements that have been taken, and what they could indicate, both with other learners in the class and with the instructor. A typical practical exercise is followed by a time of discussion of the observations and measurements collected, of patterns in them (such as similarities, differences, correlations and trends), and of how they can be understood and explained. This is so closely linked to the preceding practical activity that it does not make much sense to separate them and regard them as two distinct teaching and learning activities – even if, for practical reasons, the discussion takes place in a subsequent lesson, or in a different place (a classroom rather than a food

laboratory) (a classroom rather than a food laboratory). Instead, we should regard the entire operation - the data collecting phase and the data analysis phase – as comprising a practical work.

Practical work does not stand out from other forms of food and nutrition education in terms of cognitive distinctiveness. There is no need for data collection in a session when the instructor intends to study phenomena that students are already familiar with from their daily lives, so the discussion may proceed in the same way as it would after a practical exercise. When students discuss and examine their own facts, they are using the same mental processes. The goal is to bring students' attention to a phenomena, to focus on specific aspects of it, and to discuss possible approaches to understanding it. There should be a connection between what we see and how we think about it, between what we see and how we think about it. All food and nutrition education revolves on this concept, and hands-on experience is a vital component. When students can't or won't see the phenomena we're studying in their daily lives, we turn to hands-on activities in nutrition and food science lectures. Millar, Tiberghien and Le Maréchal (2002) argue that it is both necessary and irreplaceable under such circumstances. Teaching and studying food and nutrition material should include hands-on activities that help students create connections between two different types of knowledge: the domain of tangible items with observable features and occurrences, and the realm of abstract concepts (Millar et al., 2002).

Practical work is a vital part of the learning process for both the development of students' practical knowledge and their understanding of Food and Nutrition, according to Millar (2004). If you're thinking about what

function practical work plays, Millar (2004) says it's crucial to keep in mind that there are substantial variations between the practical food laboratory (where food is prepared) and the teaching food laboratory (where food is taught). This kind of practical activity is better seen and regarded as communication rather than an investigation. In order to help students expand their nutritional knowledge, practical activity typically needs students to draw connections between two different types of information: the domains of observables and concepts. Using this method of practical work is most effective when: the learning objectives are clear and limited in number for each task; the task design highlights the primary objectives and minimises "noise"; an explicit strategy is used to stimulate the students' thinking beforehand so that the practical task answers a question the student is already thinking about; and the task design "scaffolds" students' efforts to achieve the goals.

A more open-ended, inquisitive form of practical work may help students strengthen their tacit understanding of nutritional inquiry, according to Millar. But it is challenging to claim that this information is necessary for 'nutrition literacy, but it is definitely of use to students who plan on taking more advanced courses in Food and Nutrition.'" When students' execution of investigative activities is part of the course evaluation, attempts to integrate investigative practical work into the mainstream curriculum sometimes result in practise that is surprisingly different from what was anticipated. Nutrition literacy requires an awareness of the logic of nutrition research and the nature of nutritional knowledge. In particular, practical activities may aid in the development of these kinds of concepts, particularly when it comes to data and

its interpretation. In the same way that successful tasks have clearly defined goals and task designs that minimise 'noise,' so do effective activities. Non-practical teaching techniques may be necessary for some of the nutritional understandings we aim to acquire, such as an understanding of the challenges involved in selecting between conflicting explanations and in "closing" discussions (Millar, 2004).

Teachers' practical knowledge falls under the categories of subject matter knowledge and knowledge of representations and techniques in the classification of teachers' knowledge. Knowledge of the greatest educational approaches is intertwined with a teacher's profound comprehension of the subject matter (Asikainen & Hirvonen, 2010). An important category in pedagogical content knowledge is the ability of instructors to choose and implement the most effective instructional strategies, according to Klafki (2000). (PCK).

In food and nutrition education, practical work is seen as a key component, with the following objectives: (1) to encourage students by sparking their interest; (2) to expand their grasp of food laboratory skills; and (3) to strengthen their understanding of nutritional information (Millar & Abrahams, 2009). Because science deals with the physical world, it is necessary to observe, manage, and manipulate actual items in order to understand about food and nutrition, and it is also necessary to demonstrate this knowledge to students (Millar, 2004; Millar & Abrahams, 2009). They feel that practical work is a crucial component of teaching and learning about food and nutrition, and most UK food and nutrition instructors endorse this approach (Woodley, 2009). What we're trying to do in terms of practical work

as a teaching and learning method is to make it more effective (Millar & Abrahams, 2009). Students are more likely to accept information that they have discovered on their own, and this promotes them to be more self-reliant (Millar, 2004).

Thair and Treagust (1999) said that secondary Food and Nutrition curriculum must include substantial practical practise. In order to build a conceptual grasp of food and nutrition, educators believe that children must engage in processing information via practical activities that are the only means of offering this chance. It is more beneficial to teach pupils about food and nutrition via hands-on activities than than through lectures and group discussions. Practical work demands that students build connections between the domains of things and ideas.

However, Van Driel et al. (2001) recognise the importance of hands-on practise, but they do not provide any guidance on how to implement this practise in the classroom. It's possible they've assumed that all professors of food and nutrition perform practical work and provide students with real-world experience since they've made this assumption before. According to Asikainen and Hirvonen (2010), experienced food and nutrition teacher educators feel that food and nutrition teaching at the school level is based on both theory and practical practise, despite the authors' advice to the contrary.

Even while students like practical work, Millar and Abrahams (2009) claim it's common for learners to forget what they learned from a practical assignment within a few weeks of doing it, and many are unable to articulate what they've gained from it. According to Millar and Abrahams (2009), practical activity has minimal instructional value and plays a very limited role

in learning about food and nutrition. According to Halai (2008), students should spend more time engaging with ideas than equipment in order to reap the demonstrated advantages of practical labour in reconstructing the theory of food and nutrition and combining nutritional concepts in various ways.

Practical work may help students learn by demonstrating, simplifying, and encouraging them, but it can also generate confusion since knowledge is founded on observation, and nutritional rules are learned via the use of sensory data in the classroom (Halai, 2008).

There are three limits to the inquiry-based activity that Millar (2004) points out: When students are new to the field of study or have few resources, they are more likely to misinterpret or misinterpret the data they acquire. According to Millar (2004), practical work that isn't done properly turns into a game for students instead of a place where they may really "find information."

According to Halai (2008), food and nutrition education cannot be effectively achieved via practical work as it is now practised. It's possible to learn more about food and nutrition by doing open-ended research into important problems, conducting project work with other students, participating in group discussions and reading and writing about important subjects. Learners' implicit understanding of nutrition may be expanded via open-ended and inquisitive practical practise, according to Millar (2004).

For example, Woodley (2009) argues that most researchers and instructors feel successful practical work may create crucial abilities in comprehending the process of nutritional analysis and also help students better absorb topics. As Sharples et al. (2015) argue, learners' conceptual and procedural grasp of food and nutrition may be developed via practical activity.

Productive practical tasks bridge the gap among "hands-on" activities and "minds-on" activities, even if they are difficult to implement (Woodley, 2009). Increasing the "minds on" parts of practical work is recommended by Millar and Abrahams (2009) so that students' knowledge of food and nutrition theories may be improved. Think about what the professors anticipate pupils to learn before you begin any practical exercise (Woodley, 2009). It's helpful to think about how a teaching and learning activity is developed and monitored in order to understand how successful it is (Millar & Abrahams, 2009). It is also essential that instructors clearly define and supervise students' actions, as well as evaluate what they have learned from the practical work, to ensure its success (Millar & Abrahams, 2009).

Food and nutrition practical work is defined by the Science Community Representing Education (SCORE) as a "hands-on" learning activity that encourages thinking about the natural world. To assist students better grasp nutritional concepts and build practical abilities, the Woodley (2009) study suggests a variety of hands-on activities such as food laboratory processes and techniques, fieldwork, and instructor demonstrations, as well as inquiry planning and analysis.

These curricula encourage practical exercises, but there are several obstacles that prohibit them from being implemented in the classrooms of underdeveloped nations. Low maintenance requirements for food laboratory facilities and a shortage of lab assistants force lecturers to spend long amounts of time preparing students for practical work in the food laboratory (Thair & Treagust, 1999). As a result, practical work is limited by instructors' lack of knowledge, abilities, and confidence. In spite of well-designed curriculums,

food and nutrition instructors are forced to use lecture approaches in their instruction owing to a shortage of food laboratory equipment. As a result, kids are compelled to learn by heart (Ranade, 2008). Researchers found that practical work in food and nutrition is complicated by the limited food laboratory facilities, teachers' lack of knowledge of practical work, difficulties in understanding instructional approaches, and a general lack of organisation of practical work in the study of food and nutrition.

Due to the overburdened curriculum, food and nutrition instructors are unable to carry out practical exercises, according to Lyons (2006). It is the overcrowded food and nutrition curriculum that forces instructors to concentrate more on finishing the syllabus rather than on food and nutrition education, according to Lyons. Overloaded food and nutrition curricula is also mentioned as a typical problem in practical food and nutrition education.

To achieve the goals of food and nutrition education, the substance of the curriculum and the rationales for the use of practical work must be aligned (Millar, 2004). According to Halai (2008), because of cultural variations in viewpoint, role of education, and results, practical activities serve distinct purposes for students in different nations. ' Since home economics education is based on practical activities, it must take into account (1) what sort of practical work students in a specific nation need, and (2) what kind of skills instructors need to teach food and nutrition via practical activities (Halai, 2008).

Thair and Treagust (1999) argue that instructor education programmes must help educators institute practical work and food laboratory activities into their classrooms, as well as motivate them to utilise a variety of interactive methods, such as group discussion, group activities, and practical activities, to

help students enhance their level of comprehension and, consequently, their level of acquiescence. Prediction-observation-explanation (POE) exercises, for example, may improve the efficacy of demonstrations, says Halai (2008). It is possible that the availability and upkeep of food laboratory equipment in secondary schools might be alleviated by the employment of food laboratory assistants.

Challenges to the Organisation of Food and Nutrition Practical Work

Without sufficient facilities, no food and nutrition programme can be completed. Therefore, adequate training resources must be given for actual food and nutrition instruction. Learning about food and nutrition is more successful when students have access to food laboratory items and utilise them properly. According to McDonnell, O'Connor, and Seery (2007), practical sessions are aimed to supplement lecture topics and provide students with hands-on experience that will be essential in their professions.

In the view of Shadreck (2012), insufficient financing was cited by school administrators and teachers as a problem to implementing the food and nutrition curriculum effectively. Schools in low-income rural areas, according to Shadreck, are unable to earn enough money via levies and tuition fees to cover the cost of a food and nutrition curriculum. As a result, several schools eliminated the topic in favour of more cost-effective programmes to teach fashion and textiles. As a result, students complained about the lack of hands-on experience and poor textbooks.

Without proper learning facilities, Puyate (2008) observed that efficient teaching of vocational topics couldn't take place. Classrooms, workshop areas, a library and tools and equipment are only some of the

facilities required. Lack of textbooks, laboratory equipment, utensils, human resources and electrical power supplies hinder the efficient teaching and learning of food and nutrition in schools. It is possible that in certain circumstances when equipment is provided for food and nutrition teaching, it is not adequately used. When kids have access to educational materials and tools, Puyate said, they are able to learn about food and nutrition more effectively. Teachers are able to deliver the course without trouble, making it simpler for students to learn.

Furthermore, studies by Ogwo and Oranu (2006) have shown that instructors' reluctance to improvise and the lack of teaching resources are major impediments to Food and Nutrition education. As Mobegi and Ondingi (2011) observe, students who attend well-equipped schools have a greater likelihood of succeeding in exams than those who attend under-equipped schools. On the other side, a lack of money leads in a lack of teaching and learning resources and equipment, which in turn results in poor student performance (Gogo, 2002).

