UNIVERSITY OF EDUCATION, WINNEBA

INVESTIGATING STUDENTS' PERCEPTION OF FOOD SERVICES IN SECOND CYCLE INSTITUTION: A CASE STUDY IN THE BOLGATANGA MUNICIPALITY

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OCTOBER, 2021

DECLARATION

STUDENT'S DECLARATION

I, LETICIA TOUH YAMGA, declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and acknowledged, is entirely my original research and that no part of it has been presented for another degree in this university or elsewhere.

SIGNATURE:……

DATE:……

SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines on supervision of dissertation as laid down by the University of Education, Winneba.

NAME OF SUPERVISOR: DR. ELLEN LOUISA OLU FAGBEMI

SIGNATURE:……

DATE:……

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DEDICATION

To almighty God for his guidance and protection and to my children and family for their prayers, support and encouragement.

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ABSTRACT

Catering services are critically important in providing an ideal environment for good nutrition and dietary habit to students. The provision of safe food for children of school-going age is of great concern to governments. This is also needed by other stakeholders as it improves health, growth and development in developing countries. Foodborne diseases (FBD), an outcome of poor hygiene practices are reported internationally in schools. These tend to defeat the aims of quality food provision. The objective of the study was to investigate students' perception of food services in Second Cycle Institutions. The study employed a mixed method research approach. The researcher adopted the case study design in carrying out the study since it was explored through one or more cases with a bonded system. Field observation, In-depth interviews and questionnaire were the appropriate instruments used in collecting primary data from the field since the research design is a mixed method. Quantitative data was coded for easy categorization and entry. Quantitative data were processed using the Statistical Package for Social Scientist (SPSS) software. Results were presented by the use of tables, pie-charts and graphs. Half of the respondents were female (50.7%) whilst the rest were male (49.3%). The study showed that majority of the students were within the ages of 18 to 20 years (58.7%). Results from the study shows that the students agreed (3.21±1.21) that they want some of the foods on their menu changed. The results also showed that students agreed (3.03±1.08) that they eat a balanced meal from the dining hall. The students agreed (3.00±0.55) that they knew what a balanced is. The students also agreed (3.00±0.56) the menu provided them with a variety of foods. The respondents disagreed (2.64±1.36) that the time between meals is too much. The students also disagreed (2.47±1.32) that they feel nourished after eating. The students disagreed (2.31±0.84) that the food served at the school was enough was for them. The results also showed that the cans used in serving food for the students was enough (2.82±0.81). The students agreed (3.05±0.32) that they were made to fetch water from the kitchen for cooks to prepare food. The study also agreed (3.14±1.36) that students sometimes wash the cans and other utensils at the pantry during lessons or break. Students also agreed (3.06±1.32) that they are made to carry food from the pantry to the dining tables during lessons or break. The students concludes students disagreed they feel nourished after eating. The students strongly disagreed that they ate fruits, proteins, egg and meat each day. They also strongly disagreed that they did not like the meals served in the school. The students also strongly disagreed that the dining tables and chairs are enough for the students. The respondents again strongly disagreed that the quality of food served was satisfactory. The students further strongly disagreed that they eat proteins every day. The students strongly disagreed that they eat fruits in the school. The study concludes that students were made to fetch water from the kitchen for cooks to prepare food. The study concludes that there must be effective supervision on the catering activities in the school. This will help provide balanced nutrition to the students. There must also be quality audit in the kitchen by the regulatory bodies.

CHAPTER ONE

1.1 Background to the Study

Food services are critically important in providing an ideal environment for good nutrition and dietary habit to students (Kwon *et al*., 2005). The mission of school catering services has recently shifted from providing a meal to satisfying student's needs. The provision of safe food for children of school-going age is of great concern to governments. This is also needed by other stakeholders as it improves health, growth and development in developing countries (WHO, 2002; Afoakwa, 2005; Oranusi *et al*, 2007; Santana *et al*., 2009). In Brazil, 37 million children from state elementary and middle schools are covered by the National School Feeding programme (Santana *et al*., 2009).

Outbreaks of many foodborne diseases are due to contaminations that occur during food preparation with the food service establishments (Pantry). Cases of food poisoning are prevalent in schools as a result of cross- contamination during food preparation. (Scallan and Angulo, 2011). The outbreaks of foodborne diseases in school feeding programs/ pantry system can result in life threatening diseases, huge medical cost and the spread of infection to other students and staff, thereby leading to disruption of learning in schools. (Scharff 2012) The Ghana Food and Drugs Authority (FDA) food safety management guidelines for food hygiene identify the essential principle of food hygiene applicable throughout the food chain (including primary production through to the food consumer) to achieve the goal of ensuring that food is safe and suitable for human consumption.

In the last three decade, the apparent incidence of foodborne disease has increased worldwide, despite the introduction of Hazard Analysis Critical Control Points (HACCP), and the proliferation of food safety management regulations (Maurice, 1994). The increased incidence of foodborne diseases, caused among others by changes in agricultural and food processing practices stresses the need for effective food quality and safety assurance systems. Current approaches to food safety that rely heavily on regulated inspection and sampling regime cannot efficiently guarantee its protection since 100% inspection and sampling is financially and logistically impossible.

Lack of knowledge on good hygiene practices is the main source of food borne diseases which impact negatively on the education of the learners. Good hygiene practices ensure that foods provided to learners are safe and free of biological hazards which are responsible for food poisoning outbreaks or foodborne illness in schools. Policies are needed at the school level to support and provide the necessary guidelines for the effective implementations of school food safety management system. A supportive environment to ensure safe food storage, preparation, transportation and consumption is needed in all schools. Well-constructed kitchens and storage rooms are needed to ensure hygienic food preparation and storage. (WHO, 1997:1-4).

There is a multitude of reportage in the Ghanaian media on food poisoning in senior high school. On February 12, 2010, the Daily Graphic newspaper in Ghana published that about 100 students of Archbishop Porter Girls Senior High School (a boarding school in Ghana) were plagued by stomach pains, vomiting, diarrhoea and general weakness after meals due

to food poisoning. Food poisoning at Awudome SHS (GNA, June 1, 2014); Daboase SHS food poisoning, samples for the test (GNA, February 2, 2014); forty (40) students hospitalized for food poisoning (Abdul Karim Naatogmah/citifmonline.com, march 4,2013). The food industry is regulated to ensure a safe food supply; however, there is some degree of risk. All foods must be grown, handled, packed, prepared, stored, and served properly to ensure food remains safe for consumption. Although the vast majority of cases of food-borne illness are mild, a significant number are fatal, a high incidence of acute infections and chronic sequel can lead to billions of dollars in medical costs, loss of productivity and frequent recalls. The problem of food safety is not only a problem in developing countries but also in developed countries, which have advanced food chain monitoring systems.

1.2 Problem Statement

A majority of secondary school students all through Africa remain in the adolescent age group of 11-19 years. This period in life is so critical since Lulinski (2001), believes it is a period when their bodies are evolving into adulthood. The student's state of nutrition has an vital impact on perceptive ability of low class attendance, academic performance and productivity in adolescent age. As a result students need nutritious meals for their development. It was necessary to inquire from Senior High school (SHS) students about the students food service activities.

Students perception of their SHS food service operations are crucial to influencing their level of satisfaction, dining frequency and their overall school experience (Hall, 2014). With the reported growth in economic conditions and the captive nature of the second cycle

institutions in the food service market, it has been increasingly challenging to achieve student satisfaction options. Moreover food service providers face many challenges serving the millennial students that are culturally diverse, fickle, sophisticated, experienced in their dinning habits and often confined to SHS students making their needs more complex (Choi et al., 2013: Joung et al., 2013). There is limited research on SHS student's perception on dinning services across various types of students. This lack of research creates a gap in the body of knowledge of students opinion and behavior of the SHS students food services (Gasman, 2013). As a results students satisfactory about the dining area is very important to their eating habits

What remains unclear is the existing hygienic conditions of the kitchen environment where the meals are prepared for the students. Foodborne diseases in Ghana have become generally stated to have killed about 90,692 people, Osei Tutu and Antwi (2016). With 297,104 reported cases at Outpatient departments in hospitals. This cost the government GHC 594,208.00 and approximately 594,279 productive days in 2006 (Odame-Darkwa, 2008). This prompted the researcher to investigate the perception of the students on food service operations in Second Cycle Institutions.

1.3 Objectives of the Study

The main objective of the study is to investigate students' perception of food services in Second Cycle Institutions.

1.3.1 Specific Objectives

Specifically, the objectives of this study were;

1. To determine the perception of second cycle students in Bolgatanga Municipality about the nutritional value of meals served in their school.
2. To examine the level of satisfaction of second cycle students in the Bolgatanga Municipality with catering services offered to them.
3. To assess students views or opinion on the hygiene conditions within the cooking environments in second cycle institutions in the Bolgatanga Municipality.

1.4 Research Questions

In order to attain the above stated objectives, the study will be guided by the following questions:

1. What is the perception of students nutritional value of meals served in second cycle institutions in the Bolgatanga Municipal?
2. To what extent are students satisfied with the food offered to them in Institution?
3. What are students perception on the hygiene conditions within the environments where the meals are prepared in second cycle institutions in the Bolgatanga Municipality?

1.5 Significance of the Study

This study will bring to bear students perception about the quality of food services rendered to them in second cycle institutions in the Municipality. Other Senior High Schools in the region and the country as a whole can base on the findings and improve upon the

perception of food services for their students. In addition, the study will provide valuable knowledge and information about the satisfaction of food services in second cycle institution for policymakers to inculcate in their policy formulation. Again, findings from the study will expand existing knowledge and literature in the area of perception, satisfaction and hygienic condition of food service in second cycle institutions.

1.6 Limitation of the Study

The study is limited to three senior high schools in the Municipality despite the existence of other Senior High Schools. These three Senior High School have high numbers in terms of enrolment as compared to the other Senior High School in the municipality. In addition, the study is limited to the perception about food services provided for the students in second cycle institutions in the municipality. Again, there is the tendency for bias response from respondents due to the fear of giving important information about their schools, to curb this limitation and its effect on the viability of the study, convenient sampling is employed to make sure that respondents are students, cooks and school authority are from different background and ethnicities.

1.7 Delimitation of the Study

The study focused on investigating students perception about food services in second cycle institutions. The study looked at the hygiene conditions within the environment in second cycle institutions where meals are prepared and served to students, the impact of students' population on the nutritional value of meals served and the contributions of food services to student learning. Geographically, the study focused on three senior high schools in the

Bolgatanga municipality, namely; Bolgatanga Senior High Secondary, Zuarungu Senior High Secondary and Bolgatanga Technical Institute.

1.8 Organization of the Study

The study has been organized under five chapters. Chapter one, which is the introductory chapter of this research work, gives background information to the study. This chapter clearly defines the background of the study, statement of the problem, main objective and the specific objectives of the study. The research questions that support the study are also outlined. Chapter two focuses on the conceptual issues regarding food services, theoretical and review of empirical literature related to the study. Chapter three focuses on the research methodology that was used in the study. It also explains the research design used for the study, the population of the study and the sample and sampling procedure. It also states the research instrument used for data collection, pre-testing of the research instrument, and data analysis procedures. Chapter four presents the analysis of the data collected and the discussion of the findings while chapter five presents a summary of the main findings, conclusions, as well as recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Review

Defee *et al*. (2010) made an indication that, for research to be a good one, it must have its root in a concept.

2.1.1 The concept of quality services

It is worth mentioning that service operators should enhance the quality of service provided on-campus to discourage students from searching for alternative food service operations off-campus. Students in second cycle institutions are not limited to on-campus food service quality, as they are aware of surrounding food service quality, (Mireille & Carole, 2019).

Kardas (2018), Kowalik & Klimecka-Tatar, (2018) and Mazur, (2018) stated that quality is one of the most important issues in the contemporary world. In the case of services, the customer is the best source of information on the quality, as the customer takes part in the preparation of these services. According to El-Said and Fathy (2015), service quality can be described briefly as a phenomenon considered within the context of customers' expectations and perceptions about the service offered. They also found out that food service on campus is more complex, diverse and dynamic thus rendering the measurement of service quality and identifying the determinants of service quality difficult.

Ko and Su (2015) in a study on the main factors of food service quality identified customers and products as the two major dimensions. According to Pilarz and Kot, (2019), students' expectations and perceptions regarding the quality of service vary from one student to another and from one semester to the next and that the level of satisfaction is the difference

between the perceived features of the service and the expectations of the recipient. The study also revealed that if the features of a given service do not meet expectations, the service buyer is dissatisfied but if the service features exceed expectations, the buyer is willing to renew the purchase of the service. Although the work of Pilarz and Kot, (2019) targeted the hospitality industry, there is no difference between the two studies since the focus of both of them is about quality catering services.

2.2 Models used in determining service quality

Literature reveals that many instruments were developed and refined by researchers for measuring the perceived quality of service (Mireille & Carole, 2019). One of the instruments is SERVQUAL, which was implemented by Zeithaml *et al*, (1988). It consists of five service dimensions, which are tangibles (physical facilities, equipment, and appearance of personnel), responsiveness, reliability, assurance, and empathy.

LODGSERV is another instrument, which was developed to assess service quality in hotels and function halls (Hensley & Sulek, 2007). Additionally, Stevens *et al (*1995*)* adopted and refined the DINSERV scale from SERVQUAL and LODGSERV to assess customers' perceptions of restaurant quality. The DINSERV scale comprises 29 statements in five dimensions of the SERVQUAL scale. It is frequently used as a valid measurement tool to evaluate service quality in different hospitality establishments and mainly food service operations, which is the case of the current study. The researcher employed the DINSERV scale to find out the views of students about the quality of catering services in their various schools. This approach is used as a guide in the formulation of the study instruments to collect data from the field.

2.3 Conceptual framework

Mugenda and Mugenda (2003) define a conceptual framework as a brief description of the phenomenon under study supplemented by a pictorial representation of the variables under study. Aside from displaying the roadmap of the study, the researcher through a conceptual framework illustrates the connections between the different constructs that were to be investigated.