Food and nutrition instructors are in limited supply in Pakistan's biggest and most developed province, according to Halai (2008); the situation is far worse in rural regions. As a result of a dearth of food and nutrition instructors, some teachers are teaching food and nutrition classes even though they never studied the topic in school. Even in industrialised nations like Canada, the United States, the United Kingdom, and Sweden, food nutrition instructors are in short supply, according to Kasanda (2008). Since there aren't enough scientific professors, students wind up having to take more courses, which causes teachers to get overwhelmed and "cannot do credit to their

instruction," as Halai (2008) explains in her study. Ranade (2008) points out that huge class sizes make it difficult for instructors to employ activity techniques; instead, they resort to lecturing on food and nutrition.

It is essential that teachers of food and nutrition practical be well-trained in order to properly pass on their knowledge (Uwaifo & Uwaifo, 2009). Poor school infrastructure, lack of competent instructors, and poorly equipped workshops and food labs all have an impact on the teaching of prevocational skills in schools, according to research by Kiadese (2011). Additionally, the research found that the quality and number of teachers was a major issue in the teaching and learning of nutrition and food. Food and nutrition instructors in the schools seem to be understaffed. When it came to teaching and learning about food and nutrition, however, the available instructors were not appropriately qualified and lacked the creativity and inventiveness that was required.

Food and Nutrition education is plagued by bad social perspective, according to Uwaifo and Uwaifo (2009). Students and parents who engaged in the survey had an unfavorable perspective toward practical courses and saw food and nutrition professors as flops in life. There is a strong preference for white-collar jobs in Nigeria because of the limited status connected with most kinds of vocational and technical education, and this cold mindset toward vocational and technical education meant that some decision makers didn't think it was important enough to merit funding, according to Uwaifo and Uwaifo (2009).

Food and Nutrition is a topic that many students despise in school; others are so uninterested in it that they abandon their studies halfway through,

according to Anene-Okeakwa (2002). This is mostly due to social views that see vocational education as a field for underachievers and females. Most parents and kids were unaware of the relevance of food and nutrition to the socio-economic growth of the country, and such unfavourable views of the students and parents are likely to inhibit effective learning of the topic.

In Zimbabwe's Chivi District, a study by Shadreck (2012) examined the difficulties of adopting a food and nutrition curriculum in secondary schools. Food and Nutrition curriculum implementation in Chivi district secondary schools was hindered by a lack of professional and qualified teachers, a lack of infrastructure, and a lack of expertise and consistent etiquette, according to the findings. For example, the study recommends that quarterly awareness campaigns be held in the schools' communities in order to educate people about how important food and nutrition, as well as technical and vocational classes, are; teachers should receive regular training in Food and Nutrition; schools should form partnerships with organisations that can help them better educate their students.

Chapter Summary

The literature reviewed covered the theoretical framework of the study, the Food and Nutrition curriculum, the content and structure of the Food and Nutrition course at SHS level, human resources for teaching and organising Food and Nutrition practical work, equipment and material resources for teaching and organising Food and Nutrition practical work, practical work organisation in Food and Nutrition, challenges militating against organising Food and Nutrition Practical work in senior high schools. The review revealed a consensus on the definition of Food and Nutrition has been explained. When

it comes to food and nutrition as an aspect of home economics, it has been characterised. As part of the Food and Nutrition practical work curriculum, students learn how to be productive and adaptable in an ever-changing food policy and food resource management environment in order to maintain a balanced diet and lifestyle.

The literature further established that teacher qualities and characteristics are indispensable when Food and Nutrition practical work are to be organised. An essential feature of successful secondary school food instruction and practical work is that instructors be knowledgeable and skilled in their respective fields and possess the personal traits that are critical to the success of their students. A variety of facilities, equipment and materials resources are needed in schools for teaching and organising Food and Nutrition practical work. These include facilities such as Home Economic centres, curriculum kitchen, and show rooms; equipment such as gas/electric stoves with ovens, cooking utensils, weighing scales, serving trays, blenders and others; reference and resource materials and kit tools, and teaching and learning materials; and furniture.

Any teaching and learning activity in which students are required to interact with actual items and materials is considered to be practical work, according to the literature. With a practical project, most of the learning comes from discussing what you've seen or measured in terms of its significance to you and your peers as well as your instructor. Food and Nutrition practical involves students observing teacher explanations and demonstrations of food preparation processes followed by students' planning and executing the food preparation and serving what has been prepared. Observations and

measurements taken in the course of a practical activity are often discussed at this time.

It has also been established that many factors militate against the organisation of food and nutrition practical work. Schools suffer from typical infrastructure problems. These include lack of curriculum room for organising cooking as well as equipment and resource materials for organising food and nutrition practical work. In addition, the schools lack funds for effective organisation of practical work.

CHAPTER THREE

RESEARCH METHODS

Overview

The study seeks to examine the status of Food and Nutrition practical work in the senior high schools (SHSs) in the Hohoe Municipality of the Volta Region of Ghana. This chapter explains how the study was conducted. It describes the research design; the study location; the target population; the sample and sampling procedure; instruments for data collection; pre- testing of the research instruments; data collection procedures; data analysis and presentation; and ethical considerations.

Research Design

A mixed methods research design was adopted and used for the proposed study. Using a combination of quantitative and qualitative approaches, a mixed methods research design (Cresswell, 2012) aims to get a deeper understanding of a research topic. Research challenges may be better understood when both quantitative and qualitative methodologies are used in tandem (Creswell & Plano, 2011). Almalki (2016) contended that a mixed methods approach offers investigators with a greater scope of inquiry into educational issues utilising both words and numbers. It has the prospects of providing a greater depth and breadth of information by generating data from both quantitative and qualitative data collection methods, which cannot be possible using a single approach.

The convergent mixed methods research design was adopted and used for the proposed study. The convergent mixed method design is also called "parallel" or "concurrent" mixed methods design. Designing an experiment that collects both quantitative and qualitative data at once is an important part of the research process. One of the main reasons for this approach is that one data collection method gives strengths to counter the limitations of the other form, and that a full picture of a study subject is gained by gathering both quantitative and qualitative data (Creswell, 2012; Mercer, 2004).

The convergent mixed method design enabled the researcher to gather both quantitative and qualitative data, analysed both datasets separately, compared the results from the analysis of both datasets, and made an interpretation as to whether differences exist in the data with regard to human and materials and equipment resources, and organisational approaches employed in organising food and nutrition practical in the types of schools investigated (Creswell, 2008). This approach incorporates the advantages of both quantitative and qualitative data; that is, the quantitative data allow for generalizability, while the qualitative data give information on the context (Mercer, 2004). This allows a researcher to collect data that combines the greatest aspects of quantitative and qualitative data collecting. The mixed methods design is considered useful in generating, describing, examining and theming the data that would facilitate the determination of the status of Food and Nutrition practical work in senior high schools in the Hohoe Municipality of the Volta Region of Ghana.

Study Area

The research was conducted out at Ghana's Volta Region's Hohoe Municipality. As part of Ghana's international boundary, it borders Togo to the east; to the southeast by the Afadzato district; to the southwest by Kpando Municipality; and to the north by Jasikan district. Hohoe, the capital of the area, is 78 kilometres from Ho and 220 kilometres from Accra. The municipality has a total of five public SHSs, some of which were established as secondary schools in the 1960s and are well-endowed with the necessary human resources and physical and learning facilities, while others which were recently established as senior high technical schools in the 1990s and are less endowed.

According to the Ghana Education Service (GES) – Senior High School (SHS) Selection Register (GHEA, 2017), there are five SHSs in the Hohoe Municipality that are offering Food and Nutrition programme. These include two senior high schools and three senior high technical schools. The senior high schools were in existence before the introduction of the New Education Reform programme in 1990 and the senior high technical schools were established during and after the implementation of the New Education Reform programme. The two senior high schools are Hohoe EP Senior High School and Likpe Senior High School. The three senior high technical schools are Akpafu Senior High Technical, Afadzato Senior High Technical and Alavanyo Senior High Technical schools.

Population

The population for the study comprised five (5) Home Economics Heads of Department, five (5) Food and Nutrition teachers and 178 third year

students offering Food and Nutrition in five senior high schools within the Hohoe Municipality of the Volta Region of Ghana. The total population was 188 participants.

Sampling Procedure

In this study, the SHS heads, of departments, the food and nutrition teachers and the third-year students offering Food and Nutrition were selected in order to allow the researcher to gather appropriate data that will provide answers to the research questions, which guide the study.

Four (4) out of the five institutions were selected for the study because the researcher was part of the respondents in one of the schools within the Hohoe Municipality.

A sample size of 171 participants were selected for the study. The sample comprised 5 Food and Nutrition teachers and a total of 162 third year students offering Food and Nutrition, from the four SHSs. In addition, 4 Heads of Home Economics departments in the schools were also selected for the study. The census sampling technique was used to select all the 4 Home Economics heads of department; and the 162 students offering Food and Nutrition programme from the four schools selected for the study.

The census sampling technique was adopted in order to obtain information-rich cases. The sampling technique requires that research study sites such as organisations and people (the unit of analysis) are selected based on how important they are to the research questions (Bryman, 2012).

Data Collection Instruments

Three different instruments were used for data collection for the study. They comprised a questionnaire, an observation checklist, and an interview guide.

Questionnaire

A 26-item questionnaire was designed by the researcher and used to collect data for the study. The instrument was designed to elicit information from the teacher and student participants on human resource quality; facilities, equipment and tools, reference and resource materials availability; and how Food and Nutrition practical work is organised in the selected schools in Hohoe Municipality (Refer to Appendices A1 and A2). The questionnaire comprised closed-ended questions. The basic structure of the instrument was based on the four-point Likert-type scale (strongly agree, agree, disagree and strongly disagree) as described by Yin (2014).

Observation Checklist

A 26-item observation check list was designed and used to collect information on how Food and Nutrition practical lessons were planned and implemented by the teachers. Items 1-2 were on particulars of schools and teachers being observed; Items 3-13 were on availability of facilities, equipment and tools, reference and resource materials; and Items 14-23 were on organisation of Food and Nutrition practical work (Refer to Appendix C). These items were adapted from the Assessment for Teaching Practice lesson in Home Economics, Department of VOTEC, Faculty of Science and Technology Education, College of Education Studies, University of Cape Coast. The instrument was designed to be used for recording variables

observed on it with regards to human resource quality; facilities, equipment and tools, reference and resource materials availability; and how Food and Nutrition practical work is organised in the selected schools in Hohoe Municipality.

Interview Guide

A 12-item interview guide was also designed by the researcher to elicit information from heads of Home Economics departments on quality of human resource; facilities, equipment and tools, reference and resource materials availability; and how Food and Nutrition practical work is organised in the selected schools. The roles teachers and students played in the organisation of Food and Nutrition practical work.

The interview guide was in three sections. Section 1, human resource quality, Section 2, facilities, equipment and tools, and resource materials availability, and Section 3, organisation and conduction of FN practical work (Refer to Appendix C).

Pre-testing of Instruments

In addition, the instruments were pre-tested in a selected SHS in the Afadjato South District of the Volta Region. This school had similar characteristics as the same as those involved in the study. The scrutiny and examination of the interview guide, questionnaire and the observation checklist helped the researcher to restructure and reshape the items to measure the appropriate characteristics of the research. The pre-test was meant to improve the questionnaire items, format and also ensure that the questions were precise, unambiguous and valid.

Reliability of Instrument

The instrument was subjected to Cronbach Alpha analysis of reliability. The test yielded a Cronbach's alpha coefficient of 0.785, this implies that the instrument is reliable and can be used for the study (Cohen, Manion, & Morrison, 2011).

Validity of Instruments

To ensure a high degree of validity, two Senior Lecturers in the Vocational and Technical Education (VOTEC) Department, University of Cape Coast, were contacted to examine the items and the content of the instruments for the proposed study. The experts in the field of study assessed the items to find out whether the items in the questionnaire could measure the intended content (face validity). In addition, the coverage of the content (content validity) and the extent to which the items in the questionnaire measured specific traits or construct (construct validity) were assessed.