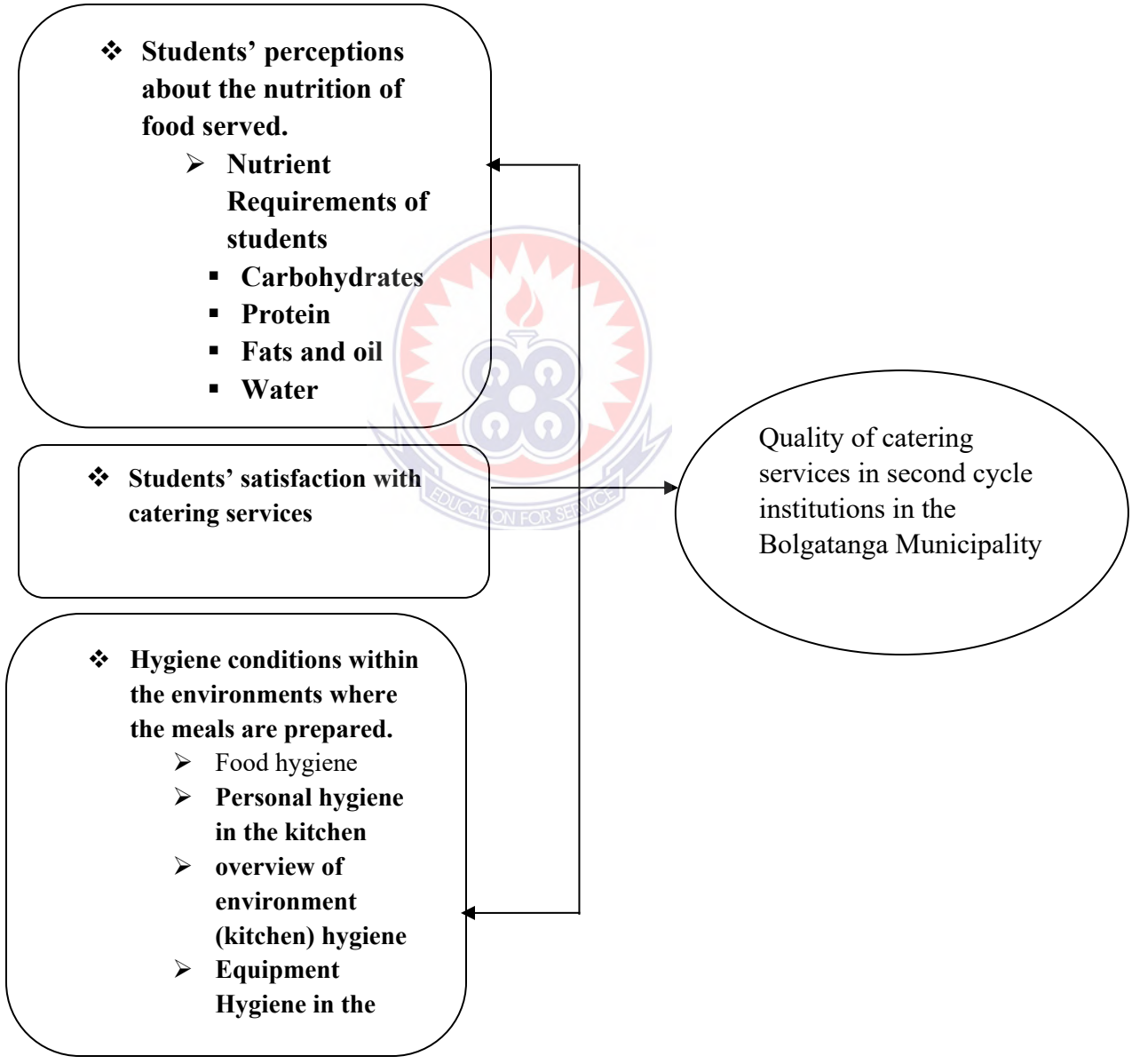


Figure 2.1: Conceptual framework

2.4 Perception of students about the nutritional value of meals served in the Second Cycle Institutions.

A majority of secondary school students throughout Africa fall under the adolescent age bracket of 11-19 years. This stage in life is so crucial because according to Lulinski (2001), it is a period when their bodies are metamorphosing and evolving into that of an adult. The student's state of nutrition has a short-term and long-term impact on cognitive ability, academic performance and productivity in adulthood. Increased nutritional needs at this juncture relate to the fact that adolescents gain up to 50% of their adult weight, more than 20% of their adult height and 50% of their adult skeletal mass during this period (Ormorh, 2014).

Though we cannot tell which meal can help children to be cleverer, the role of good nutrition in child development is undoubtedly important. Food provides the nutrients needed to build and maintain the body cells in human beings. Wardlaw (2003) and Worthinton-Roberts & Williams (1996) assert that nutrients are chemical substances that must be obtained from food. Nutrients that the body derives from food are carbohydrates, lipids, protein, vitamins, and mineral salts and water (Walter, 2000). All the nutrients are needed for the growth, and development of the individuals in their required quantities (Liebman, 2001; Ormorh, 2014).

The results of a study that was carried out in a boarding school in Nigeria to assess the nutritional status of forty students between the ages of 10 to 19 years showed that students in that boarding school were generally malnourished with inadequate energy intake especially among students of younger ages (Akinyemi and Ibraheem, 2009). According to

the research, children in boarding schools may be at higher risk of developing nutrient deficiencies compared to those in non-boarding school, probably due to financial constraints in running boarding facilities.

The International Food Information Foundation Council (2009) affirms that parents have lesser control over what the adolescents eat especially when they go to school. However, what their friends eat in the school and what is available to them in the school environment may have an impact on their food preference. According to the Council, social pressure has a major influence on teenagers' food choices because that is the time they want to gain peer acceptance or insist on independence from parental authority.

Neill *et al*. (1997) revealed that what students eat at school is dependent on many factors, including the cafeteria environment, peer pressure, administrative support, teacher participation and cafeteria. A study conducted by the United Nations (2016 and 2019) has stated that food safety is indeed an essential issue to address the Sustainable Development Goal (SDG -3) towards the insurance of healthy lives and promotion of well-being for all at all ages.

Michael *et al.,* (2018) reviewed existing research on the link between child nutrition and academic achievement and highlight how nutrition can affect learning through three channels: physical development (e.g., sight), cognition (e.g., concentration, memory), and behavior (e.g., hyperactivity). Gomez-Pinilla (2008) outlines some of the biological mechanisms regarding how both an increase in calories and an improvement in diet quality

and nutrient composition can affect cognition. For example, diets that are high in saturated fat are becoming notorious for reducing molecular substrates that support cognitive processing and increasing the risk of neurological dysfunction in both humans and animals" (Gomez-Pinilla 2008).

Nyamwaya and Oduol, (1994) agree that food is important for good health and proper growth and development of the body. They concluded that if people eat the wrong foods they become weak, can get sick easily and could even die. According to the authors, balanced meal should consist of different types of foods. These must energize and protect people from falling sick easily. Nabaseruka, (2018) on his part observed that hungry students are likely to be depressed, anxious, and function poorly. They can also have poor grades, absent from school and inattentive in class. As Ssewankambo, (2006) argued, individuals who use their brains like students need to have proper feeding in order to boost their thinking and reasoning capacity.

In another development, students need not be fed on carbohydrates only but should also eat enough fruits, vegetables and enough proteins. Dimmatteo, (1990) sheds more light on the kind of feeding that is appropriate for a hardworking student. Dimmatteo (1990) maintains that every student should maintain sound nutritious diets by avoiding salty processed foods, limit the intake of fats and eat lots of fresh fruits and vegetables, and whole grains. Furthermore, they have to drink low fat milk and also eat fish and chicken several times a week. However, these nutrients and diet seem to be out of reach by many schools and students.

Nabaseruka, (2018), submits that eating is the whole essence of life. His claim confirms the saying that "you are what you eat". This expression suggests that students do not need to regard eating as a pleasant experience that only satisfies hunger but also as a way of preventing ill health that could affect their quality of learning. Nabaseruka (2018) in her study concluded that, if students do not feed well, they cannot excel academically. The health of human beings largely depends on the quantity and quality of what they eat and drink.

Fruits and cereals are major sources of vitamin C therefore; they should be served on a daily basis. However, in most of the schools in developing countries, fruits are not served on a daily basis and in case any are served, they are too little to satisfy one nutritional requirement of students. Thus, if students do not get all the nutrients required, they may not perform up to the expected standards.

2.4.1 Nutrient Requirements of students

Smolin and Grosvenor (2013), explained that macronutrients are nutrients needed by the body in relatively large amounts. They include energy-yielding nutrients such as carbohydrates, proteins, lipids and water. These nutrients are required in relatively large amounts by the body. Lee *et al* (2005) found an association between the proportion of energy-yielding nutrients and the total energy consumed for weight control. Healthy ranges of intake for energy yielding nutrients have been established as daily-recommended intakes.

2.4.1.1 Carbohydrates

Carbohydrates serve as a critical and preferred energy source during any form of physical activity. This is seen especially during periods of intense, anaerobic activity (Rolfes *et al*, 2014). Carbohydrate consumption was found to be associated with cognitive processes such as memory and attention in elderly people (Kaplan *et al*, 2000). This is beneficial for students striving for academic greatness. The human brain depends exclusively on carbohydrates as an energy source (Lutz *et al*, 2014). The Recommended Daily Allowance (RDA) for dietary carbohydrates is 130 grams per day for males and females (Institute of Medicine, 2005). Added sugar should be reduced to less than 10% of the total calorie intake (USDA & USDHHS 2015). It is recommended that adult females consume between 21 to 25 g and males between 30 to 38 g of total dietary fiber daily.

2.4.1.2 Protein

Protein is needed by the body for growth, repair, replacing tissues and fighting infections. Protein serves to replace amino acids that are broken down to produce energy. The recommended daily intake for protein is five and a half ounce equivalent/day (USDA, USDHHS 2015). Generally, these recommendations can be met through diet alone. They can also be met without the use of protein or amino acid supplements (American Dietetic Association, 2000). It has been established that individuals participating in strength and endurance events have slightly higher protein requirements (1.2-1.7g/kg body weight). This is due to increased protein losses that occur during training and competition (American College of Sports Medicine, 2000).

2.4.1.3 Fats and oil

Dietary fat is a macronutrient that is also an essential energy source. It helps to absorb nutrients in the body (Huang *et al.,* 1994). It has been found to be largely over consumed among college-aged students (Huang *et al*, 1994; Schuette *et al*, 1996). It is often the first macronutrient to be limited during periods of caloric restriction due to its high caloric density. Dietary fats are also sources of essential fatty acids that must be obtained through the diet in adequate amounts to prevent nutritional deficiencies and to maintain a variety of the body's biological processes (Taylor *et al*., 2006). To promote good health, the recommendation for total fat and oil intake is set at 27 grams per day about 20 to 35 % of total daily energy intake (USDA & USDHHS, 2015). Fats and oils below 20 % of calorie intake increase the risk of inadequate essential fatty acid intake (Rolfes *et al.,* 2014). Part of the energy allowance of total fat should provide essential fatty acids (linoleic and linolenic acids). RDA suggests that linoleic acid should provide five to ten percent of daily energy intake and linolenic acids should provide 0.6 to1.2 % of daily energy intake (Rolfes *et al.*, 2014).

2.4.1.4 Water

Water is an essential nutrient that must be consumed in a diet for survival. Death occurs within only a few days without water (Smolin & Grosvenor, 2013). Water makes up to 60 % of human body weight and it is required in large amounts in daily diets. Water serves numerous functions in the body, which include acting as a lubricant, a transport fluid, and a regulator of body temperature (Smolin & Grosvenor, 2013). This makes the recommended daily allowance for water difficult to establish. According to Rolfes *et al.,*

(2014), the more energy a person expends, the more water is recommended. Micronutrients are needed by the body in much smaller amounts but still play a vital role in the body.

2.4.1.5 Vitamins

Nani, (2016) stated that micronutrients are non-energy yielding nutrients and include vitamins and minerals. Vitamins are required to regulate body processes; minerals are required for bone health and the transport of oxygen. Vitamins are organic molecules that do not provide energy but are needed to regulate body processes (Smolin & Grosvenor, 2013). Although vitamins do not provide energy, many of them serve as coenzymes for reaction to release energy from carbohydrates, fat, protein and alcohol (Smolin & Grosvenor, 2013). The Adequate Intake (AI) and recommended daily allowance for intakes of vitamins are made based on age and gender. Minerals are inorganic molecules that do not provide energy (Hill *et al*, 2004). Minerals form a large class of micronutrients, most of which are considered essential nutrients and they are needed for bone health. Minerals are divided into two groups: macro-minerals and micro-minerals. The recommended daily allowance for macro and micro-minerals for good health are according to age and gender. Macro-minerals such as calcium and phosphorous are required in amounts of 100 mg/day or more, whereas micro-minerals such as iron and selenium are required in much smaller amounts, typically less than 15 mg/day (Smolin & Grosvenor, 2013).

2.5 Students' satisfaction with catering services offered them in Second Cycle Institution

Kwame Nkrumah, Ghana's first President introduced a policy of mass education and established more secondary boarding schools throughout the country (Ormorh, 2014).

Reports in the mainstream media indicate that these schools are credited with helping to narrow ethnic cleavages that plague many other countries in the region (Ormorh, 2014). Despite this beautiful idea, it is noted in recent times that feeding students in boarding institutions pose lot of challenges to authorities, which in most cases results in student unrests or demonstrations leading to the suspension of academic activities (Sekyere, 2011). Some of these challenges include delays in payment of boarding fees by parents as well as the release of scholarship grants. Though the Government of Ghana subsidizes second cycle education, the boarding fees of students in Northern Ghana have further been absorbed by the Government to reduce the educational gap between the South and the North. However, a publication in modernghana.com (2008), observed that projects undertaken by the GES are mainly for classrooms and other academic areas but the catering department is usually left out of the scheme. The publication further cited inadequate supplies of catering equipment and utensils, lack of storage facilities and portable water in some schools as factors that make catering services very difficult for domestic bursars.

Boarding students in Senior High Schools in Ghana are provided three meals a day; breakfast, lunch and supper. These meals are derived from traditional Ghanaian foodstuffs and imported foods. School authorities choose the staple food of the people as a means of complementing the nutritional needs of the students. School authorities adopt a unified weekly menu for students in the boarding houses to avoid comparing of meals served in a particular school to those in other schools (Ormorh, 2014). In the Savanna zone, maize and yams are the staple foods in the Northern Region and millet in the Upper West Region. One of the conclusions of the National Nutrition Survey in 1961 was that the northern savanna suffered from an overall lack of food, notably in the pre-harvest period.

School authorities in Ghana provide a lot of fermented meals to boarding students, which is scientifically identified by Marquis, (2007) to improve the nutritional quality of food as well as reduce bacterial contamination. Such meals as Banku, Kenkey, Tuo Zafi, porridge, etc. are the delicacies in Ghanaian Senior High Schools. Although meals are provided for students, they do not like every meal that they are served. They demonstrate their preference for some selected meals by rushing for them and, on the other hand, show little interest in other meals.

A study by den Hartog (1972) showed that students both in Accra and in Tamale like imported foods, bread and tea, at breakfast; but not at the expense of the traditional foods such as porridge from maize and millet. The study further exposed the fact that students prefer traditional foods such as kenkey, yam slice, banku, tuo zafi, and rice and beans (wakye) at lunch and supper. This study revealed the characteristic nature of adolescents who like to make their own choices.

Healthy adolescents have a very big appetite. According to Shepherd and Dennison (1996), the challenges adolescents, including those in Senior High Schools face in an attempt to satisfy their appetites include taste and quality, cost and health, nutrition knowledge of parents and peers. Parents have recently been accused of causing students in boarding schools to have an appetite for meals that are not served in the schools. Addressing the second Biennial Delegates Conference of National Association of Bursars and Matrons (NADBAM), Van-Ess Josephine reported in modern Ghana.com (2nd September 2008) that the craze for fast food and "take away" by students is fuelled by parents who visit their

wards with such foods. A study by Owusu *et al.* (2007) in measuring the nutritional intake of adolescents in Ghana discovered that adolescents in Senior High Schools in Greater Accra Region and Eastern Region made bad food choices although they were fed with nutritionally adequate meals in their boarding schools.

2.5.1 Overview of Meal satisfaction

Understanding meal satisfaction requires an understanding of the concepts of both meal and satisfaction. Eating can typically be distinguished into two different types: a meal or a snack. The Oxford Dictionary defines a meal as "any of the regular occasions in a day when a reasonably large amount of food is eaten such as breakfast, lunch and dinner", whereas a snack is defined as "a small amount of food eaten between meals". Meiselman (2008) argues that meal definitions are approached differently depending on the research perspective. The amounts eaten as well as the time of the day constitute important differences between a meal and a snack (Drummond, Crombie, & Kirk, 1996). It is also worth noting that meals consist of different types of foods and not only of single food items. Moreover, a meal is more than the food eaten; it is also an event that takes place in a situational context (Meiselman, 2008). Meals consist of food and it takes place in a situational context, however meals can also be a marker for social relations (Mäkelä & Meiselman, 2009). Mäkelä and Kjærnes (2001) divided the eating event into two choices, whether the meal should be at home or in a public location, and whether the meal eaten alone or in a social context.