Data Collection Procedure

A letter introducing the researcher to the management, staff and students of the SHSs involved in the study was obtained from the Department of Vocational and Technical Education, University of Cape Coast. The introductory letter helped the researcher to get the needed assistance and co-operation from the head of schools, staff and students of each SHS involved in the study.

Questionnaire Administration

The first stage of data collection involved collecting data on the opinion of teachers and students who are involved in the teaching and learning, and organising Food and Nutrition practical in the schools in the

Municipality. The questionnaire for teachers and students were administered to the two groups personally in their various schools after obtaining permission from the Heads of school. The student participants in each school were put together with the help of the assistant Heads. The study's goal was conveyed to them before the questionnaires were distributed. The researcher was on hand to answer any questions the participants had while filling out the survey. The researcher collected all of the completed forms and returned them on the same day. To assure a high return rate, this was done.

Lesson Observation

The second stage of data collection involved observing teachers and students who were involved in the teaching and learning of the content and organising Food and Nutrition practical in the classroom in order to cross check the views expressed on the questionnaire items. The researcher observed the lessons.

The Heads of schools introduced the researcher to the teachers involved in organising the practical work. The researcher then arranged with the practical lesson teachers the day and time the practical work would be organised. In all cases, the researcher went back to observe the practical work lesson. The practical lesson teachers cooperated with the researcher in attaining the objectives of the research. The observation guide was used to rate the lessons in order to answer the research questions.

Conduction of Interviews

Interview can be described as a conversation between two or more people with a clear objective in mind of a researcher to gather information from participants (Herman-Kinney & Verschaeve, 2003). The nature of the

proposed study suggests the need to recognise the voices of participants (Cohen, Manion, & Morrison, 2011) in the form of interviews as an integral part of the data to gather insight concerning the status of Food and Nutrition practical work in senior high schools in the Hohoe Municipality. The use of interview as a data collection instrument allows researchers to discover and describe the understandings, which participants share about a situation and also compare the information with data from other instruments (Polit & Hungler, 2013).

The third stage of data collection involved organising interviews. The interview was conducted by the researcher in person. The interview guide was used to collect data from the SHS Heads and Heads of the Home Economics Department involved in the study. The interview was recorded with permission of the participants. Notes were also taken by the researcher during the interactions. The interview sought to elicit information from the participants which data was used to cross check information from the questionnaire and the observation.

The data collection process began on 15th March, 2020 and ended on 28th January, 2021. The outbreak of the Covid 19 pandemic delayed the process of the data collection. This was because all schools were closed down during the era. In addition, strangers were prevented from entering school premises when the ban was lifted.

Data Analysis

Data collected were analysed with the use of the Statistical Package for the Social Sciences (SPSS 22.00). The responses provided by the participants to the questionnaire items were edited, coded, and scored. All close-ended

items were assigned weights of 4, 3, 2, and 1 for strongly agree, agree, disagree, and strongly disagree for positive items respectively. On the other hand, these weights were reversed for negative statement items so that high weights always represent positive perception, while low weights that were indicated were yield negative perception.

The responses of the observation checklist were coded 0 for Not Observed and 1 for Observed. On the other hand, the responses to the interview guide items were edited and similar responses put together and coded and presented in themes and in some cases direct quotes were narrated in the analysis. The questionnaire data and the data from the observation guide were all entered on the SPSS spread sheet for the data analysis.

The statistical analysis of the results involved the use of descriptive statistical tools such as frequencies, percentages, means and standard deviations. The biographic data of respondents were analysed using percentages. These data enabled the researcher understand the relationship between the data and the research questions. Related data emanating from the questionnaire, observation checklist and the interview guide were triangulated to provide eclectic results of the views analysed, expressed or observed in order to answer the research questions.

Research questions 1 and 2 were answered using frequency and percentages. The main objective was to describe the views of respondents in relation to the phenomenon, consequently the use of descriptive statistics as used. For research question three, mean and standard deviation was used. In this regard, a mean of mean was computed based on the scale of measurement (MM=2.5). On this basis, any item that yielded a mean score higher than this

is considered to have a higher dominance among respondents. That is, respondents largely agreed to the prevalence of that statement. Inferential statistics was used to test the hypotheses formulated. A t-test was conducted to determine the statistically significance for hypothesis 1-3. These hypotheses had a dichotomous variable which was in two categories (senior high school and senior high technical school) as against continuous variables such as quality of human resource, availability of material resources, and the conduction and organisation of Food and Nutrition practical work. Therefore, t-test best suited this analysis as the objective was to estimate the differences between the two categorical variables concerning the continuous variables. The fourth hypotheses looked at the relationship between the quality of human resource and availability of material resources. Since the two variables were measured on a continuous basis, in estimating the relationship between them, Pearson Product Moment Correlation is applicable hence it was used.

The data gathered with interview was analyse using thematic analysis. Thus, themes were identified from the responses given by participants and based on that, narrations were given. This allows for the identification of similar responses which are grouped under the same theme and this was done for the objectives which were also explored qualitatively.

Ethical Considerations

Ethical considerations were raised for all research involving human "subjects" (Yin, 2014). In this study, ethical issues were raised before conducting the study, at the beginning of the study, during data collection and, data analysis and in reporting the data (Creswell, 2013). Before commencing this study, ethics approval was sought from the Institutional Review Board,

University of Cape Coast (UCC, IRB). The Board was reassured that this research poses no physical, emotional, or psychological threat to participants.

The researcher sought the consent of the participants; inform them about the nature and purpose of the study and guarantee the confidentiality and anonymity of the information acquired. Participation in the research was, therefore, voluntary. Those who were purposively or randomly selected but were not willing to participate in the study were allowed to withdraw.

CHAPTER FOUR

RESULTS AND DISCUSSION

Overview

This chapter presents the results of the analysis of data. It includes the results of the responses made by subjects studied, the analysis of lesson observations made, and the interviews conducted on the status of Food and Nutrition practical work in Senior High Schools and Senior High Technical Schools in the Hohoe Municipality of Ghana. Whenever applicable, tables are provided to illustrate and support the findings.

The chapter is organised under two headings. The first part covers results of the analysis of demographic data or the background information on the respondents involved in the study. The analysis of data to derive answers to the research questions and the hypotheses is presented in the second part.

Table 1: Distribution of Demographic Characteristics of Respondents

Characteristics	Frequency	Percentage (%)
Category of School		
Senior High Schools	**1**	**50**
Senior High Technical School	**1**	**50**
Highest Qualification of Teachers		
First Degree	**5**	**100**
Subject Area in which Degree was awarded		
Home Economics	5	**100**
Number of Years Teaching in Present School		
6-10 years	4	80
11-15 years	1	20

Source: Field Data, 2021.

The data in Table 1 shows the categories of schools involved in the study. Two schools representing 50% of the sampled schools were old Senior High Schools while the rest, 50%, of the schools represented new Senior High Technical Schools. The highest qualifications of staff in Table 1 shows that all the respondents 5 (100%) are holders of the Bachelor's degree. The data imply that the respondents would be able to give adequate and rich information on the status of Food and Nutrition practical work in Senior High Schools in the Hohoe Municipality of Ghana.

The data on the subject areas in which the respondents' certificates were awarded in Table 1 indicated that all the respondents 5(100%) have their certificates awarded in Home Economics. The results imply that all the respondents are qualified teachers teaching and organising Food and Nutrition practical work in the schools. They have the pedagogical knowledge content to organise Food and Nutrition practical work in the Senior High Schools and Senior High technical schools in the Municipality.

Also, Table 1 indicates the teaching experiences and number of years the teacher respondents are teaching in their present schools. Table 1 shows that 4 (80%) of the teacher respondents have been teaching in their schools for 6 to 10 years whereas one (1) representing 20% do so from 11 to 15 years in his/her school. The data, therefore, imply that the respondents have been teaching in their various schools for a number of years and will be able to offer rich and adequate information on the status of Food and Nutrition practical work in the schools in the Municipality.

Analysis of Main Data

Organisation and conduction of Food and Nutrition Practical

The scale of measurement in this analysis was a four-point Likert scale. Therefore, given the mean of 2.5, any item which scores is above this mean is deemed as an element of dominance, thus most respondents agreed to the high existence of the item. Hence, given that the mean score of an item is below 2.5 then there is not enough evidence to support that respondents agreed which means they disagree to the statement. Means and standard deviation were calculated (1+2+3+4/ =2.5). Therefore, items which yielded the mean of 2.5 and above demonstrate high existence of the element been talked about.

Table 2: Students View on Organisation and Conduction of Food and Nutrition Practical

Statement	Mean	Standard deviation
Planning of practical work is done before the actual practical activities.	3.11	.99
Demonstration of how the practical work should be done.	3.05	.97
Practical work complements the theory.	2.88	1.02
Working as individuals/small groups to observe, and prepare for assessment.	2.91	1.07
Practical works in food preparation and serving are carried out with students.	2.33	1.28

Source: Field Data, 2021. *Mean of means 2.5*

In Table 2, results on how organisation and conduction of food and nutrition practicals are been done, a Mean of means was computed (*MM=2.5*)

base on the scale of the instrument used in the study. In comparison to the mean of means (*MM=2.5*), the results revealed that there is planning of practical work before the actual practical activities are carried out the mean value (*M=3.11, SD=.99*) is higher than the mean of means value. Again, the second item also had a mean value higher (*M=3.05, SD=.97*) than the mean of means. Therefore, it could be said that the Food and Nutrition teacher demonstrates how the practical work should be done to students from their own perspective.

Also, from the results presented in Table 2, the third item with the highest mean value was to established if students work as individuals or in small groups to observe, plan menus and prepare them for assessment and the answer is yes, they do because the mean (*M=2.91, SD= 1.07*) is higher than the mean of means.

Moreover, it is known there are different types of learners therefore, teachers are to make provisions for the benefit of all students. On this note, students were asked to ascertain whether or not practical work complements the theory lessons taught and from the results this item had a mean (*M=2.88, SD=1.02*) higher than the mean of means. Which means students believe that practical works complements the theories taught in the classroom.

In summary it can be concluded that students are of a positive view as far as the organisation and conduction of practical lessons are carried out in their schools. This conclusion is arrived at because most of the items in the study had mean values higher than the mean of means.

Table 3: Teachers View on Organisation and Conduction of Food and Nutrition Practical

Statement	Mean	Standard deviation
Planning of practical work is done before the actual practical activities.	2.60	1.14
Demonstration of how the practical work should be done.	3.00	1.22
Practical work complements the theory.	3.40	.54
Working as individuals/small groups to observe, and prepare for assessment.	3.00	1.22
Practical works in food preparation and serving are carried out with students.	2.60	1.14
Source: Field Data, 2021.	*Mean of means 2.5*	

On the part of teachers, the results in Table 3 shows that all items had mean values higher than the mean of mean value (*MM=2.5*). Therefore, it can be said that the probability is high teachers are able to organise good practical lessons for their students. Specifically, the first item "Planning of practical work is done before the actual practical activities" had a mean value of (*M=2.60, SD=1.14*), item 2 and 4 had the same mean (*M=3.0, SD=1.22*). on the other hand, the item with the highest mean was the third item "Practical work complements the theory lessons taught" on the table (*M=3.40, SD=.50*). Although, the last item had the lowest mean (*M=2.60, SD=1.14*), it is still higher than the means of means.

Comparing the results from the teachers' perspective to that of the students (*see Table 3*), it could be seen that they agree to large extent that the planning and organisation of food and nutrition practical lessons are well carried. Notwithstanding, there is a disparity between the intensity looking at the mean for item one (*see Table 3*). The teachers seem not to agree much with the first statement as the students did because the mean score for the two population samples differ. It could be that the teachers been at the forefront of

the teaching and organisation as well as planning of food and nutrition practical lessons are not much satisfied with how it is done. The reason could be enamours and it may range from inadequate equipment, tools, and facilities to personal attributes like taste and preferences.