2.5.2 Expectancy-Disconfirmation Theory

Customer/consumer (dis)satisfaction is a well-known and established concept in the field of marketing (Kotler, 1991) and consumer research (Yi, 1990). In these areas satisfaction has been treated as a relative concept where it is judged in relation to a certain standard. Historically satisfaction definitions are discussed as either an evaluation process or an outcome, though most researchers have favoured consumer satisfaction as a response to an evaluation process, for instance, as an affective response (Haistead, Hartman, & 6 Schmidt, 1994) or as an overall evaluation (Fornell, 1992). Various competing theories to explain satisfaction are founded in assimilation theory, contrast theory and expectation-disconfirmation theory, among others. These theories suggest that satisfaction is a comparison between experience with product performance and initial expectations, where consumers either tend to adjust or exaggerate perceived disparity. Despite the widespread application of consumer satisfaction, a consensual definition is still lacking (Giese & Cote, 2000). Giese and Cote (2000) developed a framework on satisfaction aligned with current literature and consumer views on satisfaction during interviews. They identified three general elements: consumer satisfaction is a response (emotional or cognitive), the response pertains to a particular focus (expectations, product, consumption experience, etc.) and the response occurs at a particular time (after choice or consumption, based on accumulated experience, etc.). Oliver's (2010) Expectancy-Disconfirmation model for studying consumer satisfaction has received wide acceptance among researchers. He defines satisfaction as a fulfilment response: 'a judgement that a product/service feature, or the product or service itself, provided/providing a pleasurable level of consumption-related fulfilment, including levels of under and over-fulfilment'. This model implies that

consumers purchase products and services based on their pre-purchase expectations about anticipated performance. The expectation level thus becomes a standard against which the product is judged. Disconfirmation results from either a positive or a negative discrepancy between meal expectations and meal experience. If consumers perceive the meal to be better than expected – a positive disconfirmation – it provides satisfaction, and if consumers experience that the meal is worse than expected – a negative disconfirmation – dissatisfaction is the outcome. Two approaches have been proposed to measure satisfaction: the transaction-specific and the cumulative/summary approaches. The transactionspecific approach defines consumer satisfaction as an emotional response to the most recent transactional experience, whereas the cumulative approach reflects the overall satisfaction with various facets of product performance (Oliver, 2010).

2.5.2.1 Satisfaction with meals

The factors that are expected to affect meal experiences and satisfaction are classified into three general categories: food-related, personal and situational factors (Blake, Bisogni, Sobal, Devine, & Jastran, 2007; Meiselman, 2003). Food-related factors include variables that relate to the food in itself, the sensory characteristics and nutritional content of the meal. Personal factors include variables that relate to the individual, psychological as well as physiological variables. Situational factors include variables related to the physical eating location and situation, but also the social aspect of eating. Relevant literature on each of the foodrelated, personal and situational factors contributing to meal satisfaction is outlined in the following sections.

2.5.2.2 Food-related factors

Several studies report that food quality and sensory properties of food are important factors contributing to meal satisfaction in a restaurant setting (Andaleeb & Conway, 2006; Blanck et al., 2009; Law, Hui, & Zhao, 2004; Namkung & Jang, 2008; Walter, Edvardsson, & Öström, 2010). The sensory properties of food such as taste, appearance, aroma, temperature and texture have major influence on food intake and appreciation (Wilkinson et al, 2000) and findings suggest that liking is associated with greater consumption (Brunstrom & Shakeshaft, 2009). For instance, appearance of the meal produces expectations about liking (Hurling & Shepherd, 2003). Expectation and experience with different foods influence consumer choice when composing a meal, thus the sensory characteristics of the meal, including taste, odour, appearance and texture, are relevant for meal satisfaction. Previous research has found that the appearance of a meal influences consumption and meal experiences, such as presentation (Zellner, 2014) and colours (Piqueras-Fiszman & Spence, 2014). Visual appearance is important as it tends to be a consumer's first sensory contact with the food, which then provides expectations about taste quality and liking (Hurling & Shepherd, 2003). Appearance properties comprise visual properties, including colour, physical form and shape, and mode of presentation (Hurling & Shepherd, 2003). For example, a visual cue such as the colour of foods has been shown to influence flavour perceptions and experience with the food (Spence et al., 2010; Zellner, 2013). Similarly food textures have been found to affect consumption (Forde, 2013). Furthermore, research suggests that both pre and post-test measures of expected liking/disliking, appropriateness of food in a specific eating situation and post-test ratings of whether food items were better/worse than expected were good predictors of

overall meal satisfaction (Cardello et al., 2000). Variety is one of the food-related factors that have been shown to influence meal satisfaction in restaurant settings (Law et al., 2004). Several studies have found that variety increases food intake (Brondel et al., 2009; Levitsky, Iyer, & Pacanowski, 2012; McCrory, Burke, & Roberts, 2012). This phenomenon is referred to as the variety effect, which describes the increase in food intake when offered multiple foods with different sensory characteristic such as taste, smell, texture and visual appearance (Epstein, et al., 2010). Within-meal variety proposes that the foods must be sufficiently dissimilar in terms of sensory properties such as taste, texture, smell and visual appearance. Three types of variety should be distinguished: dietary variety which refers to food intake across a long period of time; across-meal variety which refer to variety of food intake within a day or across days, and within-meal variety which is related to the variety of components in a meal (Meiselman et al., 2000). Dietary variety is essential 9 to maintain an adequate intake of macro and micro nutrients (Weiss, Feinstein, & Dalbor, 2004), though too much variety in the consumption situation may lead to increased food intake and may cause excess intake of energy. When consumers are exposed to a variety of foods as, for instance, in a buffet context, the risk of overeating is present leading to weight problems and obesity in the long term. Consumers seek variety when they eat and most natural eating situations contain a decision about what to eat (Rozin & Markwith, 1991). Moreover, most studies focus on the influence of actual or objective variety on food choice and amounts eaten, and few include perceived or subjective measures of variety expressed by the participants. One of these studies was conducted by Kahn and Wansink (2004), who found that perceived variety of food assortment led to an increase in food intake even when the actual assortment variety was held constant. However, many

varietyrelated studies have been conducted in laboratory settings with pre-defined foods, which do not allow participants to compose their own meals as they do in real-life situations.

2.5.2.3 Personal factors

A study investigating the sources of positive and negative emotions in food experience revealed that people experienced emotions such as satisfaction, enjoyment and desire most frequently, while less often they experienced emotions such as sadness, anger or jealousy (Desmet & Schifferstein, 2008). Furthermore, the same study showed that conditions, which elicited the emotion, varied from statements referring directly to sensory properties of food and experienced consequences to those referring to indirect conditions such as expectations or associations. Another study found three sources of customer satisfaction with restaurant service: positive emotions, negative emotions and perceived service quality (Ladhari et al., 2008). Prior studies have found that consumers eat according to their mood (Macht, 1999); meals eaten in a negative or positive mood were found to be 10 relatively larger compared to meals eaten in a neutral mood (Patel & Schlundt, 2001). Stress level has shown to change food behaviours (Zellner et al., 2006). Physiological sensation related to hunger, satiety and desire to eat has been found to be associated with meal satisfaction (Boelsma et al., 2010). Satiation is described as the process that ends an episode of eating and satiety is defined as the inhibition of further eating together with the (usual) suppression of hunger (and increase in fullness) that occurs once eating has ceased (Allison et al., 2009). Expected satiety has been shown to affect food choice and consumption (Brunstrom & Shakeshaft, 2009). Studies, moreover, suggest that satiety expectations can

change over time because of acquired processes that some foods are more or and some less satiating than expected (Brunstrom, Shakeshaft, & Alexander, 2010).

2.5.2.4 Situational factors

Meals are consumed in different situational conditions related to the physical environment and the social context; both may influence perceived meal satisfaction. Research has thus shown that consumption in different locations and meal settings influence consumers' food-related expectations and food acceptability. Ambience is often related to a specific location and include lighting, sounds, temperature and smells (Stroebele & De Castro, 2004), though other elements may play a role in perceived ambience such as the atmosphere created by the surrounding people. A way of describing ambience is that it consists of "parts that are hard to localize and that surround the organism" (Stroebele & De Castro, 2004). Previous research has especially dealt with the relationship between the social context during and food consumption. Findings suggest that people tend to eat more when they are in company with 11 others compared to solitary eating, which is called the social facilitation effect (de Castro, Brewer, Elmore, & Orozco, 1990). The effect of group size on food consumption has been found to be mediated by meal duration (Bell & Pliner, 2003; Pliner et al., 2006). King and her colleagues (2007) found that social interaction did not influence food acceptability, and Pliner and Bell (2006) found that familiarity with the other eaters did not lead to social facilitation. Being in company with others also seems to enhance the emotional experience of eating (Brown, Edwards, & Hartwell, 2013)

2.5.2.5 Physical environmental influences

The physical environment has received quite a bit of attention in research and health promotion interventions regarding food practices. This level pertains to the accessibility and availability of particular foods according to the built environment and the sites where food purchasing, preparation, and consumption occur (Larson et al., 2006) Consideration of the community structure as well as the physical environment of the household is relevant in examining the physical environment. The built environment refers to the physical design of a geographic location, land use, and transportation systems (Lake & Townshend, 2006). Many North American urban centres have been built around the use of cars, limiting pedestrian walkways and often having less than adequate public transportation systems. This urban landscape can impact people's (in)ability to access supermarkets, convenience stores, farmers markets, and other locations that sell food commodities. Limited accessibility of food within areas of apparent food abundance has led some researchers to identify "food deserts," acknowledging urban landscape and retail locations (Walker, Keane, & Burke, 2010). This is a relevant topic for individuals who do not have access to a car, as may be the case for some university students in urban areas. The availability of certain types of foods within the different environments in which people work, go to school, and participate in recreational activities influences people's food choices when they are outside the home. Considering access to foods within one's environment makes it necessary to think about the "institutional environments" in which people work. In the case of students, this would be mainly the university environment (Greaney et al., 2009). Thinking about students' busy lifestyles, a significant portion of their days are spent outside the home, meaning they may sometimes have no choice but to eat whatever food is

available to them at that moment. These "convenience" foods often come from vending machines, convenience stores, and fastfood outlets, which offer packaged and processed snacks – in other words, pseudo-foods (Lake & Townshend, 2006). Availability of food on campus in terms of cafeterias, fast food outlets, and food stores is necessary to consider; however, thinking about spaces in which students can store, prepare, and eat food is equally important (Greaney et al., 2009). The physical environment includes consumers' homes, for instance, individuals' household setup and people's access to kitchenware and cooking supplies. At-home food preparation is very much dependent on having the proper kitchen appliances and devices that are necessary for cooking. This can be a barrier for university students who have recently moved on their own and who may not be able to afford proper cookware. The lack of kitchen supplies has been linked to lower rates of at-home meal preparation among students, impacting their food choice (Larson et al., 2006). This, along with time constraints and lack of cooking skills, can be connected to the phenomenon of dining out, which is rapidly increasing over time (Lake & Townshend, 2006). This is discussed in the upcoming subsection on social environmental influences.

2.5.3 Social environmental

influences Impacting physical environments at the household levels are social environmental factors. These factors include demographic characteristics, such as income and employment, family influences, upbringing, and peer influences.

2.5.3.1 Exploring food security through socio-economic status and cost of food

In the past several decades, there has been a significant amount of research indicating the association between socio-economic status (SES) and diet quality. It has been found that people living off lower incomes and with fewer resources are not necessarily able to afford quality, nutritious foods, such as fresh produce, meats, or other "whole" items (Darmon & Drewnowski, 2008; Drewnowski, 2009). Thus, studies have found that those living in lower SES, are more likely to choose low cost foods, which are typically more energy-dense and less nutrient-rich, such as refined grains, potatoes, and high-fat processed foods, denoting a certain degree of food insecurity (Drewnowski, 2009). As such, food security is considered one of the social determinants of health (Tarasuk, 2009). As a developed, high-income country, food security is not immediately recognized as being a critical issue in Canada. However, the term "food security" has expanded significantly since its conceptualization, now encompassing household and individual level food security, and food quality, rather than simply looking at a country's ability to provide adequate amounts of food for its citizens (Clay, 2002). When household and individual food security was first explored, the focus was primarily on calorie consumption and energy intake and whether an individual is consuming an adequate supply of energy for their body to sustain itself (Pinstrup-Andersen, 2009). This definition of food security is in contrast with more recent conceptualizations, which are more concerned with "nutritional security" (Pinstrup-Andersen, 2009). Nutritional security differs from food insecurity in that an individual may be consuming a satisfactory number of calories for the body to meet its energy needs; however, the food being consumed may not provide proper micronutrients. It seems that household and individual food insecurity is an issue that is not adequately addressed in

Canada, one that is embedded in the country's weakening social safety net and growing income inequalities within the population (McIntyre & Rondeau, 2004). Thus, it is critical to see how financial barriers and cost of living influence university students' food practices. However, this has not been the focus of many studies within the literature on food security (Larson et al., 2006). University students come from a range of SES backgrounds, making them a fairly heterogeneous population. Thus there 29 is likely a mix of students who are funding their way through university with student loans or scholarships, working full or part-time, or being supported by their parents or family. These disparities within the group make it worth examining how university students cope with financial issues in regard to food practices. Furthermore, cost of food is a crucial factor to consider when examining food choice, as this is one of the main determinants of food purchasing practices, particularly for those who are on tight budgets as many students are (Drewnowski, 2009; Story et al., 2002). Cost of food is a clear example of how social environmental factors (such as SES) are deeply embedded in and dependent on larger, macro-level influences (such as the economy).

2.5.3.2 Family background and social aspects of eating

Cooking skills, as well as beliefs around food are something that individuals begin internalizing at a young age within the private sphere (Lupton, 1996). As "many beliefs about food are culturally reproduced from generation to generation" considering family background is imperative in understanding current food practices. This includes examining the consumption of culturally traditional foods. "The Newfoundland and Labrador context," traditional food plays an important role in the province's diet and culture. There

are emotional, cultural, and physical ties to the consumption of traditional foods in NL, particularly regarding the examples of Jigg's dinner, fish and chips, and moose (Everett, 2009). There is often a sense of nostalgia associated with childhood memories of food (Lupton, 1996), which can result in the development of certain "comfort foods", relating to the upcoming discussion of emotional eating. However, not all memories around childhood eating practices are necessarily positive, as many parents attempt to shape children's food practices at a young age as a means of teaching "civilized manners" and values around healthy eating. This can lead to resistance and rebellion in adolescence, and experimentation with food during young adulthood (Lupton, 1996). Furthermore, changing support systems in the transition period into young adulthood means there is a shift in interpersonal influences on food practices. In other words, the family plays a different role than it had during childhood (Nelson et al., 2008). A life-course perspective, already discussed, can be utilized to explore how beliefs and attitudes that are developed at an early age transform over time (Devine, 2005). The social situations in which people prepare and consume food also change over the lifespan. This is an important consideration specifically for the student population, as a large percentage of these individuals are living with peers and sharing and consuming meals as a means of socializing (Feunekes, de Graaf, Meyboom, & van Staveren, 1998). An American study looking at the communal consumption of food among young adults found that almost two thirds of young adults share meals at least three times a week (Larson et al., 2013). The data from this research also suggests that more family meals during adolescence will lead to the prioritization of social eating in young adulthood (Larson et al., 2013). People are typically unaware of how their social networks influence their food practices, which makes it difficult to measure

through self-reported data (Feunekes et al., 1998). However, eating and sharing meals is considered a community-building activity, 31 reflecting the importance that peer influence has on food practices (Lupton, 1996). Social networks can influence food practices and attitudes in a range of ways, including through persuasion or behaviour modelling, to name a few. There have been studies around the social influence of food practices and how social norms can impact the type and quantity of food individuals consume (Higgs, 2015; Robinson, Blissett, & Higgs, 2013).