Items 12-21 in the observation guide were included to be used in observing and rating the organisation of Food and Nutrition practical work in senior high and senior high technical schools in the Municipality. The items were structured in 10 statements to be rated by the researcher. Table 4 shows the observation data on the ten items which are based on the organisation of Food and Nutrition practical work in the schools.

Table 4: Organisation of Food and Nutrition Practical Work Observed in the Schools

Statement	N	Observed %	Not Observed %	Total
Reviewing of theory and linking it to the practical work.	4	100.0	.00	100.0
Giving information on the practical work.	4	100.0	.00	100.0
Guiding and redirecting students.	4	100.0	.00	100.0
Discussing the practical work with students.	4	100.0	.00	100.0
Engaging in personal hygiene practices.	4	100.0	.00	100.0
Cleanliness of work environment	4	100.0	.00	100.0
Managing students' behaviour.	4	100.0	.00	100.0
Using common tools and equipment.	4	100.0	.00	100.0
Using correct language and expressions.	4	100.0	.00	100.0
Assessing practical work	4	100.0	.00	100.0

Source: Field Data, 2021.

The observation data in Table 4 show a high rating of 100% for the observed 10 statements concerning the organisation of Food and Nutrition

practical work in senior high and senior high technical schools in the Municipality. Each of the ten statements were rated 100%. This information implies the teachers who were involved in the organisation of Food and Nutrition practical activities diligently implemented well the instructional processes they planned in the classroom.

The observation data, therefore, revealed that the teachers whose Food and Nutrition practical work were observed may engaged in strict adherence to principle and practice of organising practical work and would expect all students to be involved. The teachers reviewed theory and linked it to the practical work; their information on practical work was clear and relevant; the teachers guided and redirected students; the teachers discussed the practical work with students; they engaged in in personal hygiene practices during the practical work period; and cleanliness of thee work environment was satisfactory. Also, the teachers managed students' behaviour by using appropriate strategies to prevent misbehaviour; the teachers used common tools and equipment in executing the practical work; the teachers used correct language and expressions in communicating with the students; and the assessment of practical work was thoroughly done.

Concerning the organisation and conducting of food and nutrition practical work, the heads of the departments were interviewed. Three questions were asked to solicit for information as to how practical lessons are conducted. Items 10-12 in the interview guide were included to enable the researcher elicit information from on the organisation of Food and Nutrition practical work in the schools from the four Heads of Home Economics Departments. The interview results showed that both teachers and students are

involved in a variety of activities in the organisation of Food and Nutrition Practical work. Presenting the interview results, the study found that teachers mainly demonstrate in food and nutrition practical work either in groups or individually to students. Thus, the teacher first demonstrates what is expected of students to them before the students begin their practical work. With this the student have first-hand information before doing it on their own.

It was also found that teachers play supervisory role during practical work of students. This finding was unanimous among all participants that took part in the interview but one mentioned that "*teachers at times demonstrate to students when the need be*". So, it has been revealed that teachers at a given point could play multiple roles as supervisors and demonstrators. Also, teachers mentioned that students mostly played the role of main characters as participants in the practical lessons. All the heads interviewed mentioned that "*They participate during practical lessons".* Thus, all students were expected to participate in the practical lessons when it is organised by their teachers.

From the results, it can be said that teachers performed varied roles as they engaged in organising Food and Nutrition practical work. These roles executed by the teachers are associated with the three stages of practical work (pre-practical work organisation stage, practical work organisation stage, and post-practical work organisation stage). At the pre-practical organisation stage, teachers prepare for practical work; teachers assemble all necessary tools and equipment and test them; and teachers ensure that all materials and equipment are kept within reasonable reach. At the practical work organisation stage, teachers review theory and link theory up with practical work; teachers share information on practical work; teachers implement practical activity planned;

teachers ensure effective use of tools, equipment and materials; teachers supervise students' work; teacher manage students' behaviour; and teachers assess practical work. At the post-organisation stage of practical, teachers discuss practical work; teacher brief students on outcomes of the practical work; and the work environment is cleaned up.

The students, on the other hand, perform roles. These include: students help in setting up the practical lesson rooms; students participate in the practical work activities; students pose questions for clarification of issues; students answer questions posed by the teacher; students engaged in executing their planned activities to meet standards set; and students clean up the environment after the practical work.

Therefore, the results emanating from the questionnaire, observation and the interview on how Food and Nutrition practical work is organised or conducted in the schools in the Hohoe Municipality revealed that teachers as well students played varied roles when practical work are organised or conducted. The questionnaire responses revealed that: planning of practical work is done before implementing the activities; the Food and Nutrition teacher demonstrates how the practical work should be done; practical work complements the theory lessons taught; students work as individuals or in small groups to observe, plan menus and present them for assessment; and students are taken through enough practical works in food preparation and serving.

The observation results revealed that the teachers engaged in strict adherence to principle and practice of organising practical work. The teachers reviewed theory and linked it to the practical work; and give students relevant

information on the practical work. The teachers guided and redirected students as they conduct the practical work. Also, the teachers managed students' behaviour by using appropriate strategies. The teachers used common tools and equipment in executing the practical work and used correct language and expressions in communicating with the students. Finally, the assessment of practical work was thoroughly done.

The interview results showed that both teachers and students performed varied roles during the organisation of Food and Nutrition Practical work. The interview results revealed that the teachers' roles are associated with the three stages of practical work (pre-practical work organisation stage, practical work organisation stage, and post-practical work organisation stage). At the pre-practical organisation stage, teachers prepare for practical work; they assemble all necessary tools and equipment and test them. At the practical work organisation stage, teachers review theory and link theory up with practical work; teachers share information on practical work; they then implement practical activity planned; they supervise students' work; and assess practical work. At the post-organisation stage of practical, teachers discuss practical work; and the work environment is cleaned up.

The students, on the other hand, performed roles such as setting up the practical lesson rooms; participating in the practical work activities; posing questions for clarification of issues; and executing their planned activities to meet set standards; and students clean up the environment after the practical work.

These findings are in line with a reference made by van Driel et al. (2001). Although van Driel et al. cited previous research indicating the

importance of hands-on activities in the teaching and learning of food and nutrition, they offered no recommendations on how to go about implementing these activities. Somehow, they erred in assuming that all professors of food and nutrition conduct practical work and provide students with hands-on learning experiences organically.

The findings that practical work is planned prior to implementation and that food and nutrition teachers demonstrate how practical work should be done are in line with Halai (2008) suggestions that food and nutrition teachers should be encouraged to use a variety of interactive methods including group discussion, group activities, and practical activities, which will help students increase their level of understanding. There is also the suggestion by Halai (2008) that demonstrations may be more successful if they include activities such as "prediction, observation, explanation" within the demonstration process.

The findings that teachers review theory and link theory up with practical work, share information on practical work and then implement their practical activity planned agree with the views of Millar (2004). A study by Millar on the function of practical work in teaching and learning Food and Nutrition found that students must connect the domains of objects and ideas; the realm of theory and the domain of practical activity. Also, the finding that theories are reviewed and linked with practical by teachers supports the study results of Asikainen and Hirvonen (2010) who found that experienced Food and Nutrition teachers and educators believe that food and nutrition teaching at school level is based on practical work along with theory.

The findings that students performed roles such as setting up the practical lesson rooms; participating in the practical work activities; posing questions for clarification of issues; and executing their planned activities to meet set standards; and cleaning up the environment after the practical work are in agreement with views of Millar and Abrahams (2009). When it comes to acquiring a knowledge of food and nutrition, the researchers argued that pupils must engage in the processing of information in order to do so. Students may learn more successfully about food and nutrition if they are taught via hands-on activities rather than through lectures and group discussions (Millar & Abrahams, 2009).

Quality of Human Resources for Organising Food and Nutrition Practical Work in Senior High Schools in the Hohoe Municipality

Research Question 2 sought to investigate the quality of human resources for organising Food and Nutrition practical work in the Senior High Schools and Senior High technical schools in the Hohoe Municipality. The initial analysis stems from the data gathered from the questionnaire. On the part of student respondents, items 3-8 were used in answering the research question whiles items 6-13 on the teacher respondent's questionnaire were also used. The responses were on a four Likert scale ranging from SA= Strongly Agree; A= Agree; D= Disagree; SD= Strongly Disagree. Again, it should be noted that the quality of human resources was determined with information gathered on the years of teaching, academic qualification and pedagogical skills of the subject area which was represented by whether the qualification a teacher holds is relevant to the home economics subject area. The data on the areas mention is presented in *Table 5*. The results are presented in Table 5.

Table 5: Students View on Quality of Human Resources for Organising Practical Work

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
	Frequency (%)			
Lack qualified Food and Nutrition teacher(s).	58(35)	32(19.8)	23(14.2)	49(30.2)
Organising practical work when teaching Food and Nutrition.	46(28)	28(17.3)	47(29.0)	41(25.3)
Performing duties that are associated with organising practical work.	24(14.8)	28(17.3)	67(41.4%)	43(26.5)
Achieving high standards necessary for them in practical.	27(16.7)	13(8.0)	51(31.5)	71(43.8)
Teaching all aspects of the content of practical work.	45(27.8)	34(21.0)	47(29.0)	36(22.2)
Adequate knowledge of the subject matter of the practical work.	34(21.0)	30(18.5)	43(26.5)	55(34.0)

Source: Field Data, 2021.

The results presented in Table 5, shows that the schools do not lack qualified food and nutrition teachers. The study used a negative statement which in effect when respondents agree means the reverse of it and vice versa. Among the 162 respondents in this category, majority disagreed 90(55.6%) that their school lack qualify food and nutrition teachers and 72(44.4%) agreed. Specifically, 58(35.8%) strongly disagree, 32(19.8%) disagree whilst 23(14.2%) agree and 49(30.2%) strongly agree. That is most students asserts that their schools have qualified teachers who are handling food and nutrition subjects in their schools.

Presenting on practical work during teaching, 46(28.4%) strongly disagreed whereas 28(17.3%) disagreed to the statement that teachers organise practical work when teaching Food and Nutrition but 47(29.0%) agreed whilst

41(25.3%) strongly agreed to the statement. This possibly means the teachers teaching food and nutrition, organise practical lessons for the students in the course of their teaching. Again, respondents were asked to indicate whether the Food and Nutrition teacher performs duties that are associated with organising practical work. The result shows that they do, as most of the respondents agreed to the statement 110(67.9%) and few disagreed 52(32.1%). Furthermore, majority of students 122(75.3%) agreed that the Food and Nutrition teacher ensures that students achieve high standards necessary for them in practical work, in specifics, 51(31.5%) agree whereas strongly agree 71(43.8%). On the other hand, 27(16.7%) strongly disagree and 13(8.0%) disagree that high standards are ensured by their teachers during practical lessons.

Again, the results presented in Table 5 shows that 45(27.8%) of the respondents strongly disagreed 34(21.0%) disagreed, 47(29.0%) agree and 36(22.2%) strongly agree that the Food and Nutrition teacher is able to teach all aspects of the content of practical work. Considering the number of respondents who agreed 83(51.2%), it could be said that all aspects of the content pertaining to practical work is thought by the teachers.

Lastly, students were asked to demonstrate the extent to which they agree or not to the item, “the Food and Nutrition teacher has adequate knowledge of the subject matter of the practical work”. It could be seen from the results that 34(21.0%) strongly disagree, 30(18.5%) disagree, 43(26.5%) agree and 55(34.0%) strongly agree. In effect, respondents accept that teachers of food and nutrition demonstrate adequate knowledge on the subject matter in

relation to practical work. Consequently, the study proceeds to ascertain the views of the teachers on this same subject.