2.5.3.3 Dining out

Dining out has been an increasingly popular trend over the past half century (Lupton, 1996) and has been widespread in NL since the 1970s (Everett, 2009). Studies have found that young adults consume approximately 40% of their meals away from the home, making it a particularly pertinent practice among this population (Larson et al., 2011). Data from longitudinal research on young adults' food practices found that 95% of respondents reported eating from some type of restaurant (either fast-food or full-service) at least one time in a given week (Larson et al., 2011). It is important to note the differences between types of restaurants and why people are motivated to eat out, whether it is to socialize, because of time constraints, lack of cooking skills, etc. In terms of types of restaurants, a general differentiation has been made between full-service restaurants and fast-food establishments. Generally, fast-food is considered to be the less healthy option. In one study on adolescents' perceptions and consumption of fast-food, it was found that although fast-food was generally considered "low-brow" food, connected to lower classes and negative connotations, there was no class pattern found in the consumption of fast food;

rather there were similar levels of consumption across all classes (McPhail et al., 2011). Although research findings on the consumption of fast-food and SES have been mixed (Arcan, Kubik, Fulkerson, & Story, 2009), it is still necessary to consider class connotations behind dining out.

2.5.3.4 Managing busy lifestyles

Within the social environmental level it is important to consider the active pace of life defined by the number of choices and connections people are exposed to. The emphasis on busy schedules is also important to acknowledge within the social environmental level. The emphasis on economic gain and being a "contributing member of society" through paid employment has resulted in much busier lifestyles, with more time spent at work than before (Guthman, 2011). This, along with women's increasing participation in the workforce, has contributed to the emergence of the increased reliance on convenience, easy to prepare, and fast foods, with less significance placed on the social aspects of eating, such as the family supper (Jabs & Devine, 2006). The food industry has responded to these new consumer needs by offering quick and easily prepared foods, often in the form of canned, frozen, or packaged foods. These foods aim to reduce the amount of time people devote to cooking, while maintaining their palatability. However, these "convenience" foods often come with the cost of poor nutritional quality due to the added salt, sugar, fat, and preservatives (Nestle, 2002; Winson, 2013). The reality of hectic schedules is likely a similar situation for most university students. Students are often constricted in the amount of time they can devote to food preparation, due to the prioritization of school, work, volunteering, and social lives. Giving precedence to other priorities results in students

having little time to dedicate to healthy eating. Furthermore, they may also find it difficult to summon the effort needed for food preparation (Nelson et al., 2008). Foods that require little preparation, such as packaged, pre-made foods or take-out foods tend to be more energy dense and higher in fat, sugar, and salt, making them the presumably unhealthier option. However, individuals may weigh the costs and benefits and find that it is not worth the extra time and energy to make healthy meals at home (Jabs & Devine, 2006) – although, as always, personal opinions and understandings will influence these choices.

2.5.4 The individual level: Framing the individual-environment interaction

Finally, the individual level consists of individual's attitudes, preferences, biological, and demographic influences. Personal attitudes around food and nutrition are influenced by a wide variety of factors from social norms, media and popular culture, cultural traditions, upbringing, biopedagogies etc., making perceptions around eating particularly connected to the other three environmental levels (Story et al., 2002).

2.5.4.1 Perceptions of health, food, and nutrition

As discussed in the sub-section on "Macro-level influences," food pedagogies – or how we learn about and internalize notions of health, food, and healthy practices – are critical in shaping individuals' perceptions of health, food, and nutrition. However, it is difficult to determine how much of this knowledge from health promotion and education messages is translated into people's actual food practices. This is interesting to consider within a population of university students, as they should hypothetically be a fairly educated group who understand at least the basics around food, nutrition, and healthy eating. In their study

on dietary guideline knowledge and food choice among American college students, Kolodinsky et al. (2007) found that increased knowledge is associated with healthier eating patterns. Despite the potential limitations in the study design, such as the reliance on self-reported data and the small sample size, this research indicates the need for more research around university students' knowledge and perceptions of dietary guidelines and their connections to food choice (Kolodinsky et al., 2007).

2.5.4.2 Food, health, and beauty triplex

Related to perceptions of health, some say that there is a food, health, and beauty "triplex" present in contemporary Western society, which is a major influencer on individuals' level of body image satisfaction (Lupton, 1996). Embedded in the normalization of slim bodies as being healthier, as already explored in the discussion of healthism and obesity, this triplex suggests that "the link between food and health incorporates both ascetic and aesthetic notions" (Lupton, 1996), connecting health and food to the notion of beauty, which is dependent upon having a thin body. Bodies represent individuals' abilities to adhere to self-disciplined lifestyles, reflecting their level of "civilization," as well as their worthiness (Lupton, 1996). It is important to consider the complexities between food, health, and beauty, as: When these cultural meanings are examined, the desire for 'good health' becomes a very minor component of people's reasons for engaging in exercise regimes, superseded by concerns engendered by the powerful ideologies of morality, asceticism, self-discipline, and control which underlie consumption patterns in a culture which is intent upon self-promotion and achieving 'the look.' (Lupton, 1996) Health and fitness have become goals that contain embedded notions of beauty, which cannot be ignored when exploring individuals' food practices.

2.5.4.3 Dieting and disordered eating

Due to these notions of body size, dieting is important to consider among younger populations like university students. Dieting is associated with body-image, an individual-level, psychological factor that is closely linked to other factors located within different environmental levels, such as the media and popular culture within the macro environment, and peer influence in the social environment. Although a common practice, dieting becomes worrisome when considering that some of these more extreme weight loss measures fall under the category of "disordered eating" (Neumark-Sztainer et al., 2011). Disordered eating is often assumed to entail only the clinically diagnosed psychological disorders outlined by the DSM-V, including anorexia nervosa, bulimia nervosa, binge eating, and "disordered eating that is otherwise not classified" (Neumark-Sztainer et al., 2011). However, some researchers suggest the need for a wider continuum to encompass the range of unhealthy relationships individuals may have with eating. This spectrum includes eating practices that can be construed as being either healthy or unhealthy, such as dieting, unhealthy weight control behaviours (e.g. fasting, eating little food, skipping meals, etc.), and extreme weight control behaviours (e.g. taking laxatives or diuretics, using diet pills, forcing oneself to vomit, etc.) (Musolino et al., 2015; Neumark-Sztainer et al., 2011). These forms of disordered eating increase within young adulthood. Longitudinal data on unhealthy relationships with eating shows that there is a high prevalence of disordered eating in adolescence, which does not decrease when individuals enter young adulthood, rather the prevalence stays the same among females and increases among males (Neumark-Sztainer et al., 2011). These findings suggest that there is no "phase" for disordered eating, and insinuates that this is an area in need of further research within this

specific subpopulation of young adults (Furia et al., 2009; Neumark-Sztainer et al., 2011). However, disordered eating is not necessarily manifested in extreme practices. Diet restrictions under the guise of ethical eating have been dubbed as "healthy anorexic practices," where individuals use particular food regimens (such as vegetarianism/veganism, gluten-free, local/organic, etc.) as strategies to constrain their food practices in socially acceptable ways (Musolino et al., 2015). For many of the individuals who strictly adhere to these practices, symbolic capital comes in the form of a slim body, which can be achieved through these restrictive eating practices. Using the concept of healthism and individuals' responsibility for their own health, these food habits are rationalized, despite their similarities to other forms of disordered eating (Musolino et al., 2015).

2.5.5.4 Emotional eating and stress

Finally, the emotional aspect of eating is another crucial factor to consider within the individual level of influence. As "food and eating are intensely emotional experiences that are intertwined with embodied sensations and strong feelings. They are central to individuals' subjectivity and their sense of distinction from others" (Lupton, 1996). This is important when thinking about emotional eating and the impact of stress on individuals' food practices, something that may be particularly relevant among university students. Emotional eating can also be tied into the concept of moralism, which was discussed at length earlier in the chapter on healthism and Foucault. "The state of being 'emotional' is often contrasted with that of being 'rational.' The concept of 'giving in' to either the emotions or to gluttony, of 'losing control,' is redolent with moralism" (Lupton, 1996),

thus when an individual gives in to emotional eating, it is as though they are surrendering to cravings by seeking pleasure from food. This can be contrasted by self-starvation that results from major stressors, where an individual uses diet restriction as a method of control (Musolino et al., 2015). It is important to consider emotional eating when looking at university students' food practices, as this is a population that is typically under a fair amount of stress, which has been examined in past studies (Nelson et al., 2008; Serlachius, Hamer, & Wardle, 2007). Research has found that university and college students are susceptible to sleep loss, depression, and declines in emotional and mental well-being (Nelson et al., 2008). Despite there being an uncertainty around the links between stress and food practices, these are crucial considerations when exploring individuals' practices.

2.5.5 Studies on university students' food practices

Research conducted specifically on university students' food practices that take a holistic approach in acknowledging the interacting structural conditions have been quite limited. The main focus has tended to be on the occurrence of weight gain during university. However, relevant themes have emerged from these studies, breaking down the influential factors around food practices into different "levels," similar to the intentions of this research. For example, a qualitative study by Greaney et al. (2009) examines barriers and enablers to university students' weight management breaks down focus group participants' perceived challenges and facilitators to healthy eating into three categories: the intra-personal level, the inter-personal level, and the environmental level. The findings were similar to the rest of the literature. Temptation, emotional eating, and self-discipline were key factors at the intra-personal level. At the inter-personal level, social situations, peer

influence, and partying were seen as being influential barriers or facilitators for weight management. Finally, the environmental level included time constraints, food availability on campus, and cost of food (Greaney et al., 2009). Another qualitative study (this time from a European perspective) on university students' food practices employs an ecological framework, breaking down factors influencing food practices into the individual level, social environmental level, physical environmental level, and macro environmental level (Deliens et al., 2014). Findings mirror those of Greaney et al.'s study, however, this research also considers broader macro influences, such as media and advertising, policy and legislation, and sociocultural norms. Furthermore, Deliens et al.'s research also aimed to gather students' perceptions of health promotion interventions and strategies that universities could adopt in order to facilitate healthier eating among students. Their final discussion recommended implementing multi-level interventions, aiming to modify both individual behaviour, as well as structural conditions (Deliens et al., 2014). These two examples of investigations into university students' food practices are relevant to consider due to their scope and their findings. However, they restrict the importance of researching food practices to concentrating on why people engage in unhealthy food practices that contribute to weight gain. This reflects the studies' preoccupation with the "obesity epidemic" and with the dominant discourse that moralizes healthy eating. Taking a different ideological perspective, my research emphasizes a critical understanding of health and is less interested in perpetuating a moralistic understanding of food. Furthermore, although these studies recognize various environmental factors influencing individuals' food practices, they do not account for the complexity within these interactions, or in other words, how individual agency is enacted within certain structural contexts.

2.5.6 Locating the individual within the structural context: Structure/Agency debate

In recognizing the holistic spectrum of influences on one's practices, individual autonomy must be acknowledged. While most traditional health promotion interventions (including those focused on healthy eating) tend to either concentrate on changing structural factors influencing individuals' health behaviours or focus on the behaviour itself through awareness or education campaigns, there are limitations to these approaches. This is where the debate on structure versus agency becomes relevant. While structural explanations focus on how external conditions shape individuals' behaviours, agency explanations acknowledge the capacity of individuals to choose their own behaviours, although choice is limited by what they are exposed to within their structural context (Frohlich et al., 2012). This creates a dichotomy between "life chances" and "life choices," where "life chances either enable or constrain choices as choices and chances interact to shape behavioural outcomes" (Frohlich et al., 2012). Sociologist Pierre Bourdieu (1977) depicted choice of food as being a depiction of cultural capital, which is a key aspect of collective lifestyles. He uses his term habitus to explain how people's habits and manners are a result of acculturation (Beagan et al., 2015; Lupton, 1996). Habitus refers to the practices of a certain social group that are produced dynamically from conditions within the social structure. As such, what an individual eats provides indications of their gender, socio-economic status, age, ethnicity, etc., as "people are social actors who use food, as well as other consumption practices, to signify their social identities and positioning within complex social hierarchies" (Beagan et al., 2015). Based on Bourdieu's (1977) concept of habitus is collective lifestyles: "Collective lifestyles comprise interacting patterns of health behaviours, orientations, and resources adopted by groups of individuals in response to

their social, cultural, and economic environment" (Frohlich et al., 2012). Using a collective lifestyles framework allows for the simultaneous acknowledgement of the structural and agency explanations, analysing the interactions between individuals and larger environmental factors (Frohlich et al., 2012). This is in contrast to Foucault's theories of discipline and normalization, where agency is depicted as being non-existent, as structural 41 context will determine individuals' actions and behaviours. Considering habitus and collective lifestyles also allows us to explore why social groups partake in particular practices, while still recognizing autonomy, which are key considerations within this study. Furthermore, a collective lifestyles approach considers how individuals' social practices are shaped by the structural context, as well as how these practices in turn shape the structural context.

2.6 Hygiene conditions within the environment where meals are prepared.

2.6.1 Food Hygiene

Mala and Murthy (2016) explained that Food Hygiene is the action taken to ensure that food is handled, stored, prepared and served in such a way, and under such conditions, as to prevent as far as possible, the contamination of food. Good food hygiene is essential to ensure that the food prepared/sold by businesses is safe. Food safety and hygiene are important both to safeguard consumer health and the reputation of food businesses. According to Schlosser (2012), good food hygiene is essential to all food handlers involved in food handling procedures.

All catering services need to understand good food hygiene. This is because it helps reduce the risk of food poisoning among food consumers and protect the reputation of businesses. Chesworth (2012), also stated that good food hygiene is about controlling harmful bacteria, which can cause illness. At each step in the flow of food through a food service establishment, there are general food safety procedures that should be followed to help reduce the risk of contamination and mishandling that could consequently lead to the outbreak of food-borne illnesses. These steps are; procuring, storage, preparation, actual production or cooking and food presentation (Busaidi & Jukes, 2015).

Tansey & Worsley (2014) suggested that produce must be washed under running water before serving or cutting. Chemical disinfectants must be used according to the manufacturer's label instructions. This must be used at the recommended concentration and contact time. It should be noted that fresh products should not be soaked or stored in standing water. Never rewash packaged produce labelled "ready-to-eat," "washed," or "triple washed". Nevertheless, wash thoroughly with hot soapy water all equipment, utensils and food contact surfaces that come into contact with cut produce (Rinse, sanitize, and air-dry before use) (Cramer, 2013).

2.6.2 Personal hygiene in the kitchen

In the area of personal hygiene, Chesworth (2012) suggested that no employee who is affected with, has been exposed to, or is a carrier of a communicable disease, flu or a respiratory problem, or any other potential source of microbiological contamination shall work in any area where there is a reasonable possibility that food or food ingredients can

be contaminated. Todd *et al*, (2010) also affirmed that employees must wash and sanitize their hands thoroughly in a hand-washing facility before starting work, especially if the employee has direct contact with food.

The hands should also be washed after each absence from the work area, after visiting the restrooms, after eating, drinking, smoking, chewing gum, chewing tobacco, coughing, using a handkerchief or tissue and any other times when hands have become soiled or contaminated. Huuhtanen and Laukkanen (2006) also suggested that all food handlers should understand and internalize that personal hygiene begins at home, with the essential elements for good hygiene being a clean body, clean hair and clean clothing. Hair in food can be a source of both microbiological and physical contamination. Hairnets and beard covers should be worn to assure food product integrity. Moreover, Hennessey (2012) argued that long-sleeves should be worn to cover arm hair. In addition, clean uniforms, aprons and other outer garments that are put on after the employee gets to work can help minimize food contamination. While working, clothing should be kept reasonably clean and in good repair (Booty, 2009).

Handlers neglecting the basic rule of food preparation such as mishandling and taking for granted hygiene practice contributed to the outbreaks of food poisoning (Hennessey, 2012). According to Tansey and Worsley (2014), food safety is a scientific discipline describing handling, preparation, storage and presentation of food in ways that prevent food borne illnesses. This includes a number of routines that should be followed to avoid potentially severe health hazards.