Table 6: Teachers View on Quality of Human Resources for Organising Practical Work

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
	Frequency (%)			
Lack qualified Food and Nutrition teacher(s).	3(60)	1(20)	-	1(20)
Organising practical work when teaching Food and Nutrition.	1(20)	-	1(20)	3(60)
Performing duties that are associated with organising practical work.	-	1(20)	3(60)	1(20)
Achieving high standards necessary for them in practical work.	-	-	2(40)	3(60)
Teaching all aspects of the content of practical work.	1(20)	2(40)	1(20)	1(2)
Adequate knowledge of the subject matter of the practical work.	1(20)	-	3(60)	1(20)
Effective use of class time.	1(20)	-	2(40)	2(40)

Source: Field Data, 2021.

For the purposes of validation, the responses given by students, teachers of food and nutrition were also asked same or similar questions to elicit their views. On the first item, which talks about the lack of qualified Food and Nutrition teacher(s), the results presented in Table 6 shows that most teachers 3(60.0%) strongly disagree, 1(20.0%) disagree and 1(20.0%) strongly agree. The responses appear to be in line with that of the students on the same subject of qualified teachers.

Results on the organisation of practical work by teachers when teaching food and nutrition shows that most teachers 4(80.0%) agreed that they do and 1(20.0%) disagreed to the statement. The next item was about students achieving high standards and all the Food and Nutrition teachers

agreed they ensure that students achieve high standards necessary for them in practical work as 2(40.0%) agreed and 3(60.0%) strongly agreed.

The Food and Nutrition teacher is able to teach all aspects of the content of practical work. From the results, 1(20.0%) strongly disagreed, 2(40.0%) disagreed, 1(20.0%) agreed and 1(20.0%) strongly agreed to the statement. On the last but three item, the Food and Nutrition teacher has adequate knowledge of the subject matter of the practical work. The results reveal that 1(20.0%) strongly disagree, 3(60.0%) agree and 1(20.0%) strongly agree. Again, most respondents 4(80%) agreed whereas 1(20%) disagreed that teachers use class time effectively.

The Heads of Department (HoD) were asked to give an account of the quality of human resources based on their teachers experience and qualification. It was revealed that most teachers have taught for at least six years. Specifically, 4 among the five teachers have taught between 6-10 years and the last person had taught for about 15 years. Quoting a HoD directly, one said, ‘‘*on my staff, the least experience teacher has six years of teaching experience*’’.

Pertaining to the interview the researcher had with the respondents, on whether or not the schools have quality human resources for the handling of practical works, the academic qualification of teachers was asked. All the heads of department interviewed reported that all the teachers handling food and nutrition practical work in their schools were all holders of first-degree in-Home Economics. This implies that the teachers are qualified to handle the programs they are handling.

Effectiveness and Frequency of organizing practical lessons

On the effectiveness of organising practical lessons, some HoDs said it was effective whilst others said it might not be that effective but they are doing their best. Three said it was effective but with issues and quoting them directly, this is what they said, one said ‘‘*it is effective because we do supervise and demonstrate to them what they should do but we are unable to do a lot*’’. Another also said, ‘‘*it is effective because we do a lot of planning but there are no equipment in the department so we have to innovate*’’. The last person mentioned that ‘‘*if you want it to be effective, then you need to add your own money because the school do not provide anything*’’. The remaining 2 participants who said they are doing their best unanimously said ‘‘*how can it be effective if students are to purchase everything by themselves, it can't be, so we are trying our best''*.

Again, participants were asked to tell how often they organize practicals. Among the four respondents, most of them (3) mentioned that they do not organise practical lessons frequently. Specifically, one person said "*Not as frequent as required*" but the last participant asserted that they do and directly mentioned that "*practicals are organised very often*". It was found that majority disagree that food and nutrition teachers are able to teach all aspects of the content of practical work.

This results actually conflicts the results from the students' point of view as most of the students agreed that their teachers are able to teach all aspects of the practical lessons. The opposing views in the results may stem from, students not been well abreast with the content matter of the practical work, so for them, their teachers are able to teach all aspects but to the

teachers who are professionals they are unable to. The students' views may carry a light weight as compared to that of the HODs because students are not preview to certain things such as the academic qualification of teachers among others. The broad subject area of home economics has about three specializations, management in living, clothing and textiles and food and nutrition and most students may not be aware of the area where their teachers specialises but the HODs are preview to this information.

Another reason could be the lack or inadequate provision of material resources such a food laboratory equipment like cookers, saucepans blenders, mixers among others. Again, there is no established means of finances towards the organisation of practical work except the one collected from the students themselves. An issue of concern also is that there is no time allocated for practical work on the time table and no syllabus for planning and organisation of practical work.

It can be concluded that practical work is not done that much in the schools as majority have stated that. The interview results seem not to be in line with the responses gathered from the students but rather agrees with that of the teachers. This is so because if teachers are able to teach all parts of the practical lessons as the student's result (*see Table 5*) is depicting, then they must be organising practical lessons more often.

The findings of the study which have been shown in the two techniques used for gathering the data used in this study have proven that the teachers handling practical work in food and nutrition are of a good quality as they are all graduates who have received the needed training for handling the subject. These findings lay bare the debate over whether there are qualified

teachers teaching Food and Nutrition as well as organising practical work in the senior high schools and senior high technical schools. These findings are in line with the suggestions from British Nutrition Foundation (2019) and Moodie (2017) who recommend a variety of characteristics teachers must possess in teaching as well as organising Food and Nutrition practical work in schools. Moodie (2017) recommends that a characteristic of good practice in secondary schools is that teachers should have developed the required subject knowledge, skills and effective pedagogy approaches, and demonstrate personal qualities that are important in organising Food and Nutrition practical work (British Nutrition Foundation, 2019; Moodie, 2017).

Another group of findings from the results are that these qualified teachers engaged in teaching theories of Food and Nutrition and organising practical work. The teachers organise practical work when teaching Food and Nutrition; perform duties that are associated with organising practical work; ensure that students achieve high standards necessary for them in practical lessons; and has adequate knowledge of the subject matter of the practical work. Thus, with the qualified teachers, the right knowledge will be passed on unto the students which will enable them to make informed decisions in terms of food and this agrees with the assertion made by researchers that food and nutrition programme equips students with the right knowledge for food choices (Stage et al. 2016; Christian et al., 2014). It also, affirms the findings of studies which concludes that food and nutrition programme build on the capacities of adolescents to make more informed choices in food (Sadegholvad et al., 2016; Harmon & Maretzki, 2006; Story et al., 2002).

Another, results emanating from the questionnaire and the interview sources also showed that the teachers engage in the teaching and organising practical work in Food and Nutrition state objectives that are clear, relevant, measurable, and achievable. Similarly, they state the objectives of lessons in the psychomotor domain clarifying skills students are to acquire. The teachers, again, provide core points for all activities and the core points to clarify main skills. In addition, the teachers provide varied practical activities that are logical. As confirm in the interview by HODs that teachers organise practical lessons for students as first indicated by the teachers and students, this finding agrees with the assertion that organisation of food and nutrition practicals depends on the expertise and pedagogical content knowledge of the teacher (Afolabi & Adeleke, 2010; Orji, 2006). Therefore, it can be concluded that practical lessons are carried out in the schools.

In addition, the study results showed that the teachers teach lessons on organisation of practical work; state learning activities of learners at every stage of the lesson; and indicate the teaching methodologies at each stage of the lesson. They also specify teacher activities at every stage of the lesson; make available teacher activities that are logical; and provide varied teaching activities. These findings are in line with the ideas of Woodley (2009). This finding affirms with Woodley because among other things practical lessons equip students with skills, knowledge and understanding of the content been taught. Researchers assert that practical work in food and nutrition lessons increases both conceptual and procedural understanding of students (Woodley, 2009; Sharples et al., 2015).

Facilities, Equipment and Tools, and Reference and Resource Materials Available for Carrying out Food and Nutrition Practical Work

Items 9-16 in the questionnaire for students and items 14-21 in the teachers' questionnaire required respondents to state their views on the existing facilities, equipment and tools, and resource materials available for carrying out of Food and Nutrition practical work in Senior High Schools and Senior High Technical Schools in the Municipality. The items are structured in 8 statements. The results are shown in Table 7-9.

Table 7: Students View on Material Resources Availability for Food and Nutrition Practical Work

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
	Frequency (%)			
Food laboratory is available for organising food and nutrition practical.	95(58.6)	40(24.7)	18(11.1)	9(5.6)
Equipment and tools for performing practical work are available.	80(49.4)	32(19.8)	36(22.2)	14(8.6)
Classroom teaching is combined with practical work.	46(28.4)	47(29.0)	47(9)	22(13.6)
Food and nutrition practical kitchen with equipment and tools is available.	91(56.2)	31(19.1)	26(16)	14(8.6)
Food and nutrition practical work textbooks for students are available	99(61.1)	45(27.8)	7(4.3)	11(6.8)
Food and nutrition practical work reference books are available for students (recipe books).	94(58.0)	36(22.2)	18(11)	14(8.6)
Lack of finances for organisation/ conduction of food and nutrition practical work.	45(27.8)	23(14.2)	34(21)	60(37.0)
Availability of syllabus for planning food and nutrition practical lessons	76(46.9)	32(19.8)	30(18.5)	24(14.8)

Source: Field Data, 2021.

Talking about facilities, equipment and tools and references and resource materials available for teaching and learning food and nutrition practical work in Table 7, on the part of students, majority 135(83.3%) disagreed to the statement that there is a food laboratory where food and nutrition practical work is taught. Specifically, 95(58.6%) strongly disagree, 40(24.7%) disagreed, 18(11.1%) agreed and 9(5.6%) strongly agreed.

Presenting the results form Table 7, 80(49.4%) strongly disagreed, 32(19.8) disagreed to the statement that there are food and nutrition equipment and tools for performing practical work. Meanwhile 36(22.2%) agreed and 14(8.6%) strongly agreed. The third item, classroom teaching is combined with practical work 46(28.4%) strongly disagreed, 47(29.0%) disagreed, 47(9.0%) agreed and 22(13.6%) strongly agreed.

Furthermore, majority of the respondents 122(75%) disagreed that the school has food and nutrition practical room/kitchen equipment and tools and more in details 91(56.2%) strongly disagreed, 31(19.1%) disagreed, 26(16.0%) agreed and 14(8.6%) strongly agreed. Also, most of the respondents disagreed there are sufficient food and nutrition practical work textbooks for students, majority of them 99(61.1%) strongly disagree, 45(27.8%) disagree, 7(4.3%) agree and 11(6.8%) strongly agree.

In addition, students were asked to indicate whether there are sufficient food and nutrition practical work reference books for students (recipe books) in their schools and from the results 94(58.0%) strongly disagreed, 36(22.2%) disagreed, 18(11.1%) agreed and 14(8.6%) strongly agreed.

Presenting the results concerning the school lacking finances for organisation and conduction of food and nutrition practical work, it was revealed that 45(27.8%) strongly disagreed, 23(14.2%) disagreed and majority of the respondents agreed to the statement. About 94(58%) agreed that their schools lack the financial means to support organisation and conduction of food and nutrition practical work, precisely 34(21.0%) agree and 60(37.0%) strongly agreed.

Lastly, students were asked to specify their level of agreement to syllabus for planning food and nutrition practical lessons is available in the school and 76(46.9%) strongly disagreed, 32(19.8%) disagreed, 30(18.5%) strongly agreed, and 24(14.8%) agreed. It could be seen here that most students disagree that there is a blue print base on which practical lessons are planned in their schools. This result may stem from the fact that students may not have access to the planning of lessons they are taught. They receive instructions on a content from the teacher. In most cases, teachers plan their lessons without consulting their students. This leaves the students at the receiving end with no clue of what is to follow unless they are been told by the teacher. Further discussion will be done after the presentation of the results from all the instruments used.