2.6.3 Overview of the kitchen

In another development, Aslı *et al*., (2016) conducted research on food safety. The study stated that issues related to kitchen hygiene should be addressed prior to even completing the construction of the kitchen. Boyano *et al*. (2019) stated that a conventional kitchen is a kitchen (at the place of consumption) where all, or a significant part of food is prepared from. Asli *et al (*2016*)* added that the plan and interior design of the kitchen should be arranged in such a way as to facilitate proper hygiene practices. Asli *et al (*2016*)* further stated that the kitchen should be constructed with durable material that is easy to care for and clean. These materials should be free of any substances that can potentially render the food unsuitable for consumption, such as parasites, pathogenic microorganisms and toxins, or raw materials, food components being infected by foreign substances.

Asli *et al (*2016*)* further outlined that, the surface of the kitchen should be designed in such a way that dirt does not accumulate, foreign dirt substances are prevented from infecting foods and dense liquids or molds are not allowed to create. They also recommend that pests should be prevented from entering the environment while drainages should be easy to clean and prevent pests such as rodents from entering the kitchen. The study also indicates that, ventilation system should be capable of eliminating smoke, odours, soot and evaporation, keeping heat inside and also prevent dust, dirt and pest from entering. Apart from the above mentioned requirements, filters and other parts of the systems should be easily accessible for cleaning or changing. Moreover, the kitchen should have natural or artificial lights that are equal to the natural light of the day, and the intensity and colour of the lights should not impact the production or the quality of foods in a negative way while there should be continuous control of humidity and temperature in the food storage sites.

2.6.4 Equipment Hygiene in the kitchen

In the area of equipment hygiene, Asli *et al (*2016*)* suggested that equipment that comes into regular contact with foods should be made of material that is able to be cleaned and disinfected, resistant to corrosion and that is non-toxic. The equipment should be arranged in a way as to enable it and the area around it to be cleaned sufficiently. Chemicals must be used to clean the equipment. The instruments governing the use of those chemicals should be made regularly, and checks should be recorded.

Mala and Murthy (2016) also researched on Essentials of food Hygiene. In the study they stated that any items that have come into contact with raw meat, poultry and seafood/fish or their juices should be treated as contaminated. E.g.: work surfaces, chopping boards, rolling pins, utensils, trays and equipment such as mincers, slicers and knives. These items often retain minute particles of raw food that can harbour bacteria. Mala and Murthy (2016) reiterated that it is important to remember, that work surfaces and equipment that look clean may have become contaminated by insects or even humans. The bacteria can never be seen but they may be there. Therefore, the food handler must: immediately and thoroughly clean and sanitize all equipment and work surfaces where raw meat, poultry and seafood/fish have been handled; keep utensils and equipment used in the preparation of raw meat, poultry and seafood/fish separate from those used for other foods; and maintain a high standard of the general cleanliness of work surfaces and equipment

2.6 Chapter Summary

The literature reviewed on the conceptual and theoretical basis of the thesis looked at concepts and models on investigating the Quality of Catering Services in Second Cycle Institutions. The DINSERV scale was used to help find students views on the quality of catering services in their various schools, this approach is used as a guide in the formulation of the study instruments to collect data from the field for the researcher to come out with credible findings to address the objectives of the study. From the literature reviewed, it is obvious that much work has been done in the areas of quality of meals served in senior high schools in Ghana.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

The researcher adopted the case study design in carrying out the study since it was explored through one or more cases with a bonded system. A case study is described as a research approach that belongs to both the positivist (quantitative) and the interpretative (qualitative), but is commonly associated with qualitative designs because it uses methods such as participant observations, interviews and unstructured questionnaire, which are within the domain of qualitative research (Bryman and Teevan, 2005).

3.2 Study Area

The Upper East Region is one of the 16 regions in in Ghana. With the Administrative capital as Bolgatanga**,** the Bolgatanga Municipality was established in 2004 by Legislative Instrument (LI) 1997 and is located in the centre of the Upper East Region, approximately, between latitudes 10°30' and 10°50' north and longitudes 0°30' and 1°00' west, it is also the regional capital(Source).

The Municipality shares boundaries with Bongo District to the north, to the east with the Nabdam District, to the south with the Talensi District and to the west with Kassena Nankana Municipality.

The population of the Municipality according to the 2010 population and housing census stands at 131,550 with 62,783 males and 68,767 females. With Senior High Education, the region can boast of five Senior High Schools namely; Bolgatanga Senior High School,

Zuarungu Senior High School, Zamse Senior High Technical School, Bolgatanga Girls Senior High School and Bolgatanga Technical Institute. After the conversion of regions Zuarungu senior high school is now in the Bolgatanga East District.

3.3 Population of the Study

The research population is the aggregate or the totality of all objects, subjects of members of a group conforming to a set of specifications (Polit and Hungler, 1999). The set of specifications, which Patton (1990) described as criteria, should provide 'information-rich-cases' for the study. Therefore, the target population of this research study included all students and kitchen staff in Bolgatanga Senior High School, Bolgatanga Technical Institute and Zuarungu Senior High School.

3.4 Sample and Sampling Procedure

Sampling is the method of choosing a division of a population for a study (Levy and Lemeshow, 2013). The justification is to draw inference based on the study of the samples about the parameters of population from which the samples are taken (Yin, 2003). It refers to a set of observations derived by a defined method from a population. In this study, the strata in the target population is homogenous and the findings of the study are important. If the objectives of the study are to be achieved, it must be followed with stratified simple random sampling techniques.

The study employed Yamane's formulae, n= N/ (1 + Ne2), to determine the sample size (Yamane 1967)

Where: n =Sample size

N =Target Population (241). This was the number of students available in School

e = error of 5% point

Therefore, the sample size (n) is calculated below:

$$n = \frac{241}{\{1 + 241(0.052)\}}$$

$$n = \frac{241}{\{1 + 241(0.0025)\}}$$

$$n = \frac{241}{1.603}$$

n = 150 respondents

Participants were selected with their consent just to make sure that they were participating willingly and also relaxed before answering the questions. Participants who wanted to be interviewed privately in their homes were given the opportunity. Students who also wished to seek for their guidance consent were allowed to do so. The investigator used Confidence level of 95 %(1.96).

3.5 Pre Testing Schools

The researcher selected two other second cycle institutions (Zamse Secondary Technical Senior High School and Bolgatanga Girls Senior School in the municipality as part of the study in order to understand the situation better and that whether the problem persists in other schools within the municipality. Results obtained from this study was used as a baseline for redesigning the questionnaire.

3.6 Data Collection Instrument

Field observation, In-depth interviews and questionnaire were the appropriate instruments used in collecting primary data from the field since the research design is a mixed method. Field observation is a very good data collection technique, it is usually used to complement interviews. In-depth interviews clarifies the data collected. It captures facial expressions, gestures, body language and non-verbal indications that come with oral narrations that participants provide (Polkinghorne, 2005). The questionnaire was in two parts (biodata of respondents and the second part sought information about the hygiene conditions within the environment where the meals are prepared in second cycle institution in the Bolgatanga Municipality, to determine the nutritional value of meals served in second cycle institution in the Bolgatanga Municipality and also examine students satisfaction with catering services offered them in second cycle institution with the help of the observation guide the researcher was able to observed activities within and outside of the kitchen environment and came out with credible findings.

3.7 Validity and Reliability

The data collection instruments were pre-tested at a nearby Senior High School (Zamse Secondary Technical) in the Bolgatanga Municipality. The pre-testing was carried out there because the school is located in the Upper East Region. Moreover, the school kitchen provides the same food services as in the three schools selected for the study. This exercise was intended to help validate the instrument in terms of its ability to carry out the needed assignment and to understand the possible challenges that may be encountered during the actual data collection exercise so that they can be addressed before the actual work at the study area.

Fifty (50) questionnaires were administered to fifty (50) students in all the three schools and fifteen (15) questionnaires to the kitchen staff in the three schools. The researcher was given the opportunity by the kitchen department to observe the kitchen environment and some activities within the kitchen. Some challenges were encountered during the pre-testing: wrong wording and unclear questions were some of the issues faced and these challenges were addressed before being used at the field (Bolgatanga Senior High, Zuarungu Senior High and Bolgatanga Technical Institute). All covid 19 protocols were properly observed.

On the Reliability of this study, the research instrument was achieved by conducting a reliability test by adapting Cronbach alpha. The value of the Cronbach alpha determines the degree to which a study's research instrument is reliable (Saunders *et al.*, 2015). Specifically, a reliability test with Cronbach alpha (α) of (0.7) or more is classified as acceptable. Based on the reliability test, an α of 0.80 was obtained using all the 29 question items. This indicated that the research instrument was very reliable for the purpose it was used for.

3.8 Data Collection Procedure

An introductory letter from the University of Education guaranteed the researcher permission to carry out the research in the various schools. The letter was received by the various Headmasters of the three selected schools. Different days were given by the heads for the researcher to carry out the data collection exercise after the students, some teachers and the kitchen staff were informed about the exercise. In all the field data collection

exercise took three (3) weeks; that is one week in each school. The researcher employed the concurrent procedure of data collection; this was because of the mixed method design that was employed. As the quantitative aspect of the data collection procedure was going on (questionnaire session) the qualitative aspect (interview and observation session) was going on as well, because of the concurrent nature of the data collection procedure, the researcher trained two (2) research assistants who helped in the data collection.

The researcher carried out the observation of the kitchen and the kitchen environments in the three selected schools in person as the observation was going, on one of the two trained research assistants was also having an interview section with the kitchen staff while the other research assistant also administered the questionnaires to the students. In all, one hundred and fifty (150) questionnaires were administered in the three selected schools, the questionnaires were properly responded to by the students after they were taken through as to how to answer them. The researcher was able to get the students to respond to the questionnaire during their free time that is immediately after their lunch.

Also, in Bolgatanga Senior High school, five (5) kitchen staff out of twenty (20) were conveniently selected for the interview. In Zuarungu Senior High School, five (5) out of fifteen (15) kitchen staff were interviewed while in Bolgatanga Technical Institute, five (5) out of seventeen (7) kitchen staff were also interviewed. In all, fifteen (15) kitchen staff were successfully interviewed. The researcher was able to observe the kitchen environment of all the three (3) schools using the observation guide. The key items on the guide were properly followed during the observation process and the data was collated on the sheet. The success rate of responses to the interview questionnaire for both the students and

kitchen staff was 100% with a few minor challenges which the researcher addressed easily without them rendering any advert effects on the outcome of the exercise.

3.9 Data Analysis Procedure

Data collected from the study was edited and screened for completeness and consistency. Quantitative data was coded for easy categorization and entry. Quantitative data were processed using the Statistical Package for Social Scientist (SPSS) software. Results were presented by the use of tables, pie-charts and graphs. In addition, qualitative data analysis method was employed, to analyze the thematic areas of the interviewed responses from the kitchen staff. This enabled the researcher to do a content analysis, of an interview in order to identify the main themes that emerged from the responses given by the kitchen staff. The main themes were identified through careful reading of the descriptive responses given by respondents to each question in order to understand the meaning they communicated.

The themes were coded, into manageable categories (words or themes with similar meanings or connotations) of a variety of themes focusing on and coding for specific word patterns that were indicative of the research question.

3.10 Ethical Considerations

The study was conducted in accordance with the Guidelines of the General Research Ethics Board of the University. The researcher sought the consent of the participants through the use of a consent form. Participants were asked to append their signatures on the form showing proof of consent.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Demographic Characteristics

The demographic characteristics of the study is presented in figure 1. Results from figure 1 show that majority of the respondents were from Bolgatanga Senior High School. They accounted for 55 (36.7%) of the total number of respondents. This was followed by Bolgatanga Technical School. They made up 50 (33.3%) of the respondents. Zuarungu Senior High School was the least and accounted for 30% of the total number of respondents. Figure 1 presents the information given.

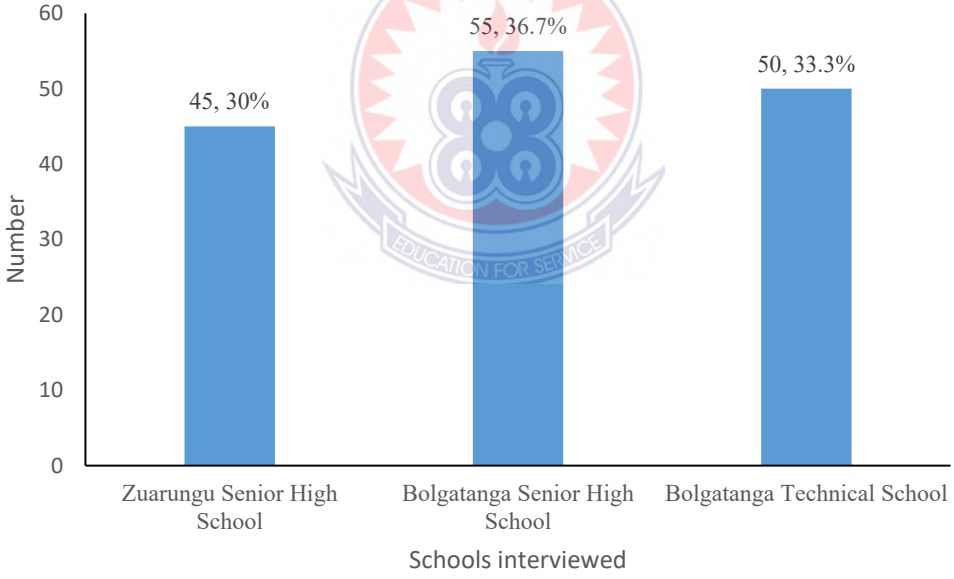


Figure 1: Population of the school

Half of the respondents from all schools were female. They constituted about 50.7% of the respondents. Males accounted for 49.3% of the population. More than 50% of the respondents were also in their third year (65.3%). About 29.3% were in their second year

while 5.3% were in their first year. A low sample size was deliberately assigned to first year students in order to cater for students who can give a more accurate information.

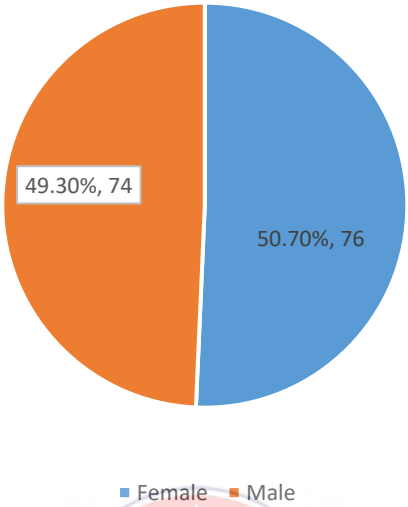


Figure 2: Gender of respondents

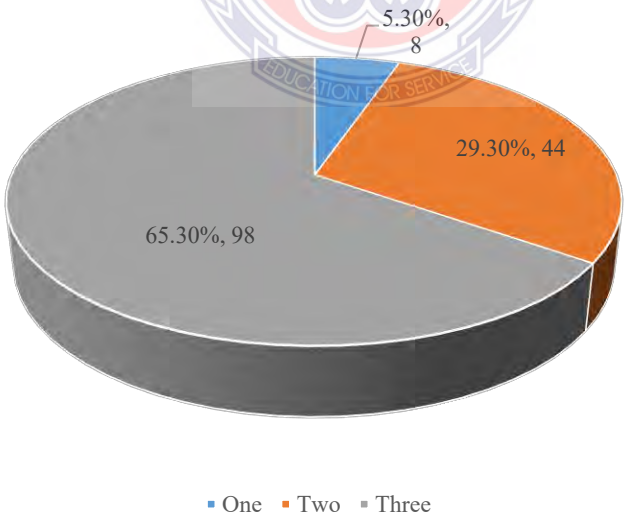


Figure 3: Form of students

Half of the respondents (58.7%) were between the ages of 18 to 20 years. About 29.3% were between the ages of 14 to 17 years. Only 12% of the respondents were 21 years and above.