Table 8: Teacher's Students View on Resources availability for Food and Nutrition Practical Work

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
	Frequency (%)			
Food laboratory is available for organising food and nutrition practical.	3(60.0)	1(20.0)	-	1(20.0)
Equipment and tools for performing practical work are available.	-	3(60.0)	1(20.0)	1(20.0)
Classroom teaching is combined with practical work.	-	2(40.0)	2(40.0)	1(20.0)
Food and nutrition practical kitchen with equipment and tools is available.	3(60.0)	1(20.0)	-	1(20.0)
Food and nutrition practical work textbooks for students are available	2(40.0)	2(40.0)	-	1(20.0)
Lacks of finances for organisation/ conduction of food and nutrition practical work.	-	-	1(20.0)	4(80.0)
Availability of syllabus for planning food and nutrition practical lessons	3(60.0)	2(40.0)	-	-

Source: Field Data, 2021.

On the other hand, teachers were also made to express their view on the resource's availability for food and nutrition practical work, there is a food

laboratory where food and nutrition practical work is taught and 3(60.0%) strongly disagreed, 1(20.0%) disagreed and 1(20.0%) strongly agreed. Consequently, this result agrees with the result from the students view point that there is a lack of resources. It could be said that there is a consensus between the teachers view point and that of the students.

The next item of concern was that teachers were asked to indicate whether there are adequate food and nutrition equipment and tools for performing practical work and 3(60.0%) disagreed, 1(20.0%) agreed, 1(20.0%) strongly agreed. From these results, teachers again agree with students the schools do not have much food and nutrition equipment and tools for performing practical work.

Again, teachers were asked if classroom teaching is combined with practical work. The results presented reveals that some teachers 2(40.0%) disagreed that classroom teaching is combined with practical work but majority of them agreed 3(60%) thus, 2(40.0%) agreed and 1(20.0%) strongly agreed. For the purposes of standardization and continual change in technology, it was enquired from the teachers whether their school has latest food and nutrition practical room/food laboratory/kitchen equipment and tools and to this statement, most 3(60.0%) strongly disagreed, 1(20.0%) disagreed and 1(20.0%) strongly agreed.

Also, teachers were to help estimate whether in their schools, there are sufficient food and nutrition practical work textbooks for students and again, majority 2(40.0%) strongly disagreed and disagreed respectively as 1(20.0%) strongly agreed. On the last two items, teachers were asked to ascertain whether or not the school lacks finances for organisation and conduction of

food and nutrition practical work and syllabus for planning food and nutrition practical lessons is available in the school. The results revealed that most 5(100%) respondents agreed to the first statement, specifically 1(20.0%) agreed and 4(80.0%) strongly agreed whereas on the second statement, all the respondents 5(100%) unanimously disagreed, in detail 3(60.0%) strongly disagreed and 2(40.0%) disagreed.

From the results, it can be concluded that both teachers and students agreed that there is no syllabus for planning practical works in relation to food and nutrition. Then it can be concluded that teachers plan food and nutrition practical lessons on their own without any laid down guidelines or procedures.

The next analysis is concerned with the observation carried out in relation to the equipment and material resources available for carrying out practical lessons. Consequently, items 6-16 in the observation guide were included to observe and rate the equipment and material resources available for organising Food and Nutrition practical work in the old Senior High Schools and the new Senior High Technical Schools in the Municipality. The items were structured in 11 statements to be rated by the researcher. Table 9 shows the researcher's ratings of the eleven items which are based on the equipment and material resources available for organising Food and Nutrition practical work in the schools in the Municipality.

Table 9: Observed Facilities, Equipment and Material Resources Availability for Practical Work

Statement	N	Observed	Not Observed	Total
Availability of Food and Nutrition laboratory in schools.	4	.00	100.0	100.0
Carrying out practical work at Food and Nutrition centers.	4	.00	100.0	100.0
Teacher assembles all necessary tools.	4	80.0	20.0	100.0
Assembling all necessary equipment by teachers.	4	80.0	20.0	100.0
Assembling all ingredients.	4	.00	100.0	100.0
Testing equipment before practical work.	4	80.0	20.0	100.0
Ensuring that all learners/ groups have correct tools and equipment.	4	100.0	.00	100.0
Ensuring that materials and equipments are kept within reasonable reach.	4	100.0	.00	100.0
Ensuring that working table(s) is well positioned to allow free movement and visibility.	4	100.0	.00	100.0
Appropriate presentation of ingredients throughout the lesson.	4	100.0	.00	100.0

Source: Field Data, 2021.

The data in Table 9 indicate a high rating of 80%-100% (either positive or negative responses) for the observed 11 statements concerning the facilities, equipment and tools, and material resources available for the teaching and learning, and organising Food and Nutrition practical work in Senior High Schools and Senior High Technical Schools in the Municipality. The table reveals that Food and Nutrition laboratory is not available in the school because it was not observed in any of the schools. Secondly, practical work is carried out at a Food and Nutrition centre was not rated, in that it was not

observed. This implies that the schools have no centres where practical work is carried out neither was a food laboratory available. Concerning teacher assembling all necessary tools and the assembling of all necessary equipment, both were rated 80% respectively by the researcher. This means, it was observed that teachers did carry out these activities specify in the two statements in relation to practical work. Meanwhile, it was not observed that teachers were assembling all ingredients hence it was not rated.

In addition, the need for testing equipment before practical work was rated 80%. Again, it can be said that teacher ensures that all learners/groups have correct tools and equipment, all materials and equipment are kept within reasonable reach, table(s) is well positioned to allow for free movement and visibility, and the appropriate presentation and covering of ingredients throughout the lesson were observed to be carry out by teachers hence they were all rated 100% respectively by the researcher.

The observation data, therefore, imply that the schools selected for the study do not have Food and Nutrition laboratory and Food and Nutrition centers where practical works are supposed to be carried out. Students provide the equipment, tools and materials they need for organising practical work themselves. Teachers ensure that the learners have the correct tools and equipment to work with. The teachers also ensure that equipment, tools and materials are kept within reach when needed.

Analysis of interview data for research question 3

Presenting on the interview results from the HOD's perspective, in relation to material resources available for carrying out food and nutrition practical work, four items were used.

Availability of tools and equipment

The first item was about tools and equipment used for organising food and nutrition practical work. Two out of the four participants said their schools have basic materials while the other two mentioned that their students provide their own equipment. Thus, in some schools, students are able to provide their own equipment for the practical lessons. It could be said that most of the students who are able to provide their own equipment might be from the senior high technical schools because it is required that they do more practical lessons than those in the senior high schools.

Also, the following items were mentioned specifically by the first HOD as the only tools the school have "*cookers/burners, cylinders, saucepan, wooden spoon among other things*". For the second participant, the following items were specifically mentioned "*mixing bowl, palate knife, wooden spoon, saucepan, scales, cookers, chopping board, cylinder"*. The third participant mentioned that they only have "*small equipment"* and did not name any. Meanwhile, the last participant indicated there are no equipment in the school. This implies that in some schools, students are solely responsible for the provision of tools and equipment needed to carry out their practical work.

Also, participants were asked to indicate whether or not there are teaching and learning resources available for the organisation of food and nutrition practical work in their schools and unanimously, the participants said they do not have the resources, specifically they all answered "*None*". In order to know if there are a lot of alternatives, participants were asked if textbooks and reference materials are available for planning and delivery of food and nutrition practical work. The results from this question indicate that,

3 out of the four participants said they have food and nutrition textbooks only in their schools but the third participants mentioned that they have "*food and nutrition textbook and recipe books*" which guided them in planning and delivery of practical work.

Availability of infrastructural facilities

The last item on the interview guide was in relation to the infrastructural facilities for organising practical work in food and nutrition. All participants mentioned that they do have only classroom structures but mentioned that they have to improvise for other infrastructures needed for their job. It could be inferred from this results that all the schools have the needed classroom structures but they may be lacking a well-equipped food laboratory dedicated specifically for practical work. This could account for the responses given by some participants which they claim they have to improvise.

From the findings of the study, it can be seen that some schools have some of the items whiles others do not have, hence it can be concluded that they are not adequate or sufficient. For example, "*cookers/burners, cylinders, saucepan, wooden spoon"* were reported by students and teachers and again observed in the schools and some were also neither observed nor reported by all the parties involved in the study. This equipment includes gas/electric stoves with oven, deep freezers, refrigerators, and long tables. Others lack tools such as, graters, peelers, serving trays, blenders, melon ballers, squeezers and others. These findings correspond with a study finding of Puyate (2008). Puyate found that there was inadequate provision of tools and equipment in the schools which were of interest. The efficient teaching of food and nutrition

courses cannot take place without sufficient learning facilities (Puyate, 2008). Classrooms, textbooks, a food laboratory, a library, tools and equipment, and so on are required. Lack of textbooks, laboratory equipment, utensils, human resources and electrical power supplies hinder the efficient teaching and learning of food and nutrition in schools. It is possible that in certain circumstances when equipment is provided for food and nutrition teaching, it is not adequately used. From Puyate assertion, it can be said that there is some hope that somehow somewhere teaching can be effective as the study found that resources such as textbooks were available in the schools.

In addition, the findings that reference and resource materials, kitchen tools, and teaching and learning materials as well as furniture are available in the schools for Food and Nutrition practical work agree with the research findings of Shadreck (2012) who reported on a study that school heads and teachers who participated in the study mentioned insufficient funding as a challenge hindering the effective enactment of the food and nutrition curriculum. Schools were unable to acquire sufficient finances via levies and tuition fees to support the food and nutrition curriculum in terms of equipment, tools, reference and resource materials, teaching and learning materials and furnishings since they were situated in low socioeconomic rural areas. According to Puyate (2008), pupils are more engaged in food and nutrition education when materials and resources are readily available. Teachers are able to deliver the course without trouble, making it simpler for students to learn.

The finding that respondents were divided as to whether reference and resource materials, teaching and learning materials and furniture are available

in the schools also collaborate the results of studies conducted by Ogwo and Oranu (2006) and Mobegi and Ondingi (2011). Studies by Ogwo and Oranu (2006) reported that inadequate instructional materials hamper the objective for which the practical lessons are carried out. On the other hand, it was found that teachers were improvising in areas where there are deficiencies. Thus, when there is either inadequate or lack of an equipment, there is the need for teachers to look for the next available alternative that can aid the learning process but if they are not willing to do so, then success in connection with the practical work is at risk. This finding contradicts another finding of Ogwo and Oranu (2006) in whose study they found that food and nutrition teachers were unwilling to improvise and this was a great impediment to food and nutrition instruction. Consequently, this could have an adverse effect on students' performance and this again affirms the findings of Mobegi and Ondingi (2011). Schools with proper facilities, such as food laboratories and textbooks, have a greater probability of succeeding in exams than those that lack these resources. On the other side, a lack of money leads in a lack of teaching and learning resources and equipment, which in turn results in poor student performance.

Testing of Hypothesis

Hypothesis 1

H_o: There is no statistically significant difference in the organisation of Food and Nutrition practical work in the Senior High Schools and the Senior High technical schools in the Municipality.

This hypothesis sought to investigate the organisation of food and nutrition practical work in the two categories of schools. Again, the

Independent Sample T-test was used in estimating the statistical significance difference in the means of the two schools, the results are presented in Tables 10-11.

Table 10: Organisation of Food and Nutrition Practical Work in the Senior High Schools

Variable	Category of Senior High Schools,	N	Mean	Std. Deviation	Std. Error Mean
Practical organisation	Senior High Schools	106	2.9811	.81628	.07928
	Senior High Technical Schools	56	3.5893	.68162	.09109

Source: Field Survey, 2021.

Presenting the results in Table 10, it was observed that Senior High Technical Schools (*N=56, M=3.5893, SD=.68*) had the highest mean scores whilst the Senior High Schools (*N=106 M=2.98, SD=.82*). The results shows that there is a difference in the mean scores of the two schools. This warrant the running of the T-test to ascertain whether or not there is a significant difference in the means as observed on the surface hence the study proceeds to the T-test results in Table 11.

Table 11: T-Test for the Organisation of Food and Nutrition Practical Work in the Senior High Schools

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
Variable		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Practical organisation	Equal variances assumed	.367	.545	-4.765	160	.000	-.60815	.12764	-.86023	-.35608
	Equal variances not assumed			-5.036	130.634	.000	-.60815	.12076	-.84705	-.36926

Source: Field Survey, 2021.

The Levene's test for equality of variation was employed to test the homogeneity of variances assumption. Table 11 reveals that the equality of variances test was not significant (*p=.545*) therefore the assumption has been met. Hence, Independent Sample T-test was used to evaluate the mean difference between the two categories of schools. On the average, Senior High Technical Schools (*M=3.59, SD=.68*) will differ in relation to how Food and Nutrition practical work is organised than the Senior High Schools (*M=2.98, SD=.82*). The difference was statistically significant *t(160) = -4.765, p =.000*; at two-tailed. Therefore, the study rejects the null hypothesis. Thus, the Senior High Technical Schools way of organising food and nutrition practical work might be more effective than the Senior High Schools.

Hypothesis 2

H_o: There is no statistically significant difference between the quality of human resources for organising Food and Nutrition practical work in the old senior high schools and the new senior high technical schools in the Municipality.

The quality of human resources is an important element in the world of teaching, in that regard, hypothesis two sought to establish whether there was a statistically significant difference between the two categories of schools, thus the old senior high schools and the new senior high technical schools in the Municipality. T-test best suit this hypothesis because the categories are only two, which is been matched against a continuous variable "Quality human resource" and the results are presented in Table 12-13.

Table 12: Descriptive Statistics of Quality Human Resource

Variable	Category of Senior High Schools l,	N	Mean	Std. Deviation	Std. Error Mean
Quality human resource	Old Senior High Schools	106	2.9811	.70348	.06833
	New Senior High Technical Schools	56	3.2500	.71985	.09619

Source: Field Survey, 2021

Prior to the presentation of the T-test results, the descriptive was presented first. This helps in providing a clearer picture to the T-test itself. The results in Table 12 reveals that students in Senior High Technical Schools (*N= 56, M=56, SD=3.25*) although had a smaller sample size as compared to the Senior High Schools (*N= 106, M=56, SD=2.98*). From the results it appears that there is a difference considering the mean scores but as to whether it is statistically significant or not can only be determined by the T-test hence the study proceeds.

Table 13: Independent Samples Test of Quality Human Resource

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
Variable		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Number of teachers	Equal variances assumed	3.060	.082	-2.295	160	.023	-.26887	.11715	-.50023	-.03751
	Equal variances not assumed			-2.279	109.853	.025	-.26887	.11799	-.50270	-.03503

Source: Field Survey, 2021.

Using Levene's test for equality of variation, Table 13 reveals equality of variances test was not significant (p=.082), therefore the assumption of homogeneity of variances has been met so the study proceeded to run the test. On this note the Independent Sample T-test was used to evaluate the mean difference between Senior High Technical Schools and Senior High Schools in relation to quality of human resources for organising Food Nutrition practical work. The test was statistically significant *t (160) = -2.295, p =.023 at 2-tailed*, with a medium (*eta squared =.63*) (Cohen 1988, pp. 284–7), therefore the study fails to reject the null hypothesis. This means that, there is a significant difference pertaining to the quality of human resources for organising practical lessons. It could be inferred that there are a lot of quality human resources for organising practical lessons in the Senior High Technical Schools than Senior High Schools. A number of reasons can be associated with these results. It could be that most of the teachers in the senior high technical schools have more pedagogical knowledge content for organizing practical lessons than teachers in the senior high schools.

Availability of material resources for organising Food and Nutrition practical work

Hypothesis 3

H_o: There is no statistically significant difference in the availability of material resources for organising Food and Nutrition practical work in the Senior High Schools and Senior High Technical Schools in the Municipality.

Hypothesis 3, sought to establish whether there was a statistically significant difference between the two categories of schools in terms of availability of material resources for organising Food and Nutrition practical

work in the Municipality. Thus, the Senior High Schools and Senior High technical schools in the Municipality which of them have the resources for organising practical work. T-test best suit this hypothesis because the categories are only two, which is been matched against a continuous variable "availability of material resources" and the results are presented in Table 14-15.

Table 14: Descriptive Distribution of Availability of Material Resources for Organising Practical Work

Variable	Category of Senior High School,	N	Mean	Std. Deviation	Std. Error Mean
Material resource availability	Senior High Schools	106	2.32	.64	.062
	Senior High Technical Schools	56	2.39	.652	.08

Source: Field Survey, 2021.

In Table 14, the results for the descriptive distribution of schools used in the study is presented. The results showed that there is a slit differences in the mean scores of students in Senior High Technical Schools (*N= 56, M=2.39, SD=.65*) although had a smaller sample size as compared to the Senior High Schools (*N= 106, M=2.32, SD=.64*). it can be seen that there is a small difference in the mean score of the two schools but whether the differences can be attributed to time or it is statistically significant can only be determined by the T-test hence the study proceeds to test the hypothesis.

Table15: Independent Samples Test Availability of Material Resources for Organising Practical Work

		Levene's Test for Equality of Variances		t-test for Equality of Means					
								95% Confidence Interval of the Difference	
Variable		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Number of material resource availability	Equal variances assumed	.417	.519	-.677	160	.499	-.07210	.10646	-.28236	.13815
	Equal variances not assumed			-.674	110.422	.502	-.07210	.10703	-.28420	.14000

Source: Field Survey, 2021.

T-test is a parametric test which before running, the data ought to meet the assumptions associated with it. On this note, the Leven's test for equality of variation was utilised. Presenting the results in Table 15, the assumption of homogeneity of variances satisfied because the equality of variances test was not significant (p=.519). Therefore, the study can proceed to use Independent Sample T-test in estimating a possible significant difference or not. The results reveals that the mean difference between Senior High Schools (*M=2.32, SD=.64*) and Senior High Technical Schools (*M=2.39, SD=.65)* was not statistically significant *t (160) = -6.77, p =.499 at 2-tailed* and the medium (eta squared =.63) (Cohen 1988, pp. 284–7). Thus, the two schools do not differ from each other so any differences seen in the mean score could be attributed to chance hence, the study fails to rejects the null hypothesis that there is no statistically significant difference between the Senior High Schools

and Senior High technical schools in the availability of material resources for organising Food and Nutrition practical work in the Municipality.

Summary of Results

In summary, this chapter has provided answers to the research questions and presented results of the three hypotheses tested. The study revealed that there are qualified teachers who are engaged in organising Food and Nutrition practical work in the senior high schools and senior high technical schools in the Hohoe Municipality. These teachers are holders of Bachelor degree in Home Economics and are also engaged in teaching theory of Food and Nutrition.

The results of the study also revealed that all the schools do not have well equipped Food and Nutrition laboratory for organising practical work. Also, most of the schools lack equipment and tools such as gas/electric stoves with oven, cooking utensils, weighing scales, serving trays, blenders, knives, graters, peelers, melon ballers and others. However, reference, resource, teaching and learning materials are inadequate in the schools.

On how Food and Nutrition practical work is organised in the schools in Municipality, the study discovered that planning of practical work is done before implementing the activities. Demonstration practical lessons precedes the actual practical work; practical work complements the theory lessons taught. Students work as individuals or in small groups to observe, plan menus and present them for assessment. Also, students are taken through enough practical works in handling of food items and food preparation. The results of the study were conclusive that no statistically significant differences existed between the senior high schools and senior high technical schools with regards

to availability of material resources, reference/resource materials, teaching and learning materials. Also, statistically significant differences existed between the senior high schools and senior high technical schools with regards to quality of human resources and organisation of Food and Nutrition practical work in the schools.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of the processes involved in conducting the study, and the conclusions drawn by the researcher. It also makes recommendations and suggests areas for further studies.

Summary

The study examined the status of Food and Nutrition practical work in the senior high schools and senior high technical schools in the Hohoe Municipality of Volta Region in Ghana. Three research questions were formulated to guide the study and included, which sought to find out how Food and Nutrition practicals are organised, the quality of human resources in the schools and the material resources available for carrying out Food and Nutrition practical work in senior high schools.

Three hypotheses were formulated and tested to ascertain the statistically significant relationship between the quality of human resources and the availability of material resources in the schools and/ differences that existed between senior high schools and senior technical schools with regards to availability of qualified teachers, availability of facilities, equipment and tools, reference and resource materials, and teaching and learning materials, and the mode of organising Food and Nutrition practical work in the schools.

The study employed a mixed methods research approach. In Ghana's Hohoe Municipality, researchers looked into the current state of food and nutrition instruction and organisation in senior high schools and senior high

technical institutions. The goal was to extrapolate population-level features, attitudes, and behaviours from a sample of the population. The goal of this approach is to gather both quantitative and qualitative data concurrently, integrate the data, and utilise the findings to determine the state of the research topic. Using a combination of quantitative and qualitative approaches, a mixed methods research design (Cresswell, 2012) aims to get a deeper understanding of a research topic. Research challenges may be better understood when quantitative and qualitative methods are used in tandem.

The population for the study comprised all senior high and senior high technical schools, teachers who are teaching and organising Food and Nutrition practical work, students who are offering Food and Nutrition, and Heads of Home Economics Departments in these schools in the Hohoe Municipality of Ghana. It also involved all students offering Food and Nutrition as an elective subject. Four schools were selected out of the five schools in the Municipality for study using the simple random sampling technique.

A sample of one hundred and seventy-one (171) participants comprising 5 teachers, 4 heads of Home Economics departments and 162 students from the selected 4 schools in the Municipality for the study with the use of the census sampling technique.

Three instruments comprising a questionnaire, observation check list and interview were used in collecting data for the study. A 26-item questionnaire was designed by the researcher and used to collect data for the study. The instrument was designed to elicit information from the teacher and student participants on quality human resource availability; facilities,

equipment and tools, reference and resource materials availability; and the mode of organising and conducting Food and Nutrition practical work in the selected schools in Hohoe Municipality. The questionnaire comprised closed-ended questions. The basic structure of the instrument was based on the four-point Likert-type scale (strongly agree, agree, disagree and strongly disagree) as described by Best and Kahn (2006). The data gathered was analysed using both descriptive and inferential statistical tools.

Key Findings

1. The results emanating from the study revealed that, teachers and students played varied roles when practical work are organised or conducted. The study revealed that adequate planning of practical work is done before implementing the activities by the teachers and does not follow any manual or laid down procedure. Demonstration practical lesson precedes the theory lesson; practical work complements the theory lessons taught. Students work as individuals or in small groups to observe, plan menus and present them for assessment. Also, students were not taken through enough practical on preparation of food due to lack of funds from the schools and financial challenges faced by students. The results of the study also showed that the teachers engaged in strict adherence to principles and practice of organising practical work. The teachers reviewed theory and linked it to the practical work and give students relevant information on the practical work.
2. The study established the fact that there were quality teachers who have been engaged in teaching and organising Food and Nutrition

practical work in the senior high and senior high technical schools in the Municipality. These teachers are holders of the Bachelor degree in Home Economics, Food and Nutrition and this qualifies them to teach the programme. They teach both theory and practical lessons. It was also established that the teachers exhibited adequate knowledge of the subject matter; were able to teach all aspects of the content and ensured that students achieve high standards necessary in the practical work.

3. The study showed that all the schools do not have well equipped Food and Nutrition laboratory for organising practical work. Practical works take place in the classroom. Also, most of the schools selected for the study do not have a gas/electric stove with oven, and others to be used for practical lessons. In addition, some of the schools lack tools such as, graters, serving trays, blenders, peelers, melon ballers and others. However, reference/resource materials, teaching and learning materials, are not available in the schools. Information gathered revealed that both teachers and students provide the needed material resources when practical lessons are being organised. The study revealed that the schools lacked funds to provide these amenities for Home Economics Departments of the schools.
4. There was a statistically significant difference between the old senior high schools and the new senior high technical schools as far as quality of human resources and organisation of Food and Nutrition practical work is concern. It is assumed that the senior high technical schools do have more practical work than the senior high schools.