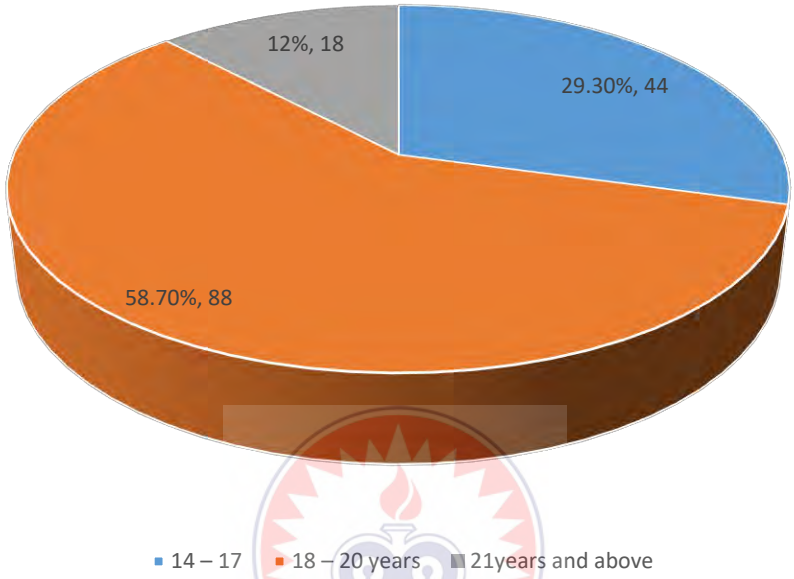


Figure 4: Age of respondents

4.2 Students perception of nutritional value of food

The contribution offered by catering services to the students were also analyzed and results presented in Table 1.

Table 1: Perception of Students nutritional value of meal

Statement	Mean	Standard deviation
The school menu always provides us a variety of foods	3	0.56
We like all meals provided in the school	1.62	0.70
We eat protein everyday	1.55	0.60
We eat fruits	1.45	0.62
We eat balanced meal from the school dining hall	3.03	1.08
The time in between meals; that is breakfast lunch and super is too much	2.65	1.36
We feel nourished any time we eat breakfast, lunch and super	2.47	1.32
Would you like some of the meals on the school menu be changed	3.21	1.22
Do you often eat eggs and meat from the schools dining say three times	1.62	0.89
I know what a balanced diet is	3.00	0.56

(Field survey, December, 2020) (Legend: (1-1.9: Strongly disagree), (2-2.9: Disagree), (3-3.9: Agree), (4: Strongly agree))

Results from table 1 shows that the students agreed (3.21±1.22) that they would want some of the meals on their school menu to be changed. The students agreed (3.03±1.08) that they eat a balanced meal from the dining hall. The students agreed (3.00±0.55) that they knew what a balanced is. The students also agreed (3.00±0.56) the menu provided them with a variety of foods.

Menu plan comes into play to ensure a balance in the provision of meals offered to the public. Menu, which can simply be described as a list of dishes served at a meal, can also be explained in different terms depending on the setting of the user. Wansink, et al. (2005) explained menu as a list or a card which documents the food and beverage options being offered. Menu planning means to compose a series of dishes for a meal. Composing a good menu is an art and needs careful selection of dishes for the different courses so that each dish harmonizes with the other.

According to Wardlaw (2003) food such as bread, some cereals, fruits, yam, rice and vegetable are sources of complex carbohydrates. Adolescent students should use these food as the major sources of energy supply for their normal body functions and activities because energy from these food are the best and they take longer time to digest (Ghana Home Economics Association (GHEA, 1990).

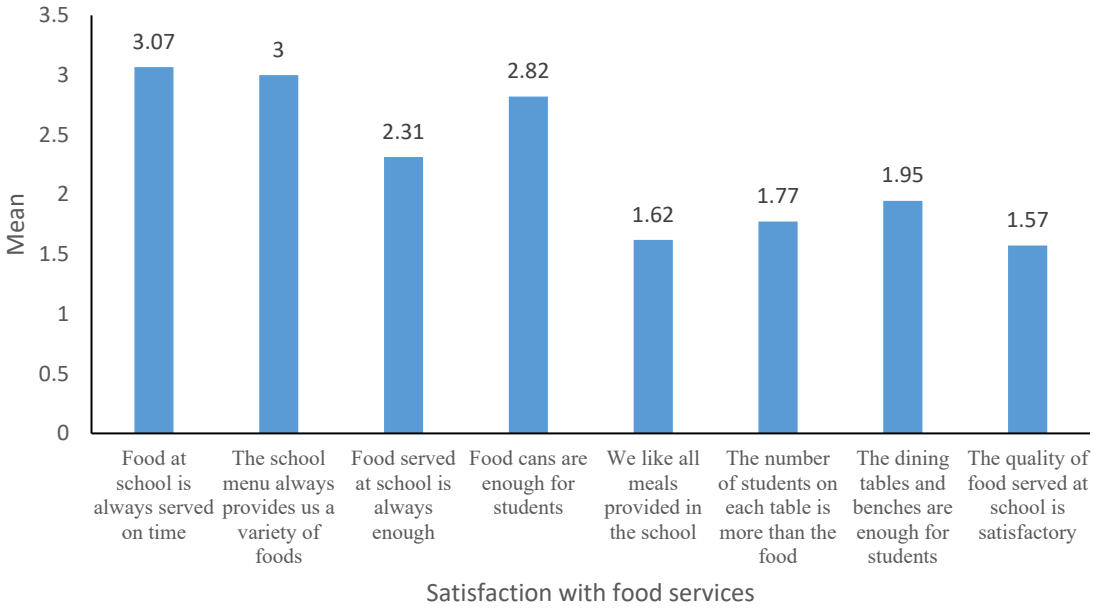
The respondents disagreed (2.64±1.36) that the time between meals is too much. This implies that students did not view the meals as well planned and so not nutritious for them. The students also disagreed (2.47±1.32) that they feel nourished after eating.

The planning of meals in commercial catering establishment according to Kivela (2003) is based more on economic considerations and reputation than on the desire to provide nutritionally balanced diets. The dishes produced are intended to please the eye and the palate. The planning of menu for school feeding has a different aspect where nutritious and well-balanced foods are compiled. Kivela (2003) further noted that menu should provide nutritious food, foods that tempt the appetite, and satisfy the consumers. A lot of considerations go into preparing menu for feeding students especially those in boarding houses. Though the focus of catering services in schools is to provide a balanced diet to aid nutritional needs of students, matrons and domestic bursars take into consideration the availability of foodstuffs, cost, and acceptability of the food by consumers. This issue brings about some variation in nutritional content of food for students in various regions of Ghana.

The students strongly disagreed that they ate fruits, proteins, egg and meat each day. They also strongly disagreed that they did not like the meals served in the school. With the absence of fruits and proteins which are required for growth of students, it can be concluded that the schools do not provide students with the needed meals. These types of foods help students to grow. Results from this data are in agreement with a study that was carried out in Nigeria to assess the nutritional status of boarding school students. Results from that study showed that the students were malnourished with inadequate energy intake especially among the younger children (Akinyemi and Ibraheem, 2009). The issue of protein rich foods also confirms the work of Amstrong, (1997) which reveals that meals for adolescents should contain vitamins, first class and second class proteins. A study by Olumaikaiye et al (2010) however suggest that a balanced meal is the consumption of palatable food that builds the body irrespective of the nutrients it contains.

4.3 Students Satisfaction with food Service offered them in SHS

Students satisfaction with the food services in the various schools were also rated on a scale. Results of this are presented in figure 5.



(Field survey, December, 2020) (Legend: (1-1.9: Strongly disagree), (2-2.9: Disagree), (3-3.9: Agree), (4: Strongly agree))

Figure 5: Satisfaction with food services

The time of serving meals was rated by the students. Results from figure 5 (table 3, appendix) agreed (3.07±0.61) that food at the school was always served on time. The students also agreed (3.00±0.56) that the menu of the school had a variety of foods.

The students however disagreed (2.31±0.84) that the food served at the school was enough was for them. The results also disagreed (2.82±0.81) that the cans used in serving food for the students was enough.

The availability of tables and chairs in an eating area is key to food safety concerns. This is in agreement to work of Kidd (2000), Brunso et al., (2002), Grunert (2005) and Sanlier and Kanaklioghi (2012). These authors agree that the cleanliness of an eating area is

measured by its immediate environment. These include the dining table which is important because that's where the food is placed. Availability of dining tables during eating communicate volumes of information to the customer. This tells if the food itself will be hygienic. In the case of the schools studied, the limited number of dining tables makes it possible for them to be cleaned. Studies by Adams et al., (2014) in Ghana shows that in canteens at the University of Ghana tables have been provided for customers to dine.

Students from the schools also strongly disagreed (1.62±0.70) that they liked all the meals served in the school. Students again strongly disagreed (1.77±0.56) that the number of students on each table was more than the quantity of food served on the table. The students also strongly disagreed (1.95±0.74) that the dining tables and chairs are enough for the students. The respondents again strongly disagreed (1.57±0.58) that the quality of food served was satisfactory. The students further strongly disagreed (1.55±0.60) that they eat proteins every day. The students strongly disagreed (1.45±0.62) that they eat fruits in the school.

The students express dislike for the foods served in the school. This desire shows that these adolescents need food for development than what the school authorities are currently providing. Studies by Intiful and Lartey (2014) shows that the right meals contributes to the energy and nutrient intake of Ghanaian school children. Consequently, it is probable that without healthy meals many children will not be able to meet their daily nutrient requirement. This is because any nutrient lost will be difficult to compensate when conscious effort is not made to replace the lost nutrients.

Intiful and Lartey (2014) conclude that meals are ways to ensure that the adolescents acquire their daily nutrient and energy intakes. Food service operators are expected to ensure that they enhance their meals to attain the needed nutritional status. A study by Olumaikaiye et al (2010) on food consumption concluded that students who ate snacks had a higher body weight than their counterparts who failed to take snacks.

4.4 Hygiene conditions within the kitchen and the environment where the meals are prepared in Second Cycle Institution in the Bolgatanga Municipality.

The students also agreed (3.05±0.36) that they were made to fetch water from the kitchen for cooks to prepare food. This act according to the students, makes them late for class. The study also agreed (3.14±1.36) that students sometimes wash the cans and other utensils at the pantry during lessons or break. Results from the study also agreed (3.06±1.32) that students are made to carry food from the pantry to the dining tables during lessons or break.

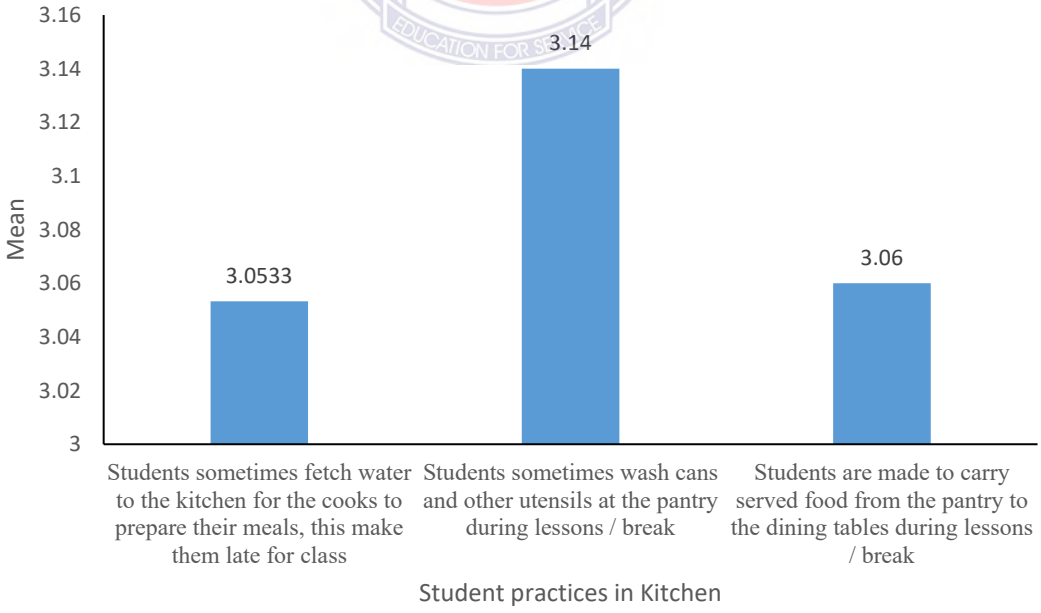


Figure 6: Students perception about the hygienic practices in the school kitchen

Delays from pantry workers can lead to food contamination. This is because when food is left in the aluminium pans awaiting service, there could be possible growth of pathogenic bacteria (Panisello et al., 2000). Thus abusing temperature and time of prepared meals could lead to the growth of toxins. Santana et al., (2009) concluded that serving foods at the right temperature and time helps to reduce food borne illnesses.

4.4.1 Observation of the kitchen and the kitchen environment by students

The researcher was able to observe the kitchen, the environment and the outfit of the cooks at the time of the researcher's visit. A guide was designed to help the researcher to observe key issues that concern the study. The researcher after the observation of the three selected schools came out with the following findings;

The state of the surroundings where meals are prepared in the selected schools was one of the key factors. Upon the researcher's arrival, it was realized that the surroundings of the kitchens were well kept and dust bins were positioned at a distance where rubbish is kept. In all the schools, none of the situated dustbin was over flowing with rubbish. Also, it was observed that there are tap system in the premises of the kitchens in the schools which supply them with potable water daily. This therefore affirmed that the response which was given by the cooks during the interview to the effect that various schools do have tap systems.

The researcher observed the drainage system of the kitchens where wastewater passes out from the pantry. It was realized that all the three selected schools have poor drainage systems that need urgent attention. There was a pungent smell emanating from chocked open gutters with flies and other flying insects hovering around. The gutters were not big enough which caused them to over flow. This put the back of the kitchens in a state of disarray, a situation which can lead to a cholera outbreak and cause a disaster considering the population of students in these schools. This observation confirms the finding of Asli et al., (2016) who recommended that, kitchen surfaces should be designed in a way that will not allow dirt accumulation, but is capable of preventing foreign substances from infecting foods, disallow dense liquids or mold and also prevent pests from entering the environment.

Drainages should be easy to clean and prevent pests such as rodents from entering the waste liquid from re-entering kitchen environment. After, observing the surroundings the researcher was allowed into the kitchen and the pantry to observe the situation of the kitchen. The researcher realized that the design of the kitchens in the three schools were all similar with no ventilation. The inside was not spacious enough for cooks to move around freely. In all the schools visited, the pans were left half open. In that state, any strong wind may pollute the food.

The floors where cans, utensils and other things are washed were wet and dirty with flies hovering in the pantry. In two of the schools~~,~~ the water in which the cans were washed were dirty while the pantry men used the same water in washing the cans throughout.

Again, it was realized that the appearance of the cooks in all the schools was inappropriate, there were cooking without wearing the apron, hair not covered and cloths wrapped around their waists which is not allowed for professional cooks to do. Also about 70% of them were wearing open sandals. Almost all the pantry men were very dirty with unkempt hair and beard. The meal that was served on the day the researcher visited Bolgatanga Secondary Schools, was gari and beans. When the meal was served the researcher observed that the gari in the various cans was exposed and one could see live weevils in the gari. This observation by the researcher confirmed what the students stated in the questionnaire as regards the need to change their meals. This observation confirms the report by the Centers for Disease Control and Prevention (CDC) Surveillance (1993- 1997), which identifies five categories of factors that risk food contamination. To them, food borne illnesses can result from food from unsafe sources, inadequate cooking, improper holding temperatures, contaminated equipment or poor personal hygiene.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Findings

This chapter discusses the results of the study. The discussion takes into consideration the main objective of the study which is to investigate students perception about food services in second cycle institutions. Again, the discussions presented in the order of the specific objectives: to determine student's perception about the nutrition of meals served in second cycle institution in the Bolgatanga Municipality; to examine students satisfaction with food services offered them in second cycle institution, and to access the hygiene conditions within the environment where meals are prepared in second cycle institutions in the Bolgatanga Municipality.