5. The study revealed that there was no statistically significant difference between the old secondary schools and the new senior high technical schools with regards to the availability of material resources. There is a popular notion that since the old secondary schools were established more than twenty years before the senior high technical schools came in to existent, they might have more material resources for organising practical work but the study revealed that both the old and the new schools are the same.

Conclusions

The results of this study support most of the findings previously cited on the research questions and at the same time, it rejects some others. The status of Food and Nutrition practical work in the senior high schools and the senior high technical schools in the Hohoe Municipality as revealed by the study showed that teachers are confronted with many challenges in relation to access to facilities although they have the skills and knowledge needed for carrying out practical work.

1. Students are not taken through enough practical on preparation of food due to lack of funds, practical lesson manual such as recipe and planning books in which the planning and organisation of practical work is well stipulated for both students and teachers. This has resulted in their poor performance.
2. There are qualified teachers who are engaged in organising Food and Nutrition practical work in the schools, therefor students' poor performance in practical work cannot be blamed on the teachers.

3. The schools and students do not have the material resources for the practical work. This has also had negative effect on students' poor performance.

Recommendations

The following recommendations are made based on the findings of the study.

The results of the study showed that the schools lack material resources such as well-equipped food laboratory, reference materials and funds to conduct practical work. In the light of this findings, it is recommended;

1. The Ministry of Education, the GET Fund, and Ghana Education Service must come to the aid of the schools and provide these facilities. The Hohoe Municipal Assembly and Municipal Directorate of Education in collaboration with heads of schools should organise yearly food bazaars in the schools to generate income to put up well-equipped modern Food and Nutrition laboratories for organising practical work rather than in the classrooms. Resource reference materials such as recipe books, planning books and syllabus for planning practical work should be provided.
2. Parents should provide material resources such as money, tools and equipment needed for their wards practical work.
3. NGO's, churches and communities and their Members of Parliament should aid schools with well-equipped practical rooms, reference materials and funds for practical work.
4. Teachers should find an innovative means of finishing all aspects of the content of the practical lesson.

Suggestions for Further Studies

In order to further extend the literature on the state of organising Food and Nutrition practical work in schools, the following recommendations for future studies are being made.

1. A survey to explore alternative means of funding practical works among students and stakeholders such as parents, NGO in relation to Food and Nutrition practical work in senior high schools.
2. There is the need for further research investigating the effect of lack/inadequate provision of facilities, equipment and tools on the performance of students in Food and Nutrition.

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

QUESTIONNAIRE FOR FOOD AND NUTRITION STUDENTS

This questionnaire is to collect information on the status of Food and Nutrition practical work in Senior High Schools in the Hohoe Municipality of Ghana. Kindly respond to the items as candidly as possible. The information you provide will be treated as confidential.

Thank you.

Section A

Please respond by ticking [√] in the appropriate box the response applicable to you.

Quality of human resources for organising Food and Nutrition practical work in Senior High Schools

Respond to the following statements to the best of your knowledge by ticking [√] in the appropriate box using the following keys: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

S/N	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
3	The school lack qualified Food and Nutrition teacher(s).				
4	Teachers organise practical work when teaching Food and Nutrition.				

5	The Food and Nutrition teacher performs duties that are associated with organising practical work.				
6	The Food and Nutrition teacher ensures that students achieve high standards necessary for them in practical.				
7	The Food and Nutrition teacher is able to teach all aspects of the content of practical work.				
8	The Food and Nutrition teacher has adequate knowledge of the subject matter of the practical work.				

SECTION B

Material resources available for organising Food and Nutrition practical work in Senior High Schools

Respond to the following statements to the best of your knowledge by ticking [√] in the appropriate box using the following keys: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

S/N	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
9	There is a food laboratory where food and nutrition practical work is taught.				
10	There are food and nutrition equipment and tools for performing practical work.				
11	Classroom teaching is combined with practical work.				
12	The school has food and nutrition practical room/kitchen equipment and tools.				
13	There are sufficient food and nutrition practical work textbooks for students.				
14	There are sufficient food and				

	nutrition practical work reference books for students (recipe books).				
15	The school lacks finances for organisation and conduction of food and nutrition practical work.				
16	Syllabus for planning food and nutrition practical lessons is available in the school.				

SECTION C

ORGANISATION AND CONDUCTION OF FOOD AND NUTRITION PRACTICAL WORK IN SENIOR HIGH SCHOOLS

Respond to the following statements to the best of your knowledge by ticking [√] in the appropriate box using the following keys: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

S/N	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
17	Planning of practical work is done before the actual practical activities.				
18	The Food and Nutrition teacher demonstrates how the practical work should be done.				
19	Practical work complements the theory lessons taught.				
20	Students work as individuals or in small groups to observe, plan menus and prepare them for assessment.				
21	Students are taken through enough practical works in food preparation and serving.				

Thank you

APPENDIX B

UNIVERSITY OF CAPE COAST

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Questionnaire for Food and Nutrition Teachers

This questionnaire is to collect information on the status of Food and Nutrition practical work in Senior High Schools in the Hohoe Municipality of Ghana. Kindly respond to the items as candidly as possible. The information you provide will be treated as confidential.

Thank you.

Section A

Biographic Data

Please respond by ticking [√] in the appropriate box the response applicable to you.

1. Subject area in which the degree was awarded

Home Economics [ ]

Clothing and Textiles [ ]

Food and Nutrition [ ]

Management in Living [ ]

Food Science [ ]

Catering and Tourism [ ]

Any other (please specify) ……..……

2. Number of years teaching Food and Nutrition in the school

1 – 5 years [ ]

6 – 10 years [ ]

11 – 15 years [ ]

15 – 20 years [ ]

Any other (please specify) ……

3. Class (es) being taught

SHS 1 [ ]

SHS 2 [ ]

SHS 3 [ ]

All the above [ ]

SECTION B

Quality of human resources for organising Food and Nutrition practical work in Senior High Schools

Respond to the following statements to the best of your knowledge by ticking [√] in the appropriate box using the following keys: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

S/N	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
4	The school lack qualified Food and Nutrition teacher(s).				
5	Teachers organise practical work when teaching Food and Nutrition.				
6	The Food and Nutrition teacher uses a variety of instructional methods when teaching.				
7	The Food and Nutrition				

	teacher performs duties that are associated with organising practical work.				
8	The Food and Nutrition teacher ensures that students achieve high standards necessary for them in practical.				
9	The Food and Nutrition teacher is able to teach all aspects of the content of practical work.				
10	The Food and Nutrition teacher has adequate knowledge of the subject matter of the practical work.				
11	Teachers use class time effectively.				

SECTION C

Material resources available for organising Food and Nutrition practical work in Senior High Schools

Respond to the following statements to the best of your knowledge by ticking [√] in the appropriate box using the following keys: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

S/N	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
12	There is a food laboratory/centre where food and nutrition practical work is taught.				
13	There are adequate food and nutrition equipment and tools for performing practical work.				
14	Classroom teaching is combined with practical work.				
15	The school has latest food and nutrition laboratory supplies and equipment.				
16	There are sufficient Food and nutrition practical work textbooks for students.				

17	There are sufficient Food and nutrition practical work reference books for students.				
18	The school lacks finances for organisation and conduction food and nutrition practical work.				
19	Syllabus for planning food and nutrition practical lessons is available in the school.				

SECTION D

Organisation and Conduction of Food and Nutrition practical work in Senior High Schools

Respond to the following statements to the best of your knowledge by ticking [√] in the appropriate box using the following keys: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

S/N	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
20	Planning of practical work is done before the implanting the activities.				
21	The Food and Nutrition teacher demonstrates how the practical work should be done.				
22	Practical work complements the theory lessons taught.				
23	Students work as individuals or in small groups to observe, plan menus and prepare them for assessment.				
24	Students are taken through enough practical works in food preparation and serving.				

Thank you

APPENDIX C

UNIVERSITY OF CAPE COAST

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Interview Guide for Heads of Department

This interview guide is to collect information on the status of Food and Nutrition practical work in Senior High Schools in the Hohoe Municipality of Ghana.

Thank you.

Instruction: Summarise the responses to the items in the space provided.

SECTION A

Quality of human resources for organising Food and Nutrition practical work in Senior High Schools

1. Does your school have the qualified teachers teaching and organising Food and Nutrition practical work?

   ……

2. What academic qualification do they have?

   ……

   ……

   ……

   ……..

3. In what subject areas are their certificates awarded?

   ……

   ……

   ……

   ……

4. How effective are they in organising practical work in Food and Nutrition?

……

……

……

SECTION B

Material resources available for organising Food and Nutrition practical work in Senior High Schools

5. What materials (cooking utensils) do you have for organising food and nutrition practical work?

……

……

……

……

What equipment are available for the organisation and conduction of food and nutrition practical work?

……

……

……

……

6. What teaching and learning resources are available for the teaching and organisation of food and nutrition practical work?

……

……

.....

.....

7. What textbooks and reference materials are available for planning and delivery of food and nutrition practical work?

.....

.....

.....

.....

8. What infrastructural facilities do you have for the organisation of practical work in food and nutrition?

.....

.....

.....

.....

SECTION C

Organisation and Conduction of Food and Nutrition practical work in Senior High Schools

9. How are food and nutritional practical work organised in your school?

……

……

……

……

……

10. What role do teachers play during the organisation of food and nutrition practical work?

……

……

……

……

11. What role do students play during food and nutrition practical work?

……

……

……

……

……

APPENDIX D

UNIVERSITY OF CAPE COAST

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Observation Checklist

Section A

Particulars of Schools and Teachers being observed

This observation guide is to collect information on the status of Food and Nutrition practical work in Senior High and Senior Technical Schools in the Hohoe Municipality of Ghana.

Thank you.

Instruction: Provide the particulars of the school and the lesson being observed.

I. **Particulars of School**

1. Name of School: ……

II. **Observation of Lesson**

2. Aspect of Food and Nutrition

Food and Nutrition practical work [ ]

SECTION B

Material Resource Available for Organising Food and Nutrition practical work

Choose with a tick [✓] the extent to which the organisation of Food and Nutrition practical work have been observed to be done in the school and during the lesson (Not Observed = 0; Observed = 1).

SN	Statement	Not Observed	Observed	Total
3.	Food and Nutrition laboratory is available in the school			
4.	Practical work is carried out at Food and Nutrition centres			
5.	Teacher assembles all necessary tools.			
6.	Teacher assembles all necessary equipment.			
7.	Teacher assembles all ingredients.			
8.	Teacher tests equipment before practical work.			
9.	Teacher gives clear information prior to practical work.			
10.	Teacher ensures that all learners/groups have correct tools and equipment.			

11.	Teacher that all materials and equipment are kept within reasonable reach.			
12.	Teacher ensures that all working table(s) is well positioned to allow for free movement and visibility.			
13.	Items/ingredients are appropriately presented and covered throughout the lesson.			

Section C

Organisation of Food and Nutrition Practical Work in the School

Choose with a tick [✓] the extent to which the organisation of Food and Nutrition practical work have been observed to be done in the school and during the lesson (Not Observed = 0; Observed = 1).

SN	Statement	Not Observed	Observed	Total
14.	Teacher reviews theory and linked it to the practical work.			
15.	Information on practical work was clear and relevant.			
16.	Teacher guides and redirects students.			
17.	Teacher discusses the practical work with students.			
18.	Teacher engages in personal hygiene practices.			
19.	Cleanliness of work environment was satisfactory.			
20.	Teacher manages students' behaviour.			
21.	Teacher uses common tools and equipment.			
22.	Teacher uses correct language and expressions.			
23.	Assessment of practical work was thoroughly done.			

Thank you