The study employed the mixed method research approach (both qualitative and quantitative approach). The sample size of the population was 165 respondents (150 students and 15 kitchen staff), due to the mixed method the researcher used questionnaires, interviews and observation as the key instruments in the data collection. Two research assistants were trained by the researcher who helped in the data collection; this was because of the concurrent data collection procedure. Each research assistant was entitled to one instrument while the researcher personally carried out the observation. One hundred and fifty (150) questionnaires were administered to one hundred and fifty (150) student respondents while an interview guide was used to interview fifteen (15) kitchen staff.

Quantitative data were analyzed with the use of SPSS version 21. The Qualitative data analyses method was also employed, this made it possible for the researcher to do content analysis, of the interviews with the kitchen staff in order to identify the main themes that surface from the answers given by the cooks. The researcher went through a series of procedures. Main themes were identified through the critical reading of the descriptive answers given by the cooks to each question from the interview guide in order to understand the meaning they convey.

Research objective one was to determine students' perception about the nutrition of meals served in second cycle institution in the Bolgatanga Municipality. In responding to the menu inconsistency the cooks, during the interview, did indicate that it is not deliberate that the menu is not followed but rather they cook what is available for them to cook.

The studies revealed that students do not often take egg or eat meat. They further explained that sometimes a week or two go by without them taking eggs or meat in their meals. This they say said affect their health since protein is important to the human body to boost the immune system and repair worn-out tissues in the body. The study further revealed that any time students fall sick and visit the hospital some of them are often diagnosed of low blood count.

The studies revealed that students are not satisfied with the quality of the food serve them for example gari and beans. The gari and beans provided them is weevil infested and sometimes one can see live weevils in both the gari and the beans. The weevils are always seen suspending on the oil in the cans. The sight of the weevils always makes students lose

appetite and resort to other options which they think can cater for their nutrition. The findings also revealed that some of the food like 'gari' and beans should be removed from the menu of these three selected schools due to how the meal is cooked. The researcher had a first-hand experience of the 'gari' and beans' in Bolgatanga Senior High during her visit to the school to have an interview session with the cooks.

Again, the findings show that the time in between should be looked at. Students should be fed at specific times. In the current study there were delays in the times for dinning. The studies further revealed that students do not feel nourished any time they eat the food and suggested that they should be provided with snacks between breakfast and lunch since they have no money to buy food from the "common market" to sustain themselves till meals time or better still the time be reduced. Furthermore, the study revealed that all the students who were contacted said they often experience stomach upset, vomiting or loose stool among others after eating some of the meals provided them at the dining hall.

Objective two was to examine student's level of satisfaction with catering services offered them in second cycle institution: in view of students' satisfaction, with the service, the study revealed that students waste a lot of time at the dining hall especially during breakfast and lunch time. The cooks affirmed that due to inadequate number of staff contributes to the problem which also affect lessons.

Again the findings revealed that students in the three selected schools are sometimes made to fetch water to the kitchen for their meals to be prepared especially on days that the taps fail to flow which causes them to turn up late for lessons. The students indicated that they

are not happy about the situation. It was also revealed that some of the students sometimes refused to go to the dining hall for meals because some of the students do use their buckets in washing their underwear's and use the same buckets to fetch the water for their meals to be prepared anytime the kitchen ran out of the water. This they say is unhygienic and affect the quality of the food.

Research objective three: to access the hygiene conditions within the environment where the meals are prepared in second cycle institution in the Bolgatanga Municipality. The study revealed that the cooks usually employ measures to prevent cross contamination of ready to eat food in the kitchen. This is applicable ~~is~~ not only for ready to eat food but also food substances from the stores where the food is kept through to the kitchen. We observe~~d~~ the necessary protocols to prevent cross contamination.

The study again revealed that the cooks employ the necessary tenants concerning professional catering services and that all the preparations of food and the services they offer is well taught of and master planned. Because of that, the students should be very satisfied with our services. This claim contradict the position of the students who said that they were not satisfied with the services offered them.

In addition, the study revealed that all the three selected schools have poor drainage system in their kitchens and need urgent attention. It further revealed that there was a pungent smell emanating from chocked open gutters with flies and other flying insect hovering. Furthermore, the study revealed that the appearance of the cooks in all the schools was

inappropriate. They were cooking without wearing the right attire, hair not covered, and cloth wrapped around their waist which is not allowed for professional cook to do. Also about 70% of them were wearing open sandals while almost all the pantry men were very dirty with unkept hair and beard. These people are usually allowed to serve the food.

5.2 Conclusion

Three specific objectives moved this research work; students' perception about the nutrition of food served to them in the three selected schools.

Specific objective one; To determine the perception of second cycle students in Bolgatanga Municipality about the nutritional value of meals served in their school

The study concludes that the students would want some of the foods on their menu changed. The students revealed that they knew what a balanced is. The students also agreed the menu provided them with a variety of foods. The respondents disagreed that the time between meals is too much. The students also disagreed that they feel nourished after eating. The students strongly disagreed that they ate fruits, proteins, egg and meat each day. They also strongly disagreed that they did not like the meals served in the school. With the absence of fruits and proteins which are required for growth of students, it can be concluded that the schools do not provide students with the needed meals

Specific objective two; to examine students' satisfaction with food services offered them in second cycle institutions.

The study concludes that food at the school was always served on time. The students also agreed that the menu of the school had a variety of foods. The students however disagreed that the food served at the school was enough was for them. The results also showed that the cans used in serving food for the students was enough. Students from the schools also strongly disagreed that they liked all the meals served in the school. Students again strongly disagreed that the number of students on each table was more than the quantity of food served on the table. The students also strongly disagreed that the dining tables and chairs are enough for the students. The respondents again strongly disagreed that the quality of food served was satisfactory. The students further strongly disagreed that they eat proteins every day. The students strongly disagreed that they eat fruits in the school.

Specific objective; three to access the hygiene conditions within the kitchen and the environment where the meals are prepared in second cycle institutions in the Bolgatanga Municipality.

The study concludes that students were made to fetch water from the kitchen for cooks to prepare food. This act according to the students, makes them late for class. The study also showed that students sometimes wash the cans and other utensils at the pantry during lessons or break. Results from the study also showed that students are made to carry food from the pantry to the dining tables during lessons or break. It also concludes that the appearance of the cooks in all the schools was inappropriate, there were cooking without wearing the apron, hair not covered and cloths wrapped around their waists which is not

allowed for professional cooks to do. Majority of them were wearing open sandals. Almost all the pantry men were very dirty with unkempt hair and beard.

5.3 Recommendations

There are problems with the provision of meals to senior high schools in Ghana, based on the findings it is recommended that;

- The kitchen staff should make sure that meals prepared meet the nutritional demand of students for healthier growth.
- The government or old students' association should provide the schools with reservoirs so that cooks can store enough water to prevent students from fetching water to the kitchen. Better still, the schools could drill boreholes purposely for the kitchens.
- The government should make sure the buffer stock supplies variety of foodstuff in time so that the menu can be followed.
- The government should consider providing the senior high schools with ultra-modern kitchens to prevent pollution of foods which are prepared in open environment.
- The buffer stock should make sure that wholesome food is supplied to Senior high schools especially beans, gari, rice, maize and other foodstuffs.
- The free senior high school Secretariat should constantly monitor the activities of the kitchen department of Senior High Schools.
- The various schools should restructure the dining timetable in other to reduce the time in between meals.

- There should be effective supervision by matrons and the various heads of these schools to make sure that the kitchen staff observe proper personal hygiene and that they are up to the task by providing contamination free meals for the students.

5.4 Suggestion for Further Research

Similar studies could be carried out in the rest of the Senior High Schools in the region to further understand the situation. In addition, similar studies could be done to ascertain whether the population of Senior High School students affect the quality of meals served since the population of students has increased due to government free education programme.

REFERENCES

Ababio, P. F., & Adi, D. D. (2012). Evaluating food safety practices among food handlers in the Kumasi Metropolis. *Internet Journal of Food Safety, 14,* 35-43.

Ababio, P. F., & Lovatt, P. (2015). A review on food safety and food hygiene studies in Ghana. *Food Control, 47*(2015), 92-97.

Adolf, J. N. P., & Azis, B. S. (2012). Microbiological status of various foods served in elementary school based on social economic status differences in Karawaci Region, Tangerang District-Indonesia. *International Food Research Journal, 19*(1), 65-70.

Afoakwa, E. O. (2005). *Enhancing the quality of school feeding programme in Ghana.* "The Global Child Nutrition Forum 2005. Baltimore, Maryland, USA. Available at: http://works.bepress.com/emmanueloheneafoakwa/40.

AlBusaidi, M. A., & Jukes, D. J. (2015). Assessment of Food Control Systems in the Sultanate of Oman. *Food Control 51(0)*, 59-69

Allison, D. B., Allison, D. B., & Baskin, M. L. (2009). Handbook of assessment methods for eating behaviors and weight-related problems: measures, theory, and research: Sage.

Andaleeb, S. S., & Conway, C. (2006). Customer satisfaction in the restaurant industry: an examination of the transaction-specific model. Journal of Services Marketing, 20 (1), 3 – 11.

Arcan, C., Kubik, M. Y., Fulkerson, J. A., & Story, M. (2009). Sociodemographic differences in selected eating practices among alternative high school students. Journal of the American Dietetic Association, 109(5), 823-829

Beagan, B. L., Power, E. M., & Chapman, G. E. (2015). "Eating isn't just swallowing food": Food practices in the context of social class trajectory. Canadian Food Studies/La Revue Canadienne Des Études Sur L'Alimentation, 2(1), 75-98

Bell, R., & Pliner, P. L. (2003). Time to eat: the relationship between the number of people eating and meal duration in three lunch settings. Appetite, 41(2), 215-218.

Blake, C. E., Bisogni, C. A., Sobal, J., Devine, C. M., & Jastran, M. (2007). Classifying foods in contexts: How adults categorize foods for different eating settings. Appetite, 49(2), 500-510.

Blanck, H. M., Yaroch, A. L., Atienza, A. A., Yi, S. L., Jian Zhang, & Mâsse, L. C. (2009). Factors influencing lunchtime food choices among working americans. Health Education & Behavior, 36(2), 289-301.

Benjamin, O. T., & Francis, A. (2016). Trends of reported foodborne diseases at the Ridge Hospital, Accra, Ghana: *A retrospective review or routine data from 2009-2013*. BNC Infect Dis; 16:139.doi:10.1186/s1287-8.

Boelsma, E., Brink, E. J., Stafleu, A., & Hendriks, H. F. J. (2010). Measures of postprandial wellness after single intake of two protein–carbohydrate meals. Appetite, 54(3), 456-46

Bourdieu, P. (1977). Outline of a theory of practice. Cambridge: Cambridge University Press

Boyano L. A., Espinosa M. N., Rodriguez Q. R., Neto B., Gama C, M., & Wolf, O. (2019). E GPP criteria for Food procurement, Catering Services and Vending machines, EUR29884 ISBN 978-92-76-12119-0, doi: 10.2760/748165, JRC 118360

Boye, J. I. (2012). Food allergies in developing and emerging economies: need for comprehensive data on prevalence rates. *Clinical and Translational Allergy*, 2012(2), 25.

Brondel, L., Romer, M., Van Wymelbeke, V., Pineau, N., Jiang, T., Hanus, C., & Rigaud, D. (2009). Variety enhances food intake in humans: Role of sensory-specific satiety. Physiology & Behavior, 97(1), 44-51.

Brown, L., Edwards, J., & Hartwell, H. (2013). Eating and emotion: focusing on the lunchtime meal. British Food Journal, 115(2), 196-208.

Brunstrom, M. J., Collingwood, J., & Rogers, J. P. (2010). Perceived volume, expected satiation, and the energy content of self-selected meals. Appetite, 55(1), 25-29.

Brunstrom, M. J., & Shakeshaft, G. N. (2009). Measuring affective (liking) and non-affective (expected satiety) determinants of portion size and food reward. Appetite, 52(1), 108-114.

Brunstrom, M. J., Shakeshaft, G. N., & Alexander, E. (2010). Familiarity changes expectations about fullness. Appetite, 54(3), 587-590.

Cardello, V. A. (2000). Predictors of food acceptance, consumption and satisfaction in specific eating situations. Food Quality and Preference, 11(3), 201-216.

Clay, E. (2002). Food security: Concepts and measurement. Trade Reforms and Food Security: Conceptualising the Linkages, 25-34.

Choi, EK., Wilson, A. and Fowler, D. (2013). Exploring customer experiental components and the conceptual framework of customer experience , customer satisfaction and actual behavior. *Journal of foodservice business research.* 16 (4): 347 - 358

Darmon, N., & Drewnowski, A. (2008). Does social class predict diet quality? The American Journal of Clinical Nutrition, 87(5), 1107-1117

Dablool, A. S., Fouad, M. A., & Mihdhir, A. A. (2014). The effect of method of cooking and holding conditions on enterotoxin production by Staphylococcus aureus in two types of Saudi rice. *European Academic Research, II*(2).

de Castro, J. M., Brewer, E. M., Elmore, D. K., & Orozco, S. (1990). Social facilitation of the spontaneous meal size of humans occurs regardless of time, place, alcohol or snacks. Appetite, 15(2), 89-101.

Defee C, Williams B, Randall WS, Thomas R. (2010) An inventory of theory in logistics and SCM research. *The International Journal of Logistics Management; 21*(3):404-489. 11.

Deliens, T., Clarys, P., De Bourdeaudhuij, I., & Deforche, B. (2014). Determinants of eating behaviour in university students: A qualitative study using focus group discussions. BMC Public Health, 14(1), 1.

Desmet, P. M. A., & Schifferstein, H. N. J. (2008). Sources of positive and negative emotions in food experience. Appetite, 50(2–3), 290-301.

Devine, C. M. (2005). A life course perspective: Understanding food choices in time, social location, and history. Journal of Nutrition Education and Behavior, 37(3), 121-128.

Dimmatteo, M.R. (1990). The psychotherapy of Health, Illness and Medical Care; An individual. Perspective. Rome; Intrano.

Drewnowski, A. (2009). Obesity, diets, and social inequalities. Nutrition Reviews, 67(s1), S36-S39.

Drummond, S., Crombie, N., & Kirk, T. (1996). A critique of the effects of snacking on body weight status. European journal of clinical nutrition, 50(12), 779-783. Retrieved from http://ukpmc.ac.uk/abstract/MED/8968697

Dwumfour-Asare, B. (2015). Effect of local authorities' field monitoring visits on awareness of regulation and hygiene practices among street food vendors: the case of two district capitals in Ghana. *Journal of Behavioral Health, 4*(3).

Epstein, L. H., Robinson, J. L., Roemmich, J. N., Marusewski, A. L., & Roba, L. G. (2010). What constitutes food variety? Stimulus specificity of food. Appetite, 54(1), 23-29.

El-Said, O.A.; Fathy, E.A. (2015).Assessing university students' satisfaction with on-campus cafeteria services. Tour. Manag. Perspect. 16, 318–324. [CrossRef]

Ewa C. S., Hanna G.W., Wacław L., & Maria, J. (2019). Consumer Choices and Service Quality in the University Canteens in Warsaw, Poland.hanna_gorska_warsewicz@sggw.pl (H.G.-W.); waclaw_laskowski@sggw.pl (W.L.);maria_jeznach@sggw.pl (M.J.)

Everett, H. (2009). Vernacular health moralities and culinary tourism in Newfoundland and Labrador. Journal of American Folklore, 122(1), 28-52.

FAO/WHO. (2005). *Informal food distribution sector in Africa-street foods, importance and challenges.* Harare-Zimbabwe: FAO/WHO.

Feglo, P. K., & Sakyi, K. (2012). Bacterial contamination of street vending food in Kumasi, Ghana. *Journal of Medical and Biomedical Sciences, 1*(1), 1-8.

Feunekes, G. I., de Graaf, C., Meyboom, S., & van Staveren, W. A. (1998). Food choice and fat intake of adolescents and adults: Associations of intakes within social networks. Preventive Medicine, 27(5), 645-656

Forde, C. G. (2013). Texture and savoury taste influences on food intake in a realistic hot lunch time meal. Appetite, 60(1), 180-186.

Fornell, C. (1992). A national customer satisfaction barometer: The Swedish experience. Journal of Marketing, 56(1), 6-21.

Frohlich, K., Poland, B., & Shareck, M. (2012). Contrasting entry points for intervention in health promotion practice: Situating and working with context. In I. Rootman, S. 158 Dupere, A. Pederson & M. O'Neill (Eds.), Health promotion in Canada: Critical perspectives on practice (3rd ed., pp. 102-116). Toronto: Canadian Scholars' Press.

Giese, J. L., & Cote, J. A. (2000). Defining consumer satisfaction. Academy of Marketing Science Review, 2000(1)

Greaney, M. L., Less, F. D., White, A. A., Dayton, S. F., Riebe, D., Blissmer, B. Greene, G. W. (2009). College students' barriers and enablers for healthful weight management: A qualitative study. Journal of Nutrition Education and Behavior, 41(4), 281-286.

Guthman, J. (2011). Weighing in: Obesity, food justice, and the limits of capitalism Univ of California Press

Haistead, D., Hartman, D., & Schmidt, S. (1994). Multisource effects on the satisfaction formation process. Journal of the Academy of Marketing Science, 22(2), 114-129.

HensleyR. L. & J.Sulek, (2007). "Customer Satisfaction With Waits In Multi-Stage Services," *Managing Service Quality, 17*(2), 152–173

Hurling, R., & Shepherd, R. (2003). Eating with your eyes: effect of appearance on expectations of liking. Appetite, 41(2), 167-174.

Jabs, J., & Devine, C. M. (2006). Time scarcity and food choices: An overview. Appetite, 47(2), 196-204

Joung HW., Lee DS, Kim HS and Huffman L., (2014). Evaluation of the on-campus dining services using importance-performance analysis. *Journal of FoodService Business Research.* 17 (2): 136 - 146

Kim, W. G. & Kim, Y. S. (2009). "Influence of institutional DINESERV on customer satisfaction, return intention, and word-of-mouth," *International Journal of Hospitality Management, 28*(1), 10–17.

Kim, T. D., Yang, M. Y., Bae, J., Min, B. A., Lee, I., & Kim, J. (2017). Escape from infinite freedom: Effects of constraining user freedom on the prevention of dropout in an online learning context. *Computers in Human Behaviour, 66,* 217–231.

King, S. C. (2007). The effects of contextual variables on food acceptability: A confirmatory study. Food Quality and Preference, 18(1), 58-65.

King, S. C., Meiselman, H. L., Hottenstein, A. W., Work, T. M., & Cronk, V. (2007). The effects of contextual variables on food acceptability: A confirmatory study. Food Quality and Preference, 18(1), 58-65.

Kowalik, K., Klimecka-Tatar, D. (2018). The Process Approach to Service Quality Management. *Production Engineering Archives, 18, 31*-34.

Kotler, P. (Ed.) (1991). Marketing Management (1 ed.). New Jersey: Prentice Hall.

Ladhari, R., Brun, I., & Morales, M. (2008). Determinants of dining satisfaction and post-dining behavioral intentions. International Journal of Hospitality Management, 27(4), 563-573.

Larson, N., Perry, C. L., Story, M., & Neumark-Sztainer, D. (2006). Food preparation by young adults is associated with better diet quality. Journal of the American Dietetic Association, 106(12), 2001-2007.

Larson, N., Fulkerson, J., Story, M., & Neumark-Sztainer, D. (2013). Shared meals among young adults are associated with better diet quality and predicted by family meal patterns during adolescence. Public Health Nutrition, 16(05), 883-893

Law, A. K. Y., Hui, Y. V., & Zhao, X. (2004). Modeling repurchase frequency and customer satisfaction for fast food outlets. International Journal of Quality & Reliability Management, 21(5), 545-563.

Levitsky, D. A., Iyer, S., & Pacanowski, C. R. (2012). Number of foods available at a meal determines the amount consumed. Eating Behaviors, 13(3), 183-187.

Lupton, D. (1996). Food, body and the self. London: SAGE Publications.

Macht, M. (1999). Characteristics of eating in anger, fear, sadness and joy. Appetite, 33(1), 129- 139.

Mäkelä, J., & Kjærnes, U. (2001). Eating patterns. A day in the lives of Nordic People (Vol. null).

Mäkelä, J., & Meiselman, L. H. (2009). Meals: the social perspective. Meals in science and practice: interdisciplinary research and business applications, 37-49.

McIntyre, L., & Rondeau, K. (2004). Food insecurity. In Raphael, D. (Ed.) Social Determinants of Health: Canadian Perspectives, 188-204. Toronto: Canadian Scholars' Press.

McPhail, D., Chapman, G. E., & Beagan, B. L. (2011). " Too much of that stuff can't be good": Canadian teens, morality, and fast food consumption. Social Science & Medicine, 73(2), 301-307.

Meiselman, L. H. (2003). A three-factor approach to understanding food quality: the product, the person and the environment*. Food Service Technology, 3(3-4), 99-105.

Meiselman, L. H. (2008). Dimension of the meal. Journal of Foodservice, 19(1), 13-21.

Meiselman, L. H. (2013). The future in sensory/consumer research: evolving to a better science. Food Quality and Preference, 27(2), 208-214.

Mentzer JT, Stank TP, Esper TL. (2008). Supply chain management and its relationship to logistics. Marketing, Production, and Operations Management. *Journal of Business Logistics. 29*(1), 31-46.

Michael L. A., Justin G., & Elizabeth R. R. (2018). School Meal Quality and Academic Performance. Anderson: 207 Giannini Hall, MC 3310, University of California, Berkeley, CA 94720-3310.

Mireille, S., & Carole, S. (2019). The Impact of Food Service Attributes on Customer Satisfaction in a Rural University Campus Environment: *International Journal of Food Science.* ArticleID2154548, 12 pages, https://doi.org/10.1155/2019/2154548

Mugenda, O.M., & Mugenda, A.G. (2003). *Research methods: Quantitative & qualitative approaches.* Nairobi: African Centre for Technology Studies;

Munoz, K.A. Krebs-Smith, S.M. Ballard-Barbash, R. & Cleveland, L.E. (1997). Food Intakes of US Children and Adolescents Compared with Recommendations. *Pediatrics 100:* 323–329.

Musolino, C., Warin, M., Wade, T., & Gilchrist, P. (2015). 'Healthy anorexia': The complexity of care in disordered eating. Social Science & Medicine, 139, 18-25

Namkung, Y., & Jang, S. (2008). Are highly satisfied restaurant customers really different? A quality perception perspective. *International Journal of Contemporary Hospitality Management*, 20(2), 142-155.

Nabaseruka, J. (2018). Effect of students' living conditions on their academic performance in secondary schools of Goma, Sub County, Mukono District.

Nelson, D., McEvoy, C., & Schreiber, T. (2008). The University of South Florida free association, rhyme, and word fragment norms. Behavior Research Methods, 36(3), 402-407.

Nestle, M. (2002). Food politics: How the food industry influences nutrition and health. Berkeley: University of California Press

Neumark-Sztainer, D., Wall, M., Larson, N. I., Eisenberg, M. E., & Loth, K. (2011). Dieting and disordered eating behaviors from adolescence to young adulthood: Findings from a 10-year longitudinal study. Journal of the American Dietetic Association, 111(7), 1004-1011.

Nyamwaya, D. & Oduol, E. (1994). *Health education*: An essential text for schools. Africa medical and research foundation.

Oliver, R. L. (2010). Satisfaction: A behavioral perspective on the consumer (2. ed.). New York: M.E. Sharpe.

Patel, K. A., & Schlundt, D. G. (2001). Impact of moods and social context on eating behavior. Appetite, 36(2), 111-118.

Pinstrup-Andersen, P. (2009). Food security: Definition and measurement. Food Security, 1(1), 5-7.

Pilarz, D., Kot, S. (2019). *Evaluation Of Customer Service Quality And Security In Retail Network*. System Safety: Human - Technical Facility - Environment. CzOTO1, 1, 647652.

Piqueras-Fiszman, B., & Spence, C. (2014). Colour, pleasantness, and consumption behaviour within a meal. Appetite, 75(0), 165-172.

Pliner, P., Bell, R., Hirsch, E. S., & Kinchla, M. (2006). Meal duration mediates the effect of "social facilitation" on eating in humans. Appetite, 46(2), 189-198.

Robinson, E., Blissett, J., & Higgs, S. (2013). The influence of recent tasting experience on expected liking for foods. Food Quality and Preference, 27(1), 101-106.

Rozin, P., & Markwith, M. (1991). Cross-domain variety seeking in human food choice. Appetite, 16(1), 57-59.

Serlachius, A., Hamer, M., & Wardle, J. (2007). Stress and weight change in university students in the United Kingdom. Physiology & Behavior, 92(4), 548-553

Spence, C., Levitan, C. A., Shankar, M. U., & Zampini, M. (2010). Does food color influence taste and flavor perception in humans? Chemosensory Perception, 3(1), 68-84

Story, M., Neumark-Sztainer, D., & French, S. (2002). Individual and environmental influences on adolescent eating behaviors. Journal of the American Dietetic Association, 102(3), S40-S51. doi:10.1016/S0002-8223(02)90421-9

Ssewankambo, T. M. (2006). Resident students' perception of the quality of meal services offered by Kyambogo University. Unpublished Dissertation, MUK Statistical Returns for Secondary Schools ASC F3Q 08, Mukono District

Stevens P., Knutson, B. & Patton, M. (1995). "DINESERV: a tool for measuring service quality in restaurants," *Cornell Hotel and Restaurant Administration Quarterly, 36*(2), 56– 60,

Tarasuk, V. (2009). Health implications of food security. In D. Raphael (Ed.), Social determinants of health: Canadian perspectives, 205-220. Toronto: Canadian Scholars' Press.

United Nation (2016). Transforming our world: The 2030 agenda for Sustainable Development. In A/RES/70/1. United: Nations.

United Nation (2019).Sustainable Development Goals. Available at: http://www.un.org/sustainabledevelopment/sustainable-developmentgoals//(Retrieved April 23, 2021

Walker, R., Keane, C. R., & Burke, J. G. (2010). Disparities and access to healthy foods in the united states: A review of food deserts literature. Health and Place, 16, 876-884.

Walter, U., Edvardsson, B., & Öström, Å. (2010). Drivers of customers' service experiences: a study in the restaurant industry. Managing Service Quality: An International Journal, 20(3), 236-258.

Weiss, R., Feinstein, A. H., & Dalbor, M. (2004). Customer satisfaction of theme restaurant attributes and their influence on return intent. Journal of Foodservice Business Research, 7(1), 23-41.

Wilkinson, C., Dijksterhuis, G. B., & Minekus, M. (2000). From food structure to texture. Trends in Food Science & Technology, 11(12), 442-450.

Yen-Soon, YS., Moreo, PJ and Yeh RJ. (2004). Customer satisfaction factors regarding university food court service. *Journal of Foodservice business research.* 7 (4): 97 – 110

Yi, Y. (1990). A critical review of consumer satisfaction. Review of Marketing 1990. In V. A. Zeithaml-, ed. Chicago: American Marketing Association, 68-123.

Yiannas (2008). *Food safety culture: Creating a behavior----based food safety management system.* New York: Springer----Verlag, LLC.

Zeithaml, V. A. Berry, L. L. & Parasuraman, A. (1988). "Communication and control processes in the delivery of service quality," *Journal of Marketing, 52*(2), 35–48.

Zellner, A. D. (2013). Color–odor interactions: A review and model. Chemosensory Perception, 6(4), 155-169.

Zellner, A. D. (2014). It tastes as good as it looks! The effect of food presentation on liking for the flavor of food. Appetite, 77, 31-35.

APPENDIX A

QUESTIONNAIRE

Questionnaire for Student

Dear respondent, I am a student of the University of Education Winneba undertaking a research to investigate the Quality of Catering Services in Second Cycle Institutions**,** the questionnaire is designed purely for academic purpose only. Your views and opinions would be kept confidential and respondent can be assured that, under no circumstance will this information be disclosed to a third party.

Section A – Biodata

Please tick where applicable

School Name: ……

1. Sex: Female ☐ Male ☐

2. Form: ☐

3. Period spent at school

4. Age ☐

b) One year

c) Two years

c) Three years

Section B

Use the following to respond to the question below, SD - Strongly disagree, D - Disagree, A - Agree SA - Strongly agree

Tick where applicable (√)

Students' satisfaction with catering services offered them in Second Cycle Institution

Item	SD	D	U	A	SA
5. The school has a menu for our meals					
6 The school menu is consistent					
7. Time for dinning is consistent and do not interfere our period					
8. We spent too much time at the dining hall due to delay from the pantry workers					
9. Students some time fetch water to the kitchen for the cooks to prepare their meals.					
10. Students sometimes washes cans and other utensils at the pantry during lessons/break					
11. Students are made to serve food from the pantry to the dining tables during lessons/break					
12. Do you think that cooks observe good hygienic practices in preparing and serving your meals?					

SECTION B: determines nutritional value of meals serve in Second Cycle Institution in the Bolgatanga Municipality this question is not clear.

Item	SD	D	U	A	SA
13. I know what a balanced meal is					
14 Do you eat balanced meal form the food served in the dining hall					
15 . Do you often eat egg or meat from the school dining, say tree time a week					
16. Would you like some of the meals on the school's menu changed					
17. The time in between meals that is breakfast, lunch and super is too much we feel nourished any time we eat breakfast, lunch and super					
18. The school always provides to us a variety of foods					
19. Are you satisfied with the quality of food served at the dining hall					
20. Have you or any of your colleagues ever had stomach upset, vomiting or loose stool after eating some of the meals provided					

INTERVIEW GUIDE TO KITCHEN STAFF

Item 1: How often they do wash their hands before touching food.

Item 2: What measures do you they employ to prevent cross contamination of ready to eat food in the kitchen

Item three: Have you ever suspected or received any complaint from students about food borne related disease.

Item four: Do cooks avoid excessive conversation during cooking and when serving food?

Item five: What do cooks do after visiting the washroom?

Item six: What is the main source of water for the kitchen and the pantry?

Item seven: How hygienic or clean are the containers used by students for fetching water to the kitchen?

Item eight: Is the school menu consistent?

Item nine: Do you think students are satisfied with the services that you provide them?

Item ten: what are some of the challenges that you face as a cook.

APPENDIX B

Table 3: Demographic characteristics

		Frequency	Percentage (%)
School	Zuarungu Senior High School	45	30
	Bolgatanga Senior High School	55	36.7
	Bolgatanga Technical School	50	33.3
Sex	Female	76	50.7
	Male	74	49.3
Form	One	8	5.3
	Two	44	29.3
	Three	98	65.3
Age	14 – 17	44	29.3
	18 – 20 years	88	58.7
	21years and above	18	12.0

Source of results: (Field survey, December, 2020)

Table 4: Satisfaction with catering services

	Mean	Standard deviation
Food at school is always served on time	3.0667	0.60940
The school menu always provides us a variety of foods	3.0000	0.56462
Food served at school is always enough	2.3133	0.83655
Food cans are enough for students	2.8200	0.81158
We like all meals provided in the school	1.6200	0.70158
The number of students on each table is more than the food	1.7733	0.55740
The dining tables and benches are enough for students	1.9467	0.73991
The quality of food served at school is satisfactory	1.5733	0.58329
We eat protein everyday	1.5533	0.59682
We eat fruits	1.4467	0.61890

(Field survey, December, 2020) (Legend: (1-1.9: Strongly disagree), (2-2.9: Disagree), (3-3.9: Agree), (4: Strongly agree